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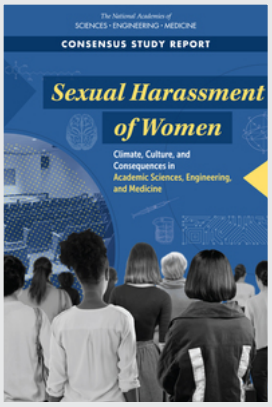

Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine

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Sexual Harassment of Women

Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine

Paula A. Johnson, Sheila E. Widnall, and Frazier F. Benya, *Editors*

Committee on the Impacts of Sexual Harassment in Academia

Committee on Women in Science, Engineering, and Medicine

Policy and Global Affairs

A Consensus Study Report of

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Preface

Throughout our careers we have worked to encourage women to pursue their interests and capabilities in science, engineering, and medicine. And we are delighted with the continual increase in the percentage of women in these fields. We have also worked to ensure a welcoming and safe environment in academia for women students, faculty, and staff. We believe that universities have a special responsibility to provide a welcoming and effective environment for women students. We believe that this report focuses on the issues that must be addressed for our communities to take the next step.

Preventing and effectively addressing sexual harassment of women in colleges and universities has remained a challenge for decades, but over that time a strong research base has been developed that reveals the true nature of sexual harassment and its impacts on women's careers—and also reveals what can be done to successfully address it. The Committee on Women in Science, Engineering, and Medicine developed the idea for this study on the Impacts of Sexual Harassment in Academia more than 2 years ago, and proposed that a special study committee be appointed to examine the research on sexual harassment to determine what could be done to prevent it in academic settings in science, engineering, and medicine.

With this charge, our study committee of distinguished scientists, engineers, and physicians, and experts in sexual harassment research, legal studies, and psychology held a series of workshops and undertook a deep analysis of the literature to gather information for our study and to simultaneously help inform the broader community about the problem of sexual harassment. Over the course of the study, which was launched in late 2016, the topic rose in prominence in the national discourse, most significantly with the rise of the #MeToo movement,

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which dramatically increased awareness of how many women have experienced sexual harassment and what these sexual harassment experiences looked like in the real world.

Through our work it became clear that sexual harassment is a serious issue for women at all levels in academic science, engineering, and medicine, and that these fields share characteristics that create conditions that make harassment more likely to occur. Such environments can silence and limit the career opportunities in the short and long terms for both the targets of the sexual harassment and the bystanders—with at least some leaving their field. The consequence of this is a significant and costly loss of talent in science, engineering, and medicine.

However, we are encouraged by the research that suggests that the most potent predictor of sexual harassment is organizational climate—the degree to which those in the organization perceive that sexual harassment is or is not tolerated. This means that institutions can take concrete steps to reduce sexual harassment by making systemwide changes that demonstrate how seriously they take this issue and that reflect that they are listening to those who courageously speak up to report their sexual harassment experiences.

Because of the strength of the research, we are optimistic that academic institutions (campuswide as well as within schools, programs, and departments) can meet the challenge of reducing and preventing sexual harassment, and can even lead other industry sectors in addressing this issue. Ultimately, success in addressing this challenge will require committed leadership, hard work, initiative, and financial investment from administrators at every level within academia, as well as support, cooperation, and work from all members of our nation's college campuses—students, faculty, and staff. We call on our fellow leaders and all the members of our campus communities to take on the responsibility for promoting a civil and respectful environment that prevents sexual harassment from occurring and creates a healthier environment for all people working in science, engineering, and medicine—and indeed in all academic disciplines. Eliminating sexual harassment is everyone's responsibility, and the time to act is now. We believe this report offers strong guidance for such action.

Paula A. Johnson and Sheila Widnall, *Co-Chairs*
Committee on the Impacts of Sexual Harassment in Academia

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The Committee on the Impacts of Sexual Harassment in Academia would like to acknowledge and thank the many people who made this study possible. First, we would like to acknowledge the support of the standing National Academies Committee on Women in Science, Engineering, and Medicine, which offered oversight for the study. Second, we would like to acknowledge that this report was informed by the efforts of the many people who shared their data, insights, ideas, enthusiasm, and expertise with the committee. We would especially like to thank the following people who presented at the committee's meetings and information-gathering workshops:

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- Chris McEntee, American Geophysical Union
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Next, we thank the reviewers of the report. This Consensus Study Report was reviewed in draft form by individuals chosen for their diverse perspectives

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and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies of Sciences, Engineering, and Medicine in making each published report as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report: Ana Mari Cauce, University of Washington; Michele Decker, Johns Hopkins University; Lauren Edelman, University of California, Berkeley; Julie Freischlag, Wake Forest Baptist Medical Center; Nancy Gertner, Harvard Law School; Brenda Manuel, National Aeronautics and Space Administration; Lisa Nishii, Cornell University; Bernice Pescosolido, Indiana University; Rafael Reif, Massachusetts Institute of Technology; Michael Stryker, University of California, San Francisco; and Kathryn Yount, Emory University.

Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations of this report nor did they see the final draft before its release. The review of this report was overseen by Susan Curry, The University of Iowa and Enriqueta Bond, Burroughs Wellcome Fund (retired). They were responsible for making certain that an independent examination of this report was carried out in accordance with the standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the National Academies.

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Summary

Important gains have been made in the past two decades in the participation of women in science, engineering, and biomedical disciplines at the undergraduate and graduate levels in the United States. More women than ever are also joining the faculty ranks in these fields and moving into leadership positions in higher education (e.g., as senior faculty, department chairs, and deans). There has been parallel growth in women's participation in business, government, and the nonprofit sectors as well. While progress is slow, the reduction in the "gender gap" is encouraging.

However, more rapid and sustained progress in closing the gender gap in science, engineering, and medicine is jeopardized by the persistence of sexual harassment and its adverse impact on women's careers in our nation's colleges and universities.

In a survey conducted by the University of Texas System (Swartout 2018), about 20 percent of female science students (undergraduate and graduate) experienced sexual harassment from faculty or staff, while more than a quarter of female engineering students and greater than 40 percent of medical students experienced sexual harassment from faculty or staff. The Pennsylvania State University System conducted a similar survey and found similar results with 33 percent of undergraduates, 43 percent of graduate students, and 50 percent of medical students experiencing sexual harassment from faculty or staff. Other survey data reveal similarly high rates of sexual harassment of students and faculty in our colleges and universities. These data should not be surprising considering that the academic workplace (i.e., employees of academic institutions) has the second highest rate of sexual harassment at 58 percent (the military has the high-

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est rate at 69 percent) when comparing it with military, private sector, and the government (Ilies et al. 2003).

Too often, judicial interpretation of Title IX and Title VII has incentivized institutions to create policies and training on sexual harassment that focus on symbolic compliance with current law and avoiding liability, and not on preventing sexual harassment.

What is especially discouraging about this situation is that at the same time that so much energy and money is being invested in efforts to attract and retain women in science, engineering, and medical fields, it appears women are often bullied or harassed out of career pathways in these fields. Even when they remain, their ability to contribute and advance in their field can be limited as a consequence of sexual harassment—either from the harassment directed at them; the ambient harassment in the environment in their department, program, or discipline; or the retaliation and betrayal they experience after formally reporting the harassment.

There are three categories of sexually harassing behavior: (1) gender harassment (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender), (2) unwanted sexual attention (verbal or physical unwelcome sexual advances, which can include assault), and (3) sexual coercion (when favorable professional or educational treatment is conditioned on sexual activity). Harassing behavior can be either direct (targeted at an individual) or ambient (a general level of sexual harassment in an environment).

Sexual harassment becomes illegal when it creates a hostile environment (gender harassment or unwanted sexual attention that is "severe or pervasive" enough to alter the conditions of employment, interfere with one's work performance, or impede one's ability to get an education) or when it is considered quid pro quo sexual harassment (when favorable professional or educational treatment is conditioned on sexual activity). Additionally, any sexual harassment that involves sexual assault is also illegal.

Sexual harassment undermines women's professional and educational attainment and mental and physical health. When women experience sexual harassment in the workplace, the professional outcomes include declines in job satisfaction; withdrawal from their organization (i.e., distancing themselves from the work either physically or mentally without actually quitting, having thoughts or intentions of leaving their job, and actually leaving their job); declines in organizational commitment (i.e., feeling disillusioned or angry with the organization); increases in job stress; and declines in productivity or performance. When students experience sexual harassment, the educational outcomes include declines in motivation to attend class, greater truancy, dropping classes, paying less attention in class, receiving lower grades, changing advisors, changing majors, transferring to another educational institution, and dropping out. Decades of research demonstrate how quality and innovation in business and science benefit from

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having a diverse workforce (Østergaard, Timmermans, and Kristinsson 2011; Francoeur, Labelle, and Sinclair-Desgagné 2008; Dwyer, Richard, and Chadwick 2003; Cady and Valentine 1999). Thus, the cumulative effect of sexual harassment is a significant and costly loss of talent in academic science, engineering, and medicine, which has consequences for advancing the nation's economic and social well-being and its overall public health.

Four aspects of the science, engineering, and medicine academic workplace tend to silence targets of harassment as well as limit career opportunities for both targets and bystanders: (1) the dependence on advisors and mentors for career advancement; (2) the system of meritocracy that does not account for the declines in productivity and morale as a result of sexual harassment; (3) the "macho" culture in some fields; and (4) the informal communications network, through which rumors and accusations are spread within and across specialized programs and fields.

At least five factors create the conditions under which sexual harassment is likely to occur in science, engineering, and medicine programs and departments in academia:

- There is often a **perceived tolerance for sexual harassment** in academia, which is the most potent predictor of sexual harassment occurring in an organization. The degree to which the environment within academic departments, schools, programs, and institutions reflects an unflinching commitment to the principle that any form of sexual harassment behavior (from expressing any form of gender harassment to making any type of unwanted sexual advance) is unacceptable is a critical factor in determining whether harassment is likely to occur. The evidence suggests that the workplace climate is seen as *intolerant* of sexual harassment when targets of sexual harassment are supported and protected; instances of harassment are investigated fairly and in a timely way—with due process for both targets and alleged harassers;[1] those found to have committed harassment are punished appropriately; and the campus community is regularly informed about how the institution is handling/attending to claims and disciplining those who have violated policies. These are important ways to demonstrate and declare that sexual harassment is taken seriously and is unacceptable under any circumstances.
- Environments where men outnumber women, leadership is male dominated, and/or jobs or occupations are considered atypical for women have more frequent incidents of sexual harassment for women (USMSPB 1995; Fitzgerald et al. 1997; Berdahl 2007a; Willness, Steel, and Lee 2007; Schneider, Pryor, and Fitzgerald 2011). On many campuses, these

[1] Further detail on processes and guidance for how to fairly and appropriately investigate and adjudicate these issues are not provided because they are complex issues that were beyond the scope of this study.

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programs and departments persist as **male-dominated work settings**. More often than not, men are in positions of authority—as deans, department chairs, principal investigators, and dissertation advisors—and women are in subordinate positions as early-career faculty, graduate students, and postdocs.

- The environments in which the **power structure** of an organization is hierarchical with strong dependencies on those at higher levels or in which people are geographically isolated are more likely to foster and sustain sexual harassment. Moreover, when power is highly concentrated in a single person, perhaps because of that person's success in attracting funding for research (i.e., academic star power), students or employees are more likely to feel as if revealing the harassing behavior will have a negative impact on their lives and careers.
- An increased focus on **symbolic compliance** with Title IX and Title VII has resulted in policies and procedures that protect the liability of the institution but are not effective in preventing sexual harassment. Judicial interpretations of these statutes incentivize creating policies and procedures and having training on the policy. However these policies and procedures have not been shown to prevent sexual harassment, and they are based on the inaccurate assumption that a target will promptly report the harassment without worrying about retaliation. While policies against sexual harassment are widely in place and have been for many years, nonetheless, sexual harassment continues to exist and has not significantly decreased. While adherence to legal requirements is necessary, it is not sufficient to drive the change needed to address sexual harassment. Fortunately, if there is the will among campus leaders to reduce and eliminate sexual harassment, there are policy and programmatic paths forward to achieve that goal.
- Uninformed **leadership** on campus that lacks the intentionality and focus to take the bold and aggressive measures needed to reduce and eliminate sexual harassment is another contributing factor. While most college and university presidents, deans, and department chairs aspire to reduce or eliminate harassment on their campuses, many lack the tools needed to achieve that goal. Fortunately, some institutions have begun creating and implementing strong, campuswide policies that start with explicit statements from presidents, provosts, and deans and that include concrete intervention strategies aimed at preventing sexual harassment.

This committee offers the following evidence-based recommendations as a road map for colleges and universities to consider and adapt to their particular circumstances:

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RECOMMENDATION 1: Create diverse, inclusive, and respectful environments.

a. Academic institutions and their leaders should take explicit steps to-achieve greater gender and racial equity in hiring and promotions, and thus improve the representation of women at every level.
b. Academic institutions and their leaders should take steps to foster greater cooperation, respectful work behavior, and professionalism at the faculty, staff, and student/trainee levels, and should evaluate faculty and staff on these criteria in hiring and promotion.
c. Academic institutions should combine anti-harassment efforts with civility-promotion programs.
d. Academic institutions should cater their training to specific populations (in academia these should include students/trainees, staff, faculty, and those in leadership) and should follow best practices in designing training programs. Training should be viewed as the means of providing the skills needed by all members of the academic community, each of whom has a role to play in building a positive organizational climate focused on safety and respect, and not simply as a method of ensuring compliance with laws.
e. Academic institutions should utilize training approaches that develop skills among participants to interrupt and intervene when inappropriate behavior occurs. These training programs should be evaluated to determine whether they are effective and what aspects of the training are most important to changing culture.
f. Anti–sexual harassment training programs should focus on changing behavior, not on changing beliefs. Programs should focus on clearly communicating behavioral expectations, specifying consequences for failing to meet these expectations, and identifying the mechanisms to be utilized when these expectations are not met. Training programs should not be based on the avoidance of legal liability.

RECOMMENDATION 2: Address the most common form of sexual harassment: gender harassment.

Leaders in academic institutions and research and training sites should pay increased attention to and enact policies that cover gender harassment as a means of addressing the most common form of sexual harassment and of preventing other types of sexually harassing behavior.

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RECOMMENDATION 3: Move beyond legal compliance to address culture and climate.

Academic institutions, research and training sites, and federal agencies should move beyond interventions or policies that represent basic legal compliance and that rely solely on formal reports made by targets. Sexual harassment needs to be addressed as a significant culture and climate issue that requires institutional leaders to engage with and listen to students and other campus community members.

RECOMMENDATION 4: Improve transparency and accountability.

a. Academic institutions need to develop—and readily share—clear, accessible, and consistent policies on sexual harassment and standards of behavior. They should include a range of clearly stated, appropriate, and escalating disciplinary consequences for perpetrators found to have violated sexual harassment policy and/or law. The disciplinary actions taken should correspond to the severity and frequency of the harassment. The disciplinary actions should not be something that is often considered a benefit for faculty, such as a reduction in teaching load or time away from campus service responsibilities. Decisions regarding disciplinary actions, if indicated or required, should be made in a fair and timely way following an investigative process that is fair to all sides.[2]
b. Academic institutions should be as transparent as possible about how they are handling reports of sexual harassment. This requires balancing issues of confidentiality with issues of transparency. Annual reports, that provide information on (1) how many and what type of policy violations have been reported (both informally and formally), (2) how many reports are currently under investigation, and (3) how many have been adjudicated, along with general descriptions of any disciplinary actions taken, should be shared with the entire academic community: students, trainees, faculty, administrators, staff, alumni, and funders. At the very least, the results of the investigation and any disciplinary action should be shared with the target(s) and/or the person(s) who reported the behavior.
c. Academic institutions should be accountable for the climate within their organization. In particular, they should utilize climate surveys to further investigate and address systemic sexual harassment, particularly when surveys indicate specific schools or facilities have high rates of harassment or chronically fail to reduce rates of sexual harassment.
d. Academic institutions should consider sexual harassment equally important as research misconduct in terms of its effect on the integrity of

[2] Further detail on processes and guidance for how to fairly and appropriately investigate and adjudicate these issues are not provided because they are complex issues that were beyond the scope of this study.

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research. They should increase collaboration among offices that oversee the integrity of research (i.e., those that cover ethics, research misconduct, diversity, and harassment issues); centralize resources, information, and expertise; provide more resources for handling complaints and working with targets; and implement sanctions on researchers found guilty of sexual harassment.

RECOMMENDATION 5: Diffuse the hierarchical and dependent relationship between trainees and faculty.

Academic institutions should consider power-diffusion mechanisms (i.e., mentoring networks or committee-based advising and departmental funding rather than funding only from a principal investigator) to reduce the risk of sexual harassment.

RECOMMENDATION 6: Provide support for the target.

Academic institutions should convey that reporting sexual harassment is an honorable and courageous action. Regardless of a target filing a formal report, academic institutions should provide means of accessing support services (social services, health care, legal, career/professional). They should provide alternative and less formal means of recording information about the experience and reporting the experience if the target is not comfortable filing a formal report. Academic institutions should develop approaches to prevent the target from experiencing or fearing retaliation in academic settings.

RECOMMENDATION 7: Strive for strong and diverse leadership.

a. College and university presidents, provosts, deans, department chairs, and program directors must make the reduction and prevention of sexual harassment an explicit goal of their tenure. They should publicly state that the reduction and prevention of sexual harassment will be among their highest priorities, and they should engage students, faculty, and staff (and, where appropriate, the local community) in their efforts.
b. Academic institutions should support and facilitate leaders at every level (university, school/college, department, lab) in developing skills in leadership, conflict resolution, mediation, negotiation, and de-escalation, and should ensure a clear understanding of policies and procedures for handling sexual harassment issues. Additionally, these skills development programs should be customized to each level of leadership.
c. Leadership training programs for those in academia should include training on how to recognize and handle sexual harassment issues, and how to take explicit steps to create a culture and climate to reduce and prevent sexual harassment—and not just protect the institution against liability.

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RECOMMENDATION 8: Measure progress.

Academic institutions should work with researchers to evaluate and assess their efforts to create a more diverse, inclusive, and respectful environment, and to create effective policies, procedures, and training programs. They should not rely on formal reports by targets for an understanding of sexual harassment on their campus.

a. When organizations study sexual harassment, they should follow the valid methodologies established by social science research on sexual harassment and should consult subject-matter experts. Surveys that attempt to ascertain the prevalence and types of harassment experienced by individuals should adopt the following practices: ensure confidentiality, use validated behavioral instruments such as the Sexual Experiences Questionnaire, and avoid specifically using the term "sexual harassment" in any survey or questionnaire.
b. Academic institutions should also conduct more wide-ranging assessments using measures in addition to campus climate surveys, for example, ethnography, focus groups, and exit interviews. These methods are especially important in smaller organizational units where surveys, which require more participants to yield meaningful data, might not be useful.
c. Organizations studying sexual harassment in their environments should take into consideration the particular experiences of people of color and sexual- and gender-minority people, and they should utilize methods that allow them to disaggregate their data by race, ethnicity, sexual orientation, and gender identity to reveal the different experiences across populations.
d. The results of climate surveys should be shared publicly to encourage transparency and accountability and to demonstrate to the campus community that the institution takes the issue seriously. One option would be for academic institutions to collaborate in developing a central repository for reporting their climate data, which could also improve the ability for research to be conducted on the effectiveness of institutional approaches.
e. Federal agencies and foundations should commit resources to develop a tool similar to ARC3, the Administrator Researcher Campus Climate Collaborative, to understand and track the climate for faculty, staff, and postdoctoral fellows.

RECOMMENDATION 9: Incentivize change.

a. Academic institutions should work to apply for awards from the emerging STEM Equity Achievement (SEA Change) program.[3] Federal agen-

[3] See https://www.aaas.org/news/sea-change-program-aims-transform-diversity-efforts-stem.

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cies and private foundations should encourage and support academic institutions working to achieve SEA Change awards.

b. Accreditation bodies should consider efforts to create diverse, inclusive, and respectful environments when evaluating institutions or departments.

c. Federal agencies should incentivize efforts to reduce sexual harassment in academia by requiring evaluations of the research environment, funding research and evaluation of training for students and faculty (including bystander intervention), supporting the development and evaluation of leadership training for faculty, and funding research on effective policies and procedures.

RECOMMENDATION 10: Encourage involvement of professional societies and other organizations.

a. Professional societies should accelerate their efforts to be viewed as organizations that are helping to create culture changes that reduce or prevent the occurrence of sexual harassment. They should provide support and guidance for members who have been targets of sexual harassment. They should use their influence to address sexual harassment in the scientific, medical, and engineering communities they represent and promote a professional culture of civility and respect. The efforts of the American Geophysical Union are especially exemplary and should be considered as a model for other professional societies to follow.

b. Other organizations that facilitate the research and training of people in science, engineering, and medicine, such as collaborative field sites (i.e., national labs and observatories), should establish standards of behavior and set policies, procedures, and practices similar to those recommended for academic institutions and following the examples of professional societies. They should hold people accountable for their behaviors while at their facility regardless of the person's institutional affiliation (just as some professional societies are doing).

RECOMMENDATION 11: Initiate legislative action.

State legislatures and Congress should consider new and additional legislation with the following goals:

a. Better protecting sexual harassment claimants from retaliation.

b. Prohibiting confidentiality in settlement agreements that currently enable harassers to move to another institution and conceal past adjudications.

c. Banning mandatory arbitration clauses for discrimination claims.

d. Allowing lawsuits to be filed against alleged harassers directly (instead of or in addition to their academic employers).

e. Requiring institutions receiving federal funds to publicly disclose results

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from campus climate surveys and/or the number of sexual harassment reports made to campuses.

f. Requesting the National Science Foundation and the National Institutes of Health to devote research funds to doing a follow-up analysis on the topic of sexual harassment in science, engineering, and medicine in 3 to 5 years to determine (1) whether research has shown that the prevalence of sexual harassment has decreased, (2) whether progress has been made on implementing these recommendations, and (3) where to focus future efforts.

RECOMMENDATION 12: Address the failures to meaningfully enforce Title VII's prohibition on sex discrimination.

a. Judges, academic institutions (including faculty, staff, and leaders in academia), and administrative agencies should rely on scientific evidence about the behavior of targets and perpetrators of sexual harassment when assessing both institutional compliance with the law and the merits of individual claims.
b. Federal judges should take into account demonstrated *effectiveness* of anti-harassment policies and practices such as trainings, and not just their *existence*, for use of an affirmative defense against a sexual harassment claim under Title VII.

RECOMMENDATION 13: Increase federal agency action and collaboration.

Federal agencies should do the following:

a. Increase support for research and evaluation of the effectiveness of policies, procedures, and training on sexual harassment.
b. Attend to sexual harassment with at least the same level of attention and resources as devoted to research misconduct. They should increase collaboration among offices that oversee the integrity of research (i.e., those that cover ethics, research misconduct, diversity, and harassment issues); centralize resources, information, and expertise; provide more resources for handling complaints and working with targets; and implement sanctions on researchers found guilty of sexual harassment.
c. Require institutions to report to federal agencies when individuals on grants have been found to have violated sexual harassment policies or have been put on administrative leave related to sexual harassment, as the National Science Foundation has proposed doing. Agencies should also hold accountable the perpetrator and the institution by using a range of disciplinary actions that limit the negative effects on other grant personnel who were either the target of the harassing behavior or innocent bystanders.

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d. Reward and incentivize colleges and universities for implementing policies, programs, and strategies that research shows are most likely to and are succeeding in reducing and preventing sexual harassment.

RECOMMENDATION 14: Conduct necessary research.

Funders should support the following research:

a. The sexual harassment experiences of women in underrepresented and/or vulnerable groups, including women of color, disabled women, immigrant women, sexual- and gender-minority women, postdoctoral trainees, and others.
b. Policies, procedures, trainings, and interventions, specifically their ability to prevent and stop sexually harassing behavior, to alter perception of organizational tolerance for sexually harassing behavior, and to reduce the negative consequences from reporting the incidents. This should include research on informal and formal reporting mechanisms, bystander intervention training, academic leadership training, sexual harassment and diversity training, interventions to improve civility, mandatory reporting requirements, and approaches to supporting and improving communication with the target.
c. Mechanisms for target-led resolution options and mechanisms by which the target has a role in deciding what happens to the perpetrator, including restorative justice practices.
d. Mechanisms for protecting targets from retaliation.
e. Approaches for mitigating the negative impacts and outcomes that targets experience.
f. Incentive systems for encouraging leaders in higher education to address the issues of sexual harassment on campus.
g. The prevalence and nature of sexual harassment within specific fields in science, engineering, and medicine and that follows good practices for sexual harassment surveys.
h. The prevalence and nature of sexual harassment perpetrated by students on faculty.
i. The amount of sexual harassment that serial harassers are responsible for.
j. The prevalence and effect of ambient harassment in the academic setting.
k. The connections between consensual relationships and sexual harassment.
l. Psychological characteristics that increase the risk of perpetrating different forms of sexually harassing behaviors.

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RECOMMENDATION 15: Make the entire academic community responsible for reducing and preventing sexual harassment.

All members of our nation's college campuses—students, trainees, faculty, staff, and administrators—as well as members of research and training sites should assume responsibility for promoting civil and respectful education, training, and work environments, and stepping up and confronting those whose behaviors and actions create sexually harassing environments.

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1

Introduction

The United States has a strong, vibrant, and internationally respected enterprise in science, engineering, and medicine. These fields offer rewarding and challenging careers that women are entering at higher rates than ever before. Fortunately, over the past few decades, new initiatives in our nation's colleges and universities have succeeded in improving the recruitment, retention, and advancement of women in the fields of science, engineering, and medicine. These efforts show signs of improving gender diversity as students in the life sciences and in medical schools are reaching gender parity,[1] and as engineering programs at some campuses are experiencing significant growth in women's enrollment[2] (Cosentino and Banerjee 2017).

But these gains are at risk. As women increasingly enter these fields, they face biases and barriers that impede their participation and career advancement in science, engineering, and medicine. As in other historically male-dominated fields, whether in academia or not, sexual harassment is one of the most pervasive of these barriers.

Sexual harassment is a form of discrimination that includes gender harass-

[1] In 2014 the percentage of women earning bachelor's degrees in engineering, computer science, and physics was around 20 percent, and at about the same level or just below for doctorate degrees in these fields. In mathematics and statistics, the gender balance is slightly better at around 40–42 percent for bachelor's and master's degrees, but only 24 percent for doctoral degrees. In the biological sciences, women have been earning bachelor's degrees at or above the 50 percent level since 1995, and since 1997 for doctoral degrees (NSF 2017).

[2] See https://www.washingtonpost.com/local/education/women-break-barriers-in-engineering-and-computer-science-at-some-top-colleges/2016/09/16/538027a4-7503-11e6-be4f-3f42f2e5a49e_story.html?utm_term=.6922f69239e7 and http://news.mit.edu/2017/closing-the-gender-gap-in-mit-mechanical-engineering-0731.

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ment (verbal and nonverbal behaviors that convey hostility to, objectification of, exclusion of, or second-class status about members of one gender), unwanted sexual attention (verbally or physically unwelcome sexual advances, which can include assault), and sexual coercion (when favorable professional or educational treatment is conditioned on sexual activity). Over the past 30 years, the incidence of sexual harassment in different industries has held steady, yet now more women are in the workforce and in academia, and in the fields of science, engineering, and medicine (as students and faculty), and so more women are experiencing sexual harassment as they work and learn.

The reports of sexual harassment that have dominated news headlines have illustrated just how pervasive this discriminatory behavior is in our society. Women who have remained silent for years are now coming forward and sharing their experiences with sexual harassment that include lewd or denigrating comments, hostile or demeaning jokes, professional sabotage, repeated unwelcome sexual advances, groping, demands for sexual favors, and other offensive and discriminatory actions or language. Academia has not been immune from these headlines and public revelations, as evidenced by the weekly reports in the higher education trade media and by the #MeToo tag being used by many college and university faculty and students to share their experiences on social media. Some of the most high-profile cases of sexual harassment in academia have been within the fields of science, engineering, and medicine.[3] In 2017 alone, there were more than 97 allegations of sexual harassment at institutions of higher education covered in the media,[4] and there are likely many more allegations that are working their way through confidential formal reporting processes.

Research in this report shows that the academic environments in science, engineering, and medicine exhibit characteristics that create high levels of risk for sexual harassment to occur. Higher education, currently and historically, has been a male-dominated environment, with men in most positions of power and authority. Higher education is perceived, and in many cases *accurately* perceived, to tolerate sexually harassing behavior. Moreover, the structure of higher education is hierarchical and has very dependent relationships between faculty and trainees (e.g., students, postdoctoral fellows, residents). Finally, and especially in the fields of science, engineering, and medicine, academia often involves work or training in isolating environments.

Research has consistently shown that institutions that are male dominated—with men in positions that can directly influence career options of women who

[3] See http://www.scientificamerican.com/article/astronomers-struggle-to-translate-anger-into-action-on-sexual-harassment/; http://www.nytimes.com/2014/11/15/us/yale-medical-school-sexual-harassment.html; http://www.sciencemag.org/news/2016/01/caltech-suspends-professor-harassment-0; http://www.nytimes.com/2016/02/03/us/chicago-professor-resigns-amid-sexual-misconduct-investigation.html; and http://www.sciencemag.org/news/2016/02/sexual-misconduct-case-has-rocked-anthropology.

[4] See https://geocognitionresearchlaboratory.wordpress.com/2016/02/03/not-a-fluke-that-case-of-sexual-harassment-is-not-an-isolated-incident/.

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are subordinate to them—have high rates of sexual harassment (USMSPB 1995; Fitzgerald et al. 1997; Berdahl 2007b; Willness, Steel, and Lee 2007; Schneider, Pryor, and Fitzgerald 2011). The gender inequity and resulting power differential between men and women on college and university campuses has existed for years, and while some fields and institutions have been making progress in closing this gap, it persists. Not only are there fewer women than men in most science, engineering, and medical fields (at the undergraduate student, graduate study, postdoctoral trainee, and faculty levels), but men also hold more positions of power in academia.[5] That is, most department chairs and deans are men. Most principal investigators are men. Most provosts and presidents are men (ACE 2017). This is not to suggest that all or even most men are perpetrators of sexual harassment, but that this situation of majority male leadership can, and has, resulted in minimization, limited response, and failure to take the issue of sexual harassment or specific incidents seriously. Thus, this underrepresentation of women in science, engineering, and medicine and in positions of leadership in these fields creates a high-risk environment for sexual harassment that can have negative impacts on women's education and careers.

Research also shows that, by far, the greatest predictor of the occurrence of sexual harassment is the organizational climate in a school, department, or program, or across an institution. Organizational climate for sexual harassment (also referred to as the perceptions of organizational tolerance) is evaluated on three elements: (1) the perceived risk to those who report sexually harassing behavior, (2) a lack of sanctions against offenders, and (3) the perception that one's report of sexually harassing behavior will not be taken seriously. In environments that are perceived as more tolerant or permissive of sexual harassment, women are more likely to be directly harassed (Fitzgerald et al. 1997; Williams, Fitzgerald, and Drasgow 1999) and to witness harassment of others (Glomb et al. 1997). Correspondingly, an environment that does not support harassing behaviors and/or has strong, clear, transparent consequences for these behaviors can significantly reduce the likelihood that sexual harassment will be perpetrated, even by persons who are more likely to engage in sexually harassing behaviors.

In addition to these risk factors, there are also conditions on campus that are exacerbating the problem, including the following:

- Insufficient attention to this topic among campus leaders—including presidents, provosts, deans, and department chairs.
- Lack of clear policies and procedures on campus, and within departments, that make clear that all forms of sexual harassment, including gender harassment, will not be tolerated; that investigations will be taken seriously; and that there are meaningful punishments for violating the policies.

[5] In a 2013–2014 survey of undergraduate faculty, 11.1 percent of male faculty were department chairs and 2.4 percent were deans, while 8.4 percent of female faculty were department chairs and 1.9 percent were deans (Eagan et al. 2014).

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- Minimal or merely symbolic compliance with the law without regard to whether policies actually prevent harassment and retaliation.
- Insufficient protection for targets of sexual harassment, who often suffer undue consequences when they report sexually harassing behavior.
- Lack of effective training on sexual harassment. While nearly all institutions offer some form of "sexual harassment training," and often require all students, faculty, and staff to take the training, rarely is the training evaluated and revised to ensure that it has the desired effect of reducing or preventing harassment.
- Measuring the problem of sexual harassment based on how many cases are formally reported to the institution, rather than through regular climate surveys.
- Insufficient attention to a climate that tolerates the gender harassment form of sexual harassment, which increases the chance that other forms of sexual harassment will occur.

Fortunately, there is reason for optimism that these conditions on campuses and in science, engineering, and medicine can be addressed, and that sexual harassment can be reduced and prevented. More and more campuses are adopting policies and strategies that address the issue by focusing on changing the culture and climate in their departments, schools, and programs—and across the institution—thus creating environments where sexual harassment is less likely to occur. Their intentions are to (1) create environments that are diverse, inclusive, and respectful; (2) diffuse the power structure and reduce isolation; (3) support targets of sexual harassment and give them options for addressing the sexual harassment; (4) demonstrate that sexually harassing behavior is unacceptable; and (5) hold accountable those who engage in sexually harassing behavior. For example, as will be cited in this report, many institutions, schools, and departments are taking the following steps:

- Modifying hiring, promotion, and admission processes to value and support diversity, inclusion, and respectful behavior.
- Strengthening and evaluating sexual harassment trainings, and adding bystander intervention training.
- Changing funding and mentoring structures for trainees to reduce the power imbalance between them and faculty.
- Developing policies and procedures that give targets of harassment options to speak with nonmandatory reporters and greater control over how and when they proceed with their harassment case.
- Providing leadership development focused on arming campus administrators with the tools they need to combat and handle sexual harassment.
- Publicizing anti-harassment policies and demonstrating that people are

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being held accountable when they are found to have violated the policies and thereby sending clear signals that sexual harassment is not tolerated.

If sexual harassment can be addressed using a systemic change to the culture and climate of institutions of higher education, there is the potential to not only benefit women but also benefit men and other underrepresented groups—and ultimately benefit the enterprise of science, engineering, and medicine. To achieve such a systemic change requires identifying what does and does not work about our current system and thinking creatively and perhaps unconventionally to provide new perspectives on and evidence-based solutions to a decades-old issue.

STATEMENT OF TASK

The National Academies of Sciences, Engineering, and Medicine have long been concerned about the gender gap in science, engineering, and medicine, both among students and in the workforce. The National Academies' Committee on Women in Science, Engineering, and Medicine (CWSEM) was created in 1991 to study this gap and consider ways to close it. In the course of its work over the past several years, CWSEM became alarmed that proactive efforts to increase women's participation and leadership in science, engineering, and medical fields might be undermined by sexual harassment in academia. The committee elected to tackle this question head-on by designing a study.

In 2016, with guidance from CWSEM, the National Academies of Sciences, Engineering, and Medicine created a special ad hoc study committee of researchers, academic and business leaders, and others with expertise on this topic to investigate the issue and how sexual harassment could be addressed. The Statement of Task for the study committee was as follows:

> To undertake a study of the influence of sexual harassment in academia on the career advancement of women in the scientific, technical, and medical workforce. The study will include the following:
>
> - Review of the research on the extent to which women in the fields of science, engineering, and medicine are victimized by sexual harassment on college and university campuses, in research labs and field sites, at hospitals/medical centers, and in other academic environments.
> - Examination of existing information on the extent to which sexual harassment in academia negatively impacts the recruitment, retention, and advancement of women pursuing scientific, engineering, technical, and medical careers, with comparative evidence drawn from other sectors, such as the military, government, and the private sector.
> - Identification and analysis of policies, strategies, and practices that have been the most successful in preventing and addressing sexual harassment in these settings.

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Relying on legal statutes and the scholarship of legal and social science researchers, the study committee based its work on the following definitions:

> Sexual harassment (a form of discrimination) is composed of three categories of behavior: (1) ***gender harassment*** (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender), (2) ***unwanted sexual attention*** (verbal or physical unwelcome sexual advances, which can include assault), and (3) ***sexual coercion*** (when favorable professional or educational treatment is conditioned on sexual activity). Harassing behavior can be either ***direct*** (targeted at an individual) or ***ambient*** (a general level of sexual harassment in an environment). These definitions and explanations are provided in detail in Chapter 2.

In reviewing the Statement of Task, we determined that research on the most appropriate and fair practices and processes for investigating and adjudicating reports of sexual harassment was beyond our Statement of Task. We acknowledge that this is an important and complex area and one in which institutions have expressed a desire for guidance; however, it was beyond the scope of our work and expertise to examine it in the detail it deserves.

DEFINING THE POPULATION

This study examines the experiences of women on campus and off campus as they pursue science, engineering, and medicine—in field sites, in academic medical centers, on ocean research vessels, and on student internship and co-op experiences. We interpreted our charge to include sexual harassment in both an educational setting and an employment one, and thus we consider the experiences of women students at the undergraduate and graduate levels, women postdoctoral candidates and other trainees in higher education, women faculty at all levels, women staff (i.e., staff scientists), and those in academic medical centers, including faculty, interns, residents, and so on.

We identified women of color, LGBTQIA+[6] people (hereafter referred to as "sexual- and gender-minority" people), disabled people, and people who have migrated or immigrated to the United States as important populations to consider in greater detail because they are simultaneously disadvantaged by their intersecting subordinated positions of race, ethnicity, and sexuality; physical and mental ability; and immigration status, often facing additional systems of oppression, domination, or discrimination. To guide a better understanding of how these positions shape the lived and sexual harassment experiences of women, we employed the concept of *intersectionality* and throughout the report examine the limited research that is available on the experiences of these women.

[6] Lesbian, gay, bisexual, transgender, queer, intersex, asexual, genderqueer, and gender nonconforming.

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WORK OF THE STUDY COMMITTEE

In examining the prevalence, nature, and impact of sexual harassment in science, engineering, and medicine, the study committee investigated the following issues and topics:

- Prevalence rates and characteristics of sexual harassment in workplaces, in academia, and in academic science, engineering, and medicine;
- Influence of organizational structures in academic science, engineering, and medicine;
- Unique environments in academic science, engineering, and medicine that may lend themselves or be more likely to tolerate sexually harassing behavior;
- Immediate impacts and impacts on careers in science, engineering, and medicine; and
- Consideration of sexual harassment experiences through an intersectional framework.

Wherever possible, the report cites the most recent scientific studies of a topic. That said, the empirical research into sexual harassment, using rigorous scientific methods, dates back to the 1980s. This report cites conclusions from the earlier work when those results reveal historical trends or patterns over time. It also cites results from earlier studies when there is no theoretical reason to expect findings to have changed with the passage time. For example, the inverse relationship between sexual harassment and job satisfaction is a robust one: the more an individual is harassed on the job, the less she or he likes that job. That basic finding has not changed over the course of 30 years, and there is no reason to expect that it will.

When examining policies, strategies, and practices for preventing and addressing sexual harassment, committee members reviewed research on training, institutional policies and procedures, and institutions' legal obligations. We also examined the national structures for handling sexual harassment, including federal research misconduct policies and processes; cross-institution and federal agency systems for reporting, preventing, and responding to sexual harassment; and the role of national and international professional societies and organizations in addressing these issues.

To gather information on these topics, our committee held an initial committee meeting, three public workshops, and a fourth virtual panel discussion during 2017. The initial committee meeting was held virtually on February 10. The first public workshop was held in Washington, D.C., on March 28; the second, in Irvine, California, on June 20; the third, in Boston, Massachusetts, on October 4; and the virtual panel was held on October 25.

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COMMISSIONED WORK

We also commissioned several studies to supplement areas where gaps in the research were identified. The most significant work commissioned was a qualitative research study that was developed by RTI International, with guidance from our committee, to understand the influence of sexual harassment on the career advancement of women in sciences, engineering, and medicine, particularly in the higher education and medical settings. The results of this qualitative research illustrate the personal and professional impact sexual harassment has had on these women's lives.

To understand these complex, sensitive, and subjective experiences and their impacts, we chose to use the method best suited to understanding these issues: a qualitative study consisting of individual, semi-structured interviews. Qualitative inquiry is widely recognized as the method of choice for generating insight into complex phenomena, the contexts in which they occur, and their consequences (Creswell 2013). Such methods are understood to be particularly well suited to foregrounding and illuminating the experiences and perceptions of those considered to be victims and others whose perspectives have been little voiced, or whose expected experiences have few precedents in prior research (Sofaer 1999). This research is not designed to provide information on prevalence of sexual harassment or on how common these experiences are; rather, it is designed to illustrate how the job and health outcomes identified by quantitative survey research are actually experienced in the academic science, engineering, and medicine setting.

The qualitative RTI study consisted of 40 individual, semi-structured interviews with women faculty in academic science, engineering, and medicine who have been targets of sexual harassment. To recruit participants, RTI used data from the web form and then examined the responses to purposefully select interviewees from among eligible individuals to ensure representation of women of color and sexual- and gender-minority women; women across fields, subfields, and career stages; women from diverse geographic regions (with the aim of representing those in more conservative as well as more liberal areas of the country); and individuals who did and did not report to the institution their experiences and who did and did not stay at the institution where those experiences occurred. Of the 340 women who completed the screening tool, 65 were determined to be eligible, 48 were contacted for interviews, and 40 completed interviews.

The telephone, semi-structured interviews lasted approximately 1 hour, and the questions asked were specific, which research has shown is the most reliable approach for collecting information on this topic (Bastian, Lancaster, and Reyst 1996). The questions covered the following topics:

- Understanding of sexual harassment (e.g., experiences considered to constitute sexual harassment);
- History of sexual harassment experiences in the workplace in the past 5 years;

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- Responses to those experiences (e.g., disclosure, internal response, changes in work life, formal procedures for reporting);
- Perceived impact of sexual harassment on work and career path; and
- Ideas of what could be done to better prevent or respond to such incidents.

Recordings of all interviews were professionally transcribed, and basic identifiers (such as respondents' names and locations and the institutions where they worked) were removed during transcript preparation. De-identified transcripts were analyzed using ATLAS.ti, a qualitative data analysis software package. A codebook was developed jointly by the analysis team, incorporating deductive codes based on the study research questions, and inductive codes to capture themes that emerged during the coding and data review process.

The results from the RTI qualitative study are used throughout the report to illustrate the experiences of women who experience sexual harassment in academic science, engineering, and medicine. The full paper describing the study and its results is available as Appendix C in this report.

Using data from ARC3, the Administrator Researcher Campus Climate Collaborative, we commissioned Kevin Swartout, Georgia State University, to compile a report about the incidence of sexual harassment within the University of Texas System and distinguishing the experiences of those in science, engineering, and medicine from those in other disciplines. Additional data provided by the Pennsylvania State University System was included to provide a broader picture. The full analysis by Swartout is available as Appendix D. Finally, to inform the writing of this report, economists Elena Stancanelli and Shoshana Grossbard were commissioned to review the research on the economic costs of sexual harassment and discrimination generally and in academic science, engineering, and medicine.

ORGANIZATION OF THE REPORT

Chapter 2 reviews sexual harassment research about what constitutes sexual harassment, how common it is, how it commonly occurs, and what characteristics of environments make them more likely to have incidences of sexual harassment. The chapter relies on research from nonacademic workplaces (such as the federal government and the military) as well as academic workplaces. The chapter defines several terms that will be used throughout this report, ensuring that readers have a similar foundation as they go through this document. The chapter also explains various different research methods for examining sexual harassment and discusses ways accurate information can be gathered about an environment.

Chapter 3 focuses on the environment in academic science, engineering, and medicine. It examines how frequent and severe sexual harassment is for women in these fields in academia, and identifies the characteristics of academia and

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academic science, engineering, and medicine that make it more likely for sexual harassment to occur.

Chapter 4 describes the consequences associated with experiencing sexual harassment—how it can alter women's careers, their work, and their mental and physical health. It examines the ways women cope with sexual harassment and why they are unlikely to formally report these experiences. It also examines the consequences sexual harassment can have on the fields of science, engineering, and medicine, in terms of advancing research in these fields, the integrity of research, and the economic consequences.

Chapter 5 reviews the existing legal and policy mechanisms that regulate sexual harassment and considers and describes how they have not been effective in significantly reducing sexual harassment. The chapter discusses how current laws are being implemented on campuses and examines the consequences of academic institutions' policies and procedures, including the reporting processes. It concludes with consideration of the role of federal agencies in preventing sexual harassment and in enforcing policies on sexual harassment.

Given the limitations of existing legal remedies, Chapter 6 discusses system-wide changes to the culture and climate of academic institutions that may begin to reduce and prevent sexual harassment. The chapter describes why the research suggests certain approaches will be most impactful, and describes promising practices and models for achieving them. The chapter describes the importance of leaders supporting and initiating these changes and of measuring and incentivizing progress, and the important role played by professional societies and other organizations that facilitate research and training. The report concludes with Chapter 7, which summarizes our committee's findings, conclusions, and recommendations.

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2

Sexual Harassment Research

This chapter reviews the information gathered through decades of sexual harassment research. It provides definitions of key terms that will be used throughout the report, establishing a common framework from the research literature and the law for discussing these issues. In reviewing what sexual harassment research has learned over time, the chapter also examines the research methods for studying sexual harassment and the appropriate methods for conducting this research in a reliable way. The chapter provides information on the prevalence of sexual harassment and common characteristics of how sexual harassment is perpetrated and experienced across lines of industry, occupation, and social class. It concludes with common characteristics of environments where sexual harassment is more likely to occur.

DEFINITIONS OF KEY TERMS

The Equal Employment Opportunity Commission guidelines define sexual harassment as the following (USEEOC n.d.a.):

> Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when this conduct explicitly or implicitly affects an individual's employment, unreasonably interferes with an individual's work performance, or creates an intimidating, hostile, or offensive work environment.

Sexual harassment was first recognized in cases in which women lost their jobs because they rejected sexual overtures from their employers (e.g., *Barnes v.*

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Costle 1977[1]). This type of sexual harassment became defined as *quid pro quo sexual harassment* (Latin for "this for that," meaning that a job or educational opportunity is conditioned on some kind of sexual performance). Such coercive behavior was judged to constitute a violation of Title VII of the 1964 Civil Rights Act. Soon it was recognized in employment law that pervasive sexist behavior from coworkers can create odious conditions of employment—what became known as a *hostile work environment*—and also constitute illegal discrimination (Farley 1978; MacKinnon 1979; *Williams v. Saxbe* 1976[2]). These two basic forms of sexual harassment, quid pro quo and hostile environment harassment, were summarized in guidelines issued by the Equal Employment Opportunity Commission in 1980 (USEEOC 1980).

Hostile work or educational environments can be created by behaviors such as addressing women in crude or objectifying terms, posting pornographic images in the office, and by making demeaning or derogatory statements about women, such as telling anti-female jokes. Hostile environment harassment also encompasses unwanted sexual overtures such as exposing one's genitals, stroking and kissing someone, and pressuring a person for dates even if no quid pro quo is involved (*Bundy v. Jackson* 1981;[3] *Meritor Savings Bank v. Vinson* 1986[4]).

An important distinction between quid pro quo and hostile environment harassment is that the former usually involves a one-on-one relationship in which the perpetrator has control of employment- or educational-related rewards or punishments over the target. In contrast, the latter can involve many perpetrators and many targets. In the hostile environment form of sexual harassment, coworkers often exhibit a pattern of hostile sexist behavior toward multiple targets over an extended period of time (Holland and Cortina 2016). For hostile sex-related or gender-related behavior to be considered illegal sexual harassment, it must be pervasive or severe enough to be judged as having had a negative impact upon the work or educational environment. Therefore, isolated or single instances of such behavior typically qualify only when they are judged to be sufficiently severe. Legal scholars and judges continue to use the two subtype definitions of quid pro quo and hostile environment to define sexual harassment.

Illegal sexual harassment falls under the umbrella of a more comprehensive category, *discriminatory behavior*. Illegal discrimination can occur on the basis of any legally protected category: race, ethnicity, religious creed, age, sex, gender identity, marital status, national origin, ancestry, sexual orientation, genetic information, physical or mental disabilities, veteran status, prior conviction of a crime, gender identity or expression, or membership in other protected classes set forth in state or federal law. Regarding sexual harassment, the focus of this report, this includes *gender harassment*, a term designed to emphasize that harmful or

[1] *Barnes v. Costle*, 561 F.2d 983, 987 (D.C. Cir. 1977).
[2] *Williams v. Saxbe*, 413 F. Supp. 654 D.D.C. (1976).
[3] *Bundy v. Jackson*, 641 F.2d 934 (D.C. Cir. 1981).
[4] *Meritor Savings Bank v. Vinson*, 477 U.S. 57 (1986).

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illegal sexual harassment does not have to be about sexual activity (USEEOC n.d.b.). Sexual harassment constitutes discrimination because it is harmful and it is based on gender—it is not necessarily motivated by sexual desire nor does it need to involve sexual activity.

Both legal doctrine and social science research recognize gender as encompassing both one's biological sex and gender-based stereotypes and expectations, such as heterosexuality and proper performance of gender roles. Sexual harassment in the form of gender harassment can be based on the violation of cultural gender stereotypes. For example, a man may experience gender harassment for being a "sissy" or being easily embarrassed by pornography (violating stereotypes that men should be strong, heterosexual, and sexually bold). While a woman may be gender harassed for taking a job traditionally held by a man or in a traditionally male field. Gender harassment in such a situation might consist of actions to sabotage the woman's tools, machinery, or equipment, or telling the woman she is not smart enough for scientific work. Subsequent sections of this report discuss gender harassment in greater detail.

Psychologists who study gender-related behavior have developed more nuanced terms to describe sexual harassment in order to more precisely measure and account for the behaviors that constitute sexual harassment and to describe how targets experience those behaviors. A three-part classification system divides sexual harassment into distinct but related categories: *sexual coercion*, *unwanted sexual attention*, and *gender harassment* (see Figure 2-1; Fitzgerald et al. 1988;[5] Fitzgerald, Gelfand, and Drasgow 1995; Gelfand, Fitzgerald, and Drasgow 1995).

Sexual coercion entails sexual advances, and makes the conditions of employment (or education, for students) contingent upon sexual cooperation.

Unwanted sexual attention also entails sexual advances, but it does not add professional rewards or threats to force compliance. In this category are expressions of romantic or sexual interest that are unwelcome, unreciprocated, and offensive to the target; examples include unwanted touching, hugging, stroking, and persistent requests for dates or sexual behavior despite discouragement, and can include assault (Cortina, Koss, and Cook 2018; Fitzgerald, Gelfand, and Drasgow 1995; Fitzgerald, Swan, and Magley 1997).

Gender harassment is by far the most common type of sexual harassment. It refers to "a broad range of verbal and nonverbal behaviors not aimed at sexual cooperation but that convey insulting, hostile, and degrading attitudes about" members of one gender (Fitzgerald, Gelfand, and Drasgow 1995, 430). Gender harassment is further defined as two types: *sexist hostility* and *crude harassment*. Examples of the sexist hostility form of gender harassment for women include

[5] The empirical record on sexual harassment goes back over 30 years, and important studies were conducted in that first decade. Members of this committee thought carefully about whether to cite "older" articles (e.g., from the 1980s). We opted to retain those references when, in our expert opinion, their methods were rigorous and their conclusions would still apply in today's world.

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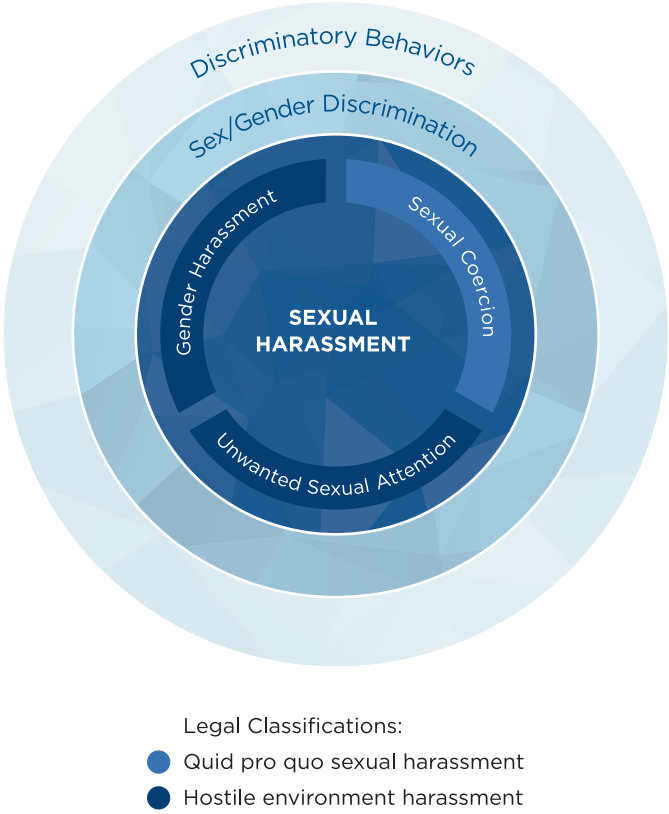

FIGURE 2-1 The relationship between discriminatory behaviors, sex/gender discrimination, sexual harassment, gender harassment, quid pro quo sexual harassment, and hostile environment harassment. While sexual coercion is by definition quid pro quo sexual harassment, sometimes unwanted sexual attention can be considered quid pro quo sexual harassment if tolerating such behavior becomes a term or condition of employment (Fitzgerald, Gelfand, and Drasgow 1995).

demeaning jokes or comments about women, comments that women do not belong in leadership positions or are not smart enough to succeed in a scientific career, and sabotaging women. The crude harassment form of gender harassment is defined as the use of sexually crude terms that denigrate people based on their gender (e.g., using insults such as "slut" to refer to a female coworker or "pussy" to refer to a male coworker; Fitzgerald, Gelfand, and Drasgow 1995).

Both women and men can and do experience all three forms of sexual harassment, but some subgroups face higher rates than others. For example,

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women who are lesbian or bisexual (Cortina et al. 1998; Konik and Cortina 2008), women who endorse gender-egalitarian beliefs (Dall'Ara and Maass 1999; Siebler, Sabelus, and Bohner 2008), and women who are stereotypically masculine in behavior, appearance, or personality (Berdahl 2007b; Leskinen, Rabelo, and Cortina 2015) experience sexual harassment at higher rates than other women. Likewise, men who are gay, transgender, petite, or in some way perceived as "not man enough" encounter more harassment than other men (Berdahl 2007b; Fitzgerald and Cortina 2017; Rabelo and Cortina 2014).

Interestingly, the motivation underlying sexual coercion and unwanted sexual attention behaviors appears different from the motivation underlying gender harassment. Whereas the first two categories suggest sexual advances (the goal being sexual exploitation of women), the third category is expressing hostility toward women (the goals being insult, humiliation, or ostracism) (Holland and Cortina 2016). In other words, sexual coercion and unwanted sexual attention can be viewed as "come-ons," while gender harassment is, for all intents and purposes, a "put-down" (Fitzgerald, Gelfand, and Drasgow 1995; Leskinen, Cortina, and Kabat 2011). However, it is important to note that these come-on behaviors are not necessarily about attraction to women; more often than not, they are instead motivated by the desire to devalue women or punish those who violate gender norms (Berdahl 2007b; Cortina and Berdahl 2008).

Some researchers further define the verbal insults associated with gender harassment, along with accompanying nonverbal affronts, as *microaggressions*. This term refers to "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative" messages (Sue et al. 2007, 271) to or about historically stigmatized groups. This term can also be broken down into three categories: microassaults, microinsults, and microinvalidations (Sue et al. 2007). There is some concern that microaggression remains a poorly defined construct, with porous boundaries. Additionally, the use of the term *micro* is misleading, as it implies all these experiences are minor or imperceptible acts. Yet some microaggressions, such as referring to people by using offensive names, are obviously offensive and can be deeply damaging. Similarly the root word *aggression* is also misleading, as most experts reserve this term for behavior that carries intent to harm (Lilienfeld 2017). For these reasons, our committee chose to focus on *incivility*, a term in greater use in the workplace aggression literature.

Incivility refers to "low-intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect. Uncivil behaviors are characteristically rude and discourteous, displaying a lack of regard for others" (Andersson and Pearson 1999, 457). Lim and Cortina's 2005 study on two female populations in public-sector organizations (Ns = 833 and 1,425) revealed that sexual harassment often takes place against a backdrop of incivility, or in other words, in an environment of generalized disrespect. The authors argue

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that, based on their findings, the same perpetrator "may instigate multiple forms of mistreatment—both sexualized and generalized—in efforts to debase women and reinforce or raise their own social advantage" (492). Lim and Cortina point out that if sexual harassment is tolerated in an organization or not seen as a deviant behavior, incidents of general incivility would be expected to be even less likely to receive attention from management. Based on these findings, it could be argued that generalized incivility should be a red flag for leadership or management in work and education environments, because when gender harassment occurs, it is virtually always in environments with high rates of uncivil conduct (Cortina et al. 2002; Lim and Cortina 2005).

Note that sexual harassment is often *ambient,* meaning it is "not clearly targeted at any individual or group of individuals" (Parker 2008, 947) in the work or education environment or behavior that goes beyond the direct target of the harassment (Glomb et al. 1997). Ambient sexual harassment is determined by a general "frequency of sexually harassing behavior experienced by others" and can include all types of sexually harassing behavior (309). For example, it can include pornography being displayed in a common area or sexually abusive language being used publicly in the work or education environment (Parker 2008). Ambient unwanted sexual attention and sexual coercion refer to observed instances of unwanted sexual pursuit, targeted at a fellow employee. In other words, one need not be personally targeted to feel the effects of sexual harassment (much like second-hand smoke).

Despite refined definitions and terms to describe sexual harassment and gender discrimination, documenting the degree of these behaviors in work and education environments remains challenging. This is in part because individuals experiencing these behaviors rarely label them as such. Numerous studies have demonstrated that more than half of working women report experiencing sexually harassing behavior at work, but less than 20 percent of those women actually describe the experience as "sexual harassment" (Ellis, Barak, and Pinto 1991; Ilies et al. 2003; Magley, Hulin, et al. 1999; Magley and Shupe 2005).

Considering these sources, the report uses the following definition of sexual harassment:

> Sexual harassment (a form of discrimination) is composed of three categories of behavior: (1) ***gender harassment*** (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender), (2) ***unwanted sexual attention*** (verbal or physical unwelcome sexual advances, which can include assault), and (3) ***sexual coercion*** (when favorable professional or educational treatment is conditioned on sexual activity). Harassing behavior can be either ***direct*** (targeted at an individual) or ***ambient*** (a general level of sexual harassment in an environment).

Box 2-1 provides a quick review of the key terms introduced in this chapter.

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BOX 2-1
Summary of Key Terms

Discriminatory behavior: An umbrella term that includes biased treatment based upon characteristics such as race, color, ethnicity, age, sex, and so on.[a] This term includes the different forms of sexual harassment, as well as other forms of sex/gender discrimination.

Sex/gender discrimination: A broad term that includes discrimination and harassment based upon gender or sex. In addition to sexually harassing behavior, examples of this include pay or hiring discrimination based on one's sex or gender.

Sexual harassment: A type of sex/gender discrimination that encompasses gender harassment, unwanted sexual attention, and sexual coercion.

Gender harassment: Verbal and nonverbal behaviors that convey hostility, exclusion, or second-class status about members of one gender. Examples include use of language such as "bitch," jokes such as "Don't be a pussy," and comments that denigrate women as a group or individuals in gendered terms. This type of harassment is sometimes further broken down into sexist hostility and crude harassment.

Unwanted sexual attention: Unwelcome sexual advances, which can include assault. Examples include repeated requests for dates and persistent attempts to establish sexual relationships despite rejection.

Sexual coercion: A type of sexual harassment in which favorable professional or educational treatment is conditioned on sexual activity (such as through the use of bribes or threats). Examples include promises of a better grade or a letter of reference in exchange for sexual favors.

Ambient harassment: General level of sexual harassment in a particular setting as defined by the frequency of harassing behaviors of all types and levels of severity. In this type of harassment the people negatively affected are not directly targeted. Examples include bystanders who witness other students or coworkers repeatedly targeted by unwanted sexual attention.

Hostile environment harassment: A legal term referring to sexual harassment that is "severe or pervasive" enough to alter the conditions of employment, interfere with one's work performance, or impede one's ability to get an education. Both gender harassment and unwanted sexual attention can contribute to a hostile environment.

Quid pro quo sexual harassment: A legal term that parallels sexual coercion. It is a type of sexual harassment in which favorable professional or educational treatment is conditioned on sexual activity (such as through the use of bribes or threats). Examples include promises of a better grade or a letter of reference in exchange for sexual favors.

Incivility: Rude and insensitive behavior that shows a lack of regard for others (not necessarily related to sex or gender).

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[a] Federal law prohibits discrimination on the basis of race, ethnicity, religion, sex, national origin, age, disability status, pregnancy, and veteran status. Many local jurisdictions offer additional protections on the basis of gender identity, sexual orientation, weight, appearance, and other characteristics.

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RESEARCH METHODS USED TO EXAMINE SEXUAL HARASSMENT

The goal of providing recommendations for preventing sexual harassment and mitigating its effects in academic science, engineering, and medicine requires evidence-based research. Different studies have different strengths and weaknesses, and these should be kept in mind when reviewing their findings, particularly if leaders in academic institutions, legislators, and researchers hope to design meaningful and effective interventions and policies. The two most commonly used study methods are surveys and laboratory experiments. Important findings have also emerged using in-depth interviews, case studies, sociolegal analyses, and other methods. When conducting or reviewing research examining sexual harassment, it is crucial that the methods used to conduct the research match the goals for the research. It is crucial to note that the prevalence of sexual harassment in a population is best estimated using representative surveys and not by relying on the invariably lower number of official reports of sexual harassment made to an organization (see the discussion in Chapter 4 about how rare it is for women to formally report their experience). The next sections discuss these various research methods and the kind of information they provide.

Survey Methods

Surveys, containing well-validated instruments, can be useful in estimating the prevalence (how common sexual harassment experiences or behaviors are among people in a given population) and determining correlates, antecedents, outcomes, and factors that attenuate or amplify outcomes from sexual harassment. For instance, they can assess links between harassment and different aspects of targets' well-being, targets' understanding of the resources available to them, and the strategies they use to cope. Basing a survey on a defined population accessible from a comprehensive list, or sample frame, can be helpful. Sometimes, too, using multiple instruments and data sources can be a highly effective approach. Though surveys have often focused on the targets of sexually harassing behavior (e.g., Fitzgerald, Drasgow, and Magley 1999), some work has also been done examining self-descriptions by perpetrators (e.g., Dekker and Barling 1998) and bystanders (e.g., Hitlan, Schneider, and Walsh 2006; Richman-Hirsch and Glomb 2002; Miner-Rubino and Cortina 2004, 2007).

Conducting surveys on sexual harassment is challenging, but fortunately researchers have addressed many of these challenges. Those wishing to conduct a survey on sexual harassment ought to follow the scientific methods described below and the ethical and safety guidelines for this type of research (WHO 2001). Poorly conducting surveys on sexual harassment is unethical because responding to the survey could needlessly retraumatize the respondent. Additionally, the resulting inaccurate data from such a survey could be used to question the importance and legitimacy of such an important and sensitive topic (WHO 2001).

An initial challenge in conducting survey research on sexual harassment is

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that many women are not likely to label their experiences as sexual harassment. Additionally, women who experience the gender harassment type of sexual harassment are more than 7 times less likely to label their experiences as "sexual harassment" than women who experience unwanted sexual attention or sexual coercion (Holland and Cortina 2013). This illustrates what other research has shown: that in both the law and the lay public, the dominant understandings of sexual harassment overemphasize two forms of sexual harassment, sexual coercion and unwanted sexual attention, while downplaying the third (most common) type—gender harassment (see Figure 2-2; Leskinen, Cortina, and Kabat 2011; Schultz 1998). Regardless of whether women self-label their experiences as sexual harassment or not, they all have similar negative psychological and professional outcomes (Magley, Hulin, et al. 1999; Woodzicka and LaFrance 2005).

This labeling issue was first identified in research on rape and sexual violence. Surveys conducted by Koss (1992) revealed that when respondents were asked simply, "Have you been raped?" estimates of the number of people raped in the college population were very low, yet when asked whether they had experienced a series of specific behaviors that would meet legal criteria for rape, estimates of the number of people raped were much higher. Subsequent studies of sexual harassment found similar results (Ilies et al. 2003; Schneider, Pryor, and Fitzgerald 2011), and Fitzgerald and colleagues (1988) established the Sexual Experiences Questionnaire (SEQ) to standardize questions about specific sexual harassment behaviors rather than asking about "sexual harassment" generally. With extensive psychometric evidence supporting it, the SEQ has become the gold standard in the assessment of sexual harassment experiences in both work and school settings (Cortina and Berdahl 2008). Unfortunately, some recent studies attempting to measure the prevalence of sexual harassment have not followed this good practice and are thus likely to have low prevalence rates, be missing data about those who have experienced gender harassment, and as a result be unreliable for evaluating the prevalence of sexual harassment.

Another hurdle faced by surveys on sexual harassment is that women who have experienced sexual harassment may be reluctant to respond to a survey on the topic or to admit being a target or victim because sexual harassment can be stigmatizing, humiliating, and traumatizing (Greco, O'Boyle, and Walter 2015; Bumiller 1987, 1992). To encourage open self-reports, it is important that survey responses are confidential, if not anonymous, and to reassure survey participants that this is the case. Additionally, to help avoid a nonresponse bias (i.e., some segments of a population selectively declining to participate), sexual harassment experts do not use the term *sexual harassment* or *sexual misconduct* in the survey title and instead situate their questions about sexual harassment within a broader survey that asks about social concerns such as gender issues, civility, or culture. In a meta-analytic review of the incidence of sexual harassment in the United States, Ilies and colleagues (2003) found that directly asking respondents whether they had experienced sexual harassment (as opposed to using questionnaires that

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FIGURE 2-2 The public consciousness of sexual harassment and specific sexually harassing behaviors.

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list behaviors that constitute sexual harassment) led to substantially lower estimates of sexual harassment incidence.

When determining prevalence estimates, attention must be given to minimizing nonresponse biases in the survey sample. Nonresponse biases include attitudes and other characteristics that disincline people from survey participation (Krosnick et al. 2015). A reluctance to answer questions about sexually harassing experiences could represent a nonresponse bias. While low response rates are not synonymous with low levels of nonresponse bias, generally low response rates should be interpreted with caution and will raise limitations on what conclusions can be drawn because of the representativeness of the survey sample (Dillman, Smyth, and Christian 2008; Ilies et al. 2003). Just as it is important to be cautious about deriving prevalence estimates from samples with lower response rates, researchers and leaders in academic institutions must also be judicious when deriving such estimates from nonprobability samples (see Yeager, Krosnick, and Javitz [2009] for a discussion of the problems with opt-in internet surveys).[6]

A challenge for any survey that is particularly important for sexual harassment surveys is their ability to gather information about nonmajority members of a given workplace or campus. Often women of color and sexual- and gender-minority women have been underrepresented among survey respondents, resulting in unreliable prevalence rates for these specific populations. Recent research is beginning to address this by looking at sexual harassment through the lens of intersectionality and by working to oversample these underrepresented populations when conducting surveys.

Convenience sampling (in which participants are recruited from social media or specialized groups with a specific target group in mind) and snowball sampling (recruiting additional subjects by asking participants who else they know in their networks who would also know about the topic) are useful means of recruiting hard-to-reach or underrepresented populations (e.g., lesbians who are not "out" at work, minority groups for whom no lists are available) (Meyer and Wilson 2009). These studies can yield critical insights, even though the samples cannot be considered representative of a particular population. A good example of this approach is the recent study about the experiences of women of color in the fields of astronomy and planetary science, identified via convenience sampling. The researchers found that women of color were more likely to report hearing sexist remarks from supervisors or peers in the workplace than did white women, white men, or men of color. Women of color were also more likely to feel unsafe at work because of their gender (Clancy et al. 2017). This study shows how survey data can be used to test relationships among important variables such as race,

[6] Nonprobability samples are samples that are not representative of the whole population and are often used when a defined population is not possible to specify or when it is not necessary to have a representative dataset to achieve the goals of the research. These samples can include convenience samples and snowball samples.

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gender, sexual harassment, and sense of safety, yielding conclusions about who is most likely to be targeted for sexually harassing behaviors, and with what effects.

When determining and comparing prevalence rates, it is important to distinguish the prevalence rates for women separate from men and not to rely on a combined prevalence for both genders. Relying on combined rates will result in a lower rate because women are much more likely to experience sexual harassment than men (USMSPB 1995; Magley, Waldo, et al. 1999; Ilies et al. 2003; Kabat-Farr and Cortina 2014).

Another methodological feature to be particularly attentive to when estimating and comparing prevalence rates is the time period respondents are asked about. In some studies, no time limit is given, while others may limit it to the last 12 or 24 months. The longer the time period, the more likely the rates will be skewed and not assess current incidence. Longer time periods can result in higher incidence rates because more time means more women are likely to have experienced such behavior. However, after long enough periods, memory deterioration sets in, leaving behind only those sexual harassment experiences that left a lasting memory, and leaving out everyday sexist comments or ambient harassment. Additionally, longer time periods can also introduce the risk that the incident could have occurred at a past environment, not the current one under investigation.

Lastly, a key obstacle to obtaining accurate prevalence numbers across academia and between fields or workplaces is the number of surveys available that do not always use a standardized method for measuring or defining sexual harassment. Unfortunately, when institutions make their decisions about which survey or questions to use, they often do not seem to be aware of good practices in sexual harassment research or to have consulted with a sexual harassment researcher, because different methodologies and measurement approaches have been used (Wood et al. 2017). As a result, the surveys not only produce unreliable prevalence numbers but also pose a risk of "comparing apples to oranges" when analyzing the data across institutions. The largest concern when comparing prevalence rates is differences in how sexual harassment is defined in the survey and during the analysis of the responses. A meta-analysis of sexual harassment surveys demonstrates that the prevalence rate is 24 percent when women are asked whether they have experienced "sexual harassment" versus 58 percent when they are asked whether they experienced harassing behaviors that meet the definition of sexual harassment (and are then classified as such in the analysis) (Ilies et al. 2003). In other words, the direct query method gives an estimate of prevalence based on the respondent's perception, while the behavioral experiences method estimates the extent to which potentially harassing incidents happen in an organization. This research also demonstrates that these differences were not due to differences in work environments or to sampling method (Ilies et al. 2003).

To try to present the most accurate information on the prevalence of sexual harassment, the report references surveys that follow good practices in both

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sexual harassment research and survey research and that clearly identify differences in time period and definitions.

Experimental Methods

Another way that information has been gathered about sexual harassment has been through laboratory experiments, in which researchers examine the occurrence of sexually harassing behaviors by manipulating variables under controlled conditions. The advantage of this approach is that researchers can directly observe sexually harassing behavior. This approach, however, does not provide information on the prevalence of sexual harassment.

Some of the behaviors that have been directly observed in experiments include the following:

- Unsolicited sexual touching by someone in a supervisory role (Pryor, LaVite, and Stoller 1993);
- Unsolicited touching from peers (Pryor 1987);
- Nonverbal dominance behaviors (Murphy, Driscoll, and Kelly 1999);
- Sending unsolicited pornographic materials electronically (Dall'Ara and Maass 1999; Maass et al. 2003);
- Sending sexist jokes electronically (Galdi, Maass, and Cadinu 2014);
- Sending sexual come-ons electronically (Diehl, Rees, and Bohner 2012);
- Asking sexist questions in an interview (Hitlan et al. 2009); and
- Sexualized behavior, such as staring at a woman's body, during an interview (Rudman and Borgida 1995).

Laboratory experiments can help uncover situational factors that encourage or discourage potential perpetrators from engaging in sexually harassing behavior. For instance, experiments show that sexual harassment is less likely to occur if those behaviors are not accepted by authority figures (Pryor, LaVite, and Stoller 1993). Another experiment found that men exposed to sexist television portrayals of women were more likely to send sexist jokes to women in an online interaction (Galdi, Maass, and Cadinu 2014).

Laboratory experiments can also provide a snapshot of how women might respond in a sexually harassing situation. For example, research by Woodzicka and LaFrance (2001) reveals the difference between how women think they would respond and how they do respond. In the first study, college women were asked to imagine how they would respond to being asked sexist questions during a job interview. In the second study, women participated in what they thought to be an actual job interview where such questions were asked. Results showed a disconnect between what women thought they would do (get angry, confront, and complain) and what they actually did (become fearful, neither confront nor complain).

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On the other hand, there are also limitations to laboratory experiments. While they can reveal responses to actual behaviors, those reactions occur in an artificial laboratory setting (not a real professional or educational setting, with people who have real relationships, interdependencies, status hierarchies, etc.). Participants in experiments are often college students who have limited work experience and diversity (primarily white, middle class, under the age of 20). Also, experiments provide a snapshot of only one moment of time, providing a single look at behaviors and responses. Surveys and accounts from litigants in sexual harassment cases suggest that the worst cases of sexual harassment are not isolated incidents, but something that takes place over a period of time (Cantalupo and Kidder 2017a, 2017b), which experiments cannot assess.

Interviews, Case Studies, and Other Qualitative Methods

Qualitative research offers a wide range of methodologies that can be useful in understanding sexual harassment, though it is best known for individual, semi-structured interviews (Bazeley 2003). Qualitative research can also be conducted in focus groups, bringing together similar constituencies in order to facilitate conversations among participants. Several social science disciplines also use ethnographic or autoethnographic methods. Ethnography is a systematic way of participating and observing in particular settings or cultures to answer research questions about the intersection of culture and lived experience, where autoethnography invites researchers to reflect on their personal experiences, and connect those experiences to a wider research question. For instance, much of the early work on sexual harassment in the field sciences was either interviews or autoethnography, particularly among cultural anthropologists, who often conduct their field work alone (e.g., Sharp and Kremer 2006). Qualitative approaches also include textual analysis of existing primary sources (e.g., studying science syllabi or job postings for gendered language), and case studies or narratives, where a single story is followed in depth. Case study data is often collected via interview, the difference being that rather than interviewing a large enough number to achieve saturation, a researcher will go for greater depth with each participant to construct a more detailed narrative (e.g., Banerjee and Pawley 2013).

Qualitative approaches are widely recognized as the method of choice for generating insight into complex phenomena, the contexts in which they occur, and their consequences (Cho, Crenshaw, and McCall 2013). Such methods are thought to be particularly well suited to providing key background information and highlighting the experiences and perceptions of targets of oppression, such as those who have experienced sexual harassment. The approach also gives a voice to perspectives that tend not to be heard or to those with experiences that have few precedents in prior research (Sofaer 1999).

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Sociolegal Methods

Sociolegal studies is an interdisciplinary field in which scholars use all the research methods described above (surveys, experiments, interviews, case studies, ethnography) to study a wide range of topics about formal laws, law-like systems of rules, and the social and political relationships that help constitute what law is (Banakar and Travers 2005). Legal research methods are also a part of sociolegal methods, and these include doctrinal analysis, legal history and doctrinal development studies, and answering questions about exactly what formal legal rules exist across jurisdictions and interrelated areas of law, where there is often ambiguity and conflict. Sociolegal scholars are, of course, attentive to what formal rules and laws actually exist (with sexual harassment, it is Title VII and Title IX doctrines), but a starting approach is to presume that what law is and how it works is much more complex than doctrinal study alone can reveal.

Sociolegal research methods tend to be based in the empirical, observational social sciences supported by legal research. Classic studies using these methods have documented how ordinary people generally resolve their disputes using local customs and norms rather than formal law (Macaulay 1963; Ellickson 1991); how bringing a personal injury claim in a small community is a mark of outsider, subordinated status (Engel 1984); and how difficult it can be for people who have experienced discrimination to use legal protections, because doing so causes them to feel victimized again (Bumiller 1992). These types of sociolegal studies share the strengths and limitations of ethnographic and qualitative research methods generally: on the one hand, they can capture the rich contextual detail of a particular setting, group of people, and set of relationships, but on the other hand, they are limited in time and location, and do not yield broadly generalizable claims. Nonetheless, decades of research using these methods have yielded a considerable body of research that strongly suggests that what the formal law is and what people understand it to be are often quite far apart; that using formal systems to make claims about wrongs done to them is a very difficult thing for most people to do, though it can be empowering and produce social change; and that laws and the legal system typically support existing power structures rather than fundamentally reshape them (Freeman 1978; Edelman 2016; Berrey, Nelson, and Nielsen 2017).

A sociolegal research method requires study of the law at many levels of experience to approach sexual harassment, for example, because it matters just as much what women think they deserve or will likely get as what the law formally offers them. Anna-Maria Marshall's study of sexual harassment experiences among female staff members at a midwestern university in 1997–1998, for example, combined in-depth interviewing of 25 female staff members with legal analysis at the national level, policy analysis at the university level, and a survey sent to 1,000 female employees selected at random from a university workplace to understand what counted as sexual harassment from their perspectives (Marshall 2005). Whether something in a science, engineering, and medicine

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educational or workplace setting is sexual harassment is a category of experience for everyone involved, in other words, that must be assigned meaning, obligations, rights, duties, and processes.

Sociolegal scholars can also bridge between the social science methodologies and the law through research on what they call the "iceberg" or the "tip-of-the-iceberg" problem. The tip-of-the-iceberg problem is the recognition by researchers that published legal disputes are a very skewed and systematically unrepresentative sample from the universe of disputes. As Peter Siegelman and John Donohue (1990) describe the problem, "Most potential disputes never get defined by the actors as such, most actual disputes don't go to court, most court cases are settled rather than adjudicated, and most adjudicated cases are not appealed" (1133). Their analysis of published and unpublished district court opinions suggests that cases that reach the stage of a published judicial opinion may concern newer areas of case law or more dramatic or unusual circumstances that help explain why these cases were not disposed of earlier and before they appear for researchers to find. Publication as a legal outcome is one of the only ways a sexual harassment case could come to be known and studied, but there are many more legally protected routes to keeping cases and their outcomes from view. Confidential settlements, nondisclosure agreements, confidential notations in an academic or employment record, and dispositions of complaints that are not written down are all outcomes that cannot be studied, tracked, counted, or assessed.

Even when legal scholars attempt to collect samples of hundreds of sexual harassment claims, such as Ann Juliano and Stewart J. Schwab's 2000 survey of every reported federal district and appellate court ruling on sexual harassment between 1986 and 1995, totaling nearly 650, they concede that these cases are not representative of the universe of incidents. Juliano and Schwab found that the most successful cases involved sexual conduct directed at a specific target in a mostly male workplace that the target had complained about but which the employer had failed to respond to with any formal process (Juliano and Schwab 2000, 593). Another study, Nancy Chi Cantalupo and William Kidder's (2017b) recent study of sexual harassment in the academic context, attempts to pull cases from as far down the iceberg as possible, drawing in incidents recorded in more venues than the usual publication sources for judicial opinions, including media reports, administrative civil rights investigations at the Departments of Education and Justice, published lawsuits by students, and lawsuits over reinstatement for faculty members fired for sexual harassment. Cantalupo and Kidder find more physical (as opposed to verbal) harassment conduct and more evidence of serial harassers in documented complaints than survey researchers have found, for example. Even if they are not based in representative samples of cases and thus cannot be used to generalize about harassment rates, studies such as these can still yield important research conclusions about sexual harassment adjudications and judicial attitudes toward them.

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PREVALENCE OF SEXUAL HARASSMENT

Studies on sexual harassment from the 1980s through today continue to show that sexual harassment of women is widespread in workplaces and that the rates of sexual harassment have not significantly decreased. Studies have also identified common characteristics of sexual harassment in different workplaces and uncovered characteristics of workplaces that are associated with higher rates of sexual harassment. This section and the next one review what research can tell us about the trends in sexual harassment rates over time and what the common characteristics are of sexual harassment and sexually harassing environments.

Wherever possible, the report cites the most recent scientific studies of a topic. That said, the empirical research into sexual harassment, using rigorous scientific methods, dates back to the 1980s. This report cites conclusions from the earlier work when those results reveal historical trends or patterns over time. It also cites results from earlier studies when there is no theoretical reason to expect findings to have changed with the passage of time. For example, the inverse relationship between sexual harassment and job satisfaction is a robust one: the more an individual is harassed on the job, the less she or he likes that job. That basic finding has not changed over the course of 30 years, and there is no reason to expect that it will.

To access the trends in prevalence for sexual harassment, ideally we would examine longitudinal data that uses a well-validated behavior-based instrument for different workplaces and industries; unfortunately, this data is not available. The U.S. Merit System Protection Board (USMSPB) was one of the first organizations to study sexual harassment, with a focus on the federal workforce, which includes a variety of job types and workplace environments. The USMSPB surveys, conducted in 1980, 1987, 1994, and 2016, asked scientifically selected samples of federal workers about their experiences of specific forms of sexual harassment [7] at work in the past 24 months. These surveys used behavioral questions; however, they did not use the SEQ, and in earlier years the survey did not ask about nonsexualized forms of gender harassment such as sexist comments, which are known to be the most common form of sexual harassment (Kabat-Farr and Cortina 2014). As a result, this is not a good source of longitudinal data covering all three forms of sexual harassment.

This survey does, however, provide an opportunity to assess a population's understanding of the term sexual harassment. The USMSPB conducted surveys that asked respondents whether they would classify certain behaviors as "sexual harassment." The results showed that from 1980 to 2016 the proportion of respondents who classify the behaviors as sexual harassment rose, demonstrating

[7] The 1980 survey used 6 forms of "unwanted, uninvited sexual harassment," the 1987 survey used 7 (adding rape and sexual assault), the 1994 survey used 8 (adding rape and stalking), and the 2016 survey used 12 forms (adding gender harassment types). The original six categories remained consistent throughout the years.

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an improvement in the population's understanding of that term. The percentage of men who believe that pressuring a female coworker for sexual favors is sexual harassment rose from 65 percent in 1980 to 93 percent in 1994 and to 97 percent in 2016. Likewise, the percentage of men who perceived unwanted sexual remarks in the workplace as being sexual harassment rose from 42 percent in 1980 to 64 percent in 1994 and to 94 percent in 2016. There was also an increase seen in the perceptions of women—the percentage of women who considered a coworker's sexual remarks as sexual harassment rose from 54 percent in 1980 to 77 percent in 1994 and to 95 percent in 2016. It is also significant to note that of respondents experiencing sexual harassing behaviors in the 2016 survey, only about 11 percent took any kind of formal action, such as filing a complaint or report with their organization (USMSPB 2018). As the results just discussed demonstrate, this lack of reporting was not due to respondents inaccurately defining sexual harassment; rather, it reflects a reluctance by people to take formal action, which will be discussed in more detail in Chapter 4.

The U.S. military is the other organization to study sexual harassment through large surveys early on and over multiple years. Starting in 1995 and going to 2012[8] the Defense Manpower Data Center (DMDC) has used an SEQ-format survey that asked about more than 20 specific sex- or gender-related behaviors experienced in the past 12 months. As shown in the results in Table 2-1, the data demonstrate that the prevalence of all three types of sexual harassment has been consistent. It also demonstrates that the gender-harassing form of sexual harassment (broken out into crude and offensive behavior and sexist behavior) is by far the most prevalent type of sexually harassing behavior, a finding that is consistent with research in other workplace settings (Kabat-Farr and Cortina 2014).

Given that there is limited longitudinal data on the prevalence of sexual harassment that uses a well-validated behavior-based instrument, the best analysis of the prevalence of sexual harassment across workplaces and time comes from a meta-analysis by Ilies and colleagues (2003). Based on more than 86,000 respondents from 55 probability samples, Illies and colleagues demonstrate that on average, 58 percent of women experience sexually harassing behaviors at work.

[8] After the 2012 survey, the military asked the RAND Corporation to conduct a new survey revising the methodology as needed. The result was a significant change in how sexual harassment was defined in the analysis, and thus the prevalence numbers cannot easily be compared with the previous series of surveys. Whereas previous surveys assessed the prevalence of sexually harassing behaviors, the RAND survey used behavior-based questions to determine the prevalence rate of legally defined sexual harassment, meaning that they asked questions and grouped results based on hostile work environment and quid pro quo harassment. While quid pro quo harassment maps cleanly to sexual coercion, hostile work environment requires the condition that the sexually harassing behaviors (such as gender harassment and unwanted sexual attention) be considered by the respondent to be pervasive or severe—essentially requiring a frequency or severity assessment that had not been previously used. With this much narrower definition of "what counts" as harassing behavior, the 2016 survey yielded a lower overall rate of sexual harassment for women over a 12-month time period: 21.4 percent (RAND 2016).

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TABLE 2-1 Rate of Active Duty Military Women Experiencing Sexually Harassing Behaviors at Least Once in the Past 12 Months as Measured in 2000, 2006, 2010, and 2012

	2000 (%)	2006 (%)	2010 (%)	2012 (%)
Gender Harassment: Crude and Offensive	50	54	43	47
Gender Harassment: Sexist	45	52	41	41
Unwanted Sexual Attention	27	32	23	23
Sexual Coercion	8	8	8	8

SOURCE: DMDC 2003, 2008, 2011, 2013.

Looking further into the different workplace sectors, the researchers found that there was some variation between sectors, with the prevalence ranging from 43 to 69 percent (this is discussed further in Chapter 3 when comparing the academic environment to other sectors). Their analysis of trends over time revealed that over the 25 years examined, women who responded to surveys with behavioral-based instruments (and which used a probability sample) reported increasingly more experiences of sexual harassment. The authors note that their data cannot investigate the reasons for this change, and that only a time-trend analysis of data obtained from the same instruments can truly answer the question of what is the trend in prevalence rates.

CHARACTERISTICS OF SEXUAL HARASSMENT AND SEXUALLY HARASSING ENVIRONMENTS

Rigorous survey research has identified common characteristics of sexual harassment. This work pushes against some of the main assumptions made on what it is, as well as how sexual harassment affects the targets, the bystanders, and the atmosphere of work and education settings. Here the chapter describes some of the aspects of sexual harassment that are strongly supported by the literature. However, we note that the data on varying experiences of sexual harassment of women of color, sexual minorities, and gender minorities is sparse, so these characteristics are likely to reflect the experience of majority women.

Characteristics of Sexual Harassment

Women are more likely to be sexually harassed than men and to experience sexual harassment at higher frequencies (USMSPB 1995; Magley, Hulin et al. 1999; Ilies et al. 2003; Kabat-Farr and Cortina 2014). The 2012 DMDC survey results shown in Table 2-2 demonstrate that across all three types of sexual harassment, female personnel, compared with their male counterparts, were more

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TABLE 2-2 Rate of Active Duty Military Women and Men Experiencing Sexually Harassing Behaviors at Least Once in the Past 12 Months

	Women (%)	Men (%)
Gender Harassment: Crude and Offensive	41	20
Gender Harassment: Sexist	47	15
Unwanted Sexual Attention	23	5
Sexual Coercion	8	2

SOURCE: DMDC 2013.

likely to have experienced at least one instance of sexually harassing conduct over the prior 12 months. Likewise, in the 1994 USMSPB study of federal workers, it found more women (44 percent) than men (19 percent) describing experiences of any of seven types of sexually harassing behavior in the past 2 years at work (USMSPB 1995). In a more recent study using the SEQ, Rosenthal, Smidt, and Freyd (2016) surveyed 525 graduate students regarding their exposure to sexual harassment while in graduate school. Female students were 1.64 times more likely to have experienced sexually harassing behavior from faculty or staff (38 percent) compared with male students (23 percent). Though the occasional survey reports no significant gender difference (e.g., Konik and Cortina 2008) in a specific group, many studies have found women encountering more sexually harassing conduct than men encounter.

The overwhelming majority of sexual harassment involves some form of gender harassment (the put-downs of sexual harassment that include sexist hostility and crude behavior). Unwanted sexual attention is the next most common form of sexual harassment, and only a small minority of women experience sexual coercion. For instance, Schneider, Swan, and Fitzgerald (1997) analyzed data from two samples of women: factory workers and university faculty/staff. In both samples, gender harassment was by far the most common experience: 54–60 percent of women described some encounter with gender harassment, either with or without unwanted sexual attention. In contrast, sexual coercion was rare, described by approximately 4 percent of women in each sample. Moreover, sexual coercion never took place without unwanted sexual attention and gender harassment. When analyzing the sexual harassment of graduate students, Rosenthal, Smidt, and Freyd (2016) found that 59 percent of harassment incidents involved some form of gender harassment, while only 5 percent included unwanted touching, and less than 4 percent entailed sexual coercion. In another study, Leskinen, Cortina, and Kabat (2011) analyzed survey data from two samples of women who work in highly male-dominated sectors: the military and the law. Focusing only on data from women who had encountered at least one sexually harassing behavior in the prior year, they found that 9 of every 10 people who experienced sexual harassment had encountered gender harassment with little or no unwanted

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sexual attention or coercion. While a recent national survey of 615 working men found that of the 25 percent of male respondents that admitted they had done at least one sexually harassing behavior in the last year, the most common form was gender harassment and the least common was sexual coercion (Patel, Griggs, and Miller 2017).

That gender harassment is the most common type of sexual harassment is an unexpected finding in terms of what constitutes sexual harassment because unwanted sexual advances and sexual coercion are the most commonly reported both in official Title IX/Human Resources documentation (Cantalupo and Kidder 2017a, 2017b) and in the media.[9] This is in part why the misguided idea that sexual harassment is about sex has persisted.

In the vast majority of incidents of sexual harassment of women, men are the perpetrators. For instance, in the 1994 USMSPB study, 93 percent of sexually harassed women reported their perpetrators to be male (USMSPB 1995). The DMDC's 1995 study turned up remarkably similar results, with 92 percent of sexually harassed women describing male perpetrators (Magley, Waldo et al. 1999). In Rosenthal, Smidt, and Freyd's (2016) study of the sexual harassment of graduate students, among those who had been sexually harassed by faculty/staff, 86 percent of women described their harassers as male. Even when men are the *targets* of sexually harassing conduct, more often than not the perpetrator is also male (see also Kabat-Farr and Cortina 2014; Magley, Waldo et al. 1999).

Women are frequently harassed by coworkers and other employees (for students, it is fellow peers); superiors are not the most common perpetrators[10] (USMSPB 1995, 2018; AAUW 2005; Schneider, Pryor, and Fitzgerald 2011; Rosenthal, Smidt, and Freyd 2016). For example, in Rosenthal, Smidt, and Freyd's (2016) study of graduate students, 38 percent of female participants self-reported that they had experienced sexual harassment from faculty or staff, while 58 percent described sexual harassment from other students. In a study by Huerta and colleagues (2006), student targets of sexual harassment described the harassing experience that bothered them the most. Fully three-quarters of these targets indicated the perpetrator of this "most bothersome" incident to be a peer (fellow student), whereas only one-quarter had perpetrators who were higher-status individuals (staff, faculty, or administrators).

[9] See, for example, https://www.nytimes.com/2017/10/05/us/harvey-weinstein-harassment-allegations.html?rref=collection%2Fbyline%2Fjodi-kantor; https://www.nytimes.com/2017/10/10/us/gwyneth-paltrow-angelina-jolie-harvey-weinstein.html?rref=collection%2Fbyline%2Fjodi-kantor&action=click&contentCollection=undefined&region=stream&module=stream_unit&version=latest&contentPlacement=10&pgtype=collection; https://www.buzzfeed.com/azeenghorayshi/geoff-marcy-at-sfsu?utm_term=.phP5anr0n#.kprpq6Gj6; https://www.buzzfeed.com/azeenghorayshi/ott-harassment-investigation?utm_term=.vi3ByvlNv#.wm83947r4; and https://www.reuters.com/article/us-foxnews-lawsuit/ex-fox-news-anchor-accuses-former-boss-ailes-of-sexual-harassment-idUSKCN0ZM21I.

[10] One obvious factor that contributes to this difference is that there are most often more coworkers or peers than there are superiors.

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Targets of sexual harassment often face repeated sexually harassing behaviors rather than one single incident. Rosenthal, Smidt, and Freyd's 2016 study of graduate students, in which 38 percent of women had encountered sexual harassment from faculty/staff and 58 percent had faced sexual harassment from students, only a small fraction (one-third or less) of these women described their harassment experience as being limited to a single incident. This confirms earlier research using data from the 1987 USMSPB survey, in which researchers found that "75 percent of those experiencing sexual teasing and jokes reported that it was not a one-time occurrence, and 54 percent of those pressured for sexual favors reported that it had occurred more than once (USMSPB 1988). For most women, the harassment lasted more than a week, and often as long as 6 months" (Schneider, Swan, and Fitzgerald 1997, 402).

Sexual Harassment Among Women of Color and Sexual- and Gender-Minority Women

What is known about women's experiences is that those who have multiple marginalities—for instance women of color and sexual- and gender-minority women—experience certain kinds of harassment at greater rates than other women (e.g., Buchanan, Settles, and Woods 2008; Clancy et al. 2017; Cortina 2004; Cortina et al. 1998; Konik and Cortina 2008; Rabelo and Cortina 2014). Additionally, the cultural context in which people from different racial and ethnic backgrounds operate, as well as when they are numerically less represented in a workplace, can have effects on how they experience sexual harassment (Cortina et al. 2002; Welsh et al. 2006). Thus, there is a wide spectrum of vulnerabilities, experiences, and consequences for women of color and gender minorities who are sexually harassed in the workplace.

As a field of study and as an analytical lens, intersectionality provides a framework to make visible the mutually constitutive relationship among race, ethnicity, sexuality, class, and other social positions that affect targets' experiences of harassment (Collins 2015). It is rooted in Black feminism and Critical Race Theory and also makes visible intersecting axes of oppression that contribute to power hierarchies within a social structure related to race, ethnicity, gender, sexuality, and class. Addressing the legacy of exclusions of black women, legal scholar Kimberlé Williams Crenshaw used the concept of intersectionality to highlight the intersection of race and gender discrimination and how treating them as exclusive, and not intertwined, rendered the discrimination and multiple marginalities faced by black women invisible to antidiscrimination law (Crenshaw 1989, 1991). More recently, Crenshaw described intersectionality as a work in progress to denote the movement in and broadening of its use across disciplines and to a wider range of social locations (Carbado 2013; Crenshaw 2014).

Some scholars have applied an intersectional lens to examine the sexual harassment experiences of women of color, though research in this area is still

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very limited. It is important to prioritize the study of sexual harassment among noncisgender (cisgender means feeling aligned with the gender you were assigned at birth), nonstraight, nonwhite women when considering the impact of sexual harassment within an organization. Recent research that has begun to look at sexual harassment through the lens of intersectionality reveals how the experiences of women of color compare with that of white women, white men, and men of color. This research demonstrates that women of color and sexual- and gender-minority women sometimes experience sexual harassment differently from other populations. Women of color often experience sexual harassment as a manifestation of both gender and race discrimination (Cortina et al. 2002; Murrell 1996), which combined can lead to higher rates of overall harassment (Berdahl and Moore 2006; Woods, Buchanan, and Settles 2009).

The RTI International interviews[11] were able to glean complexities of intersectionality and sexually harassing behavior. Respondents noted that the issues of sexual- and gender-based harassment are often overpowered by how other issues such as race and sexual orientation intersect with their lived experience as women. These women noted an inability to disentangle discrimination and biases as stemming either from gender or their intersecting identities (RTI 2018).

> And then there's a lot of fairly overt transphobia in my institution, I think. And I don't really know what to make of it. But there's sort of . . . traditional old Southern set of gendered expectations and norms that if you don't fit them, it's pretty clear what people think, and they don't have to say a lot about it for you to know, you know what I mean? (*Nontenure-track faculty member in nursing*)

> What I've concluded is that [much] of my push towards and tenacity around equality and equity actually lands on race. I think part of that is because I've been more affronted by my race than my gender, at least more overtly. Meaning, I've had people say to my face I don't want to be taking care of that black person, oh, you speak articulate for a black person. These micro-aggressions that go out there and statements and these innuendos. (*Nontenure-track faculty member in medicine*)

These studies demonstrate that an individual's identity can affect how sexual harassment is perpetrated.

Likewise, lesbian, gay, and bisexual women encounter forms of harassment that reflect a combination of sexism and heterosexism (Konik and Cortina 2008; Rabelo and Cortina 2014). Nonbinary individuals, on the other hand, must negotiate their identities within the constructs of the gender binary that is still prevalent today (Dietert and Dentice 2009). A study by Irwin (2002) examined workplace discrimination in the education sector in Australia among gay men, lesbians, and transgender individuals. Irwin found that greater than 60 percent of teachers,

[11] This research was commissioned by the committee and the full report on this research is available in Appendix C.

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academics, and educators who identified as lesbian, gay, or transgender have experienced homophobic behavior and/or harassment, and have been discriminated against in the workplace. The study also found that 16 percent of the individuals who identified as lesbian, gay, or transgender have been sexually harassed, and one participant was sexually assaulted.

The research on sexual minorities has shown that this population experiences more sexual harassment than heterosexual individuals. In a study of 629 employees in higher education, nearly 76.9 percent of sexual minorities (of both genders) experienced gender harassment, whereas only 30 percent of heterosexuals (of both genders) experienced gender harassment (Konik and Cortina 2008). This trend continued for the other forms of sexual harassment (unwanted sexual attention and sexual coercion): 39.7 percent of sexual minorities experienced these types, whereas only 15.5 percent of heterosexuals experienced these types. In another study the prevalence and impact of heterosexist harassment, which is insensitive verbal and symbolic (but nonassaultive) behaviors that convey animosity toward nonheterosexuality, was examined among students. The study specifically looked at how experiences of this type of harassment affected sexual minorities and heterosexuals differently and found that sexual minorities were more likely to experience heterosexist harassment than heterosexuals (58 percent and 39 percent, respectively), and when sexual minorities experienced the harassment, they were equally likely to experience it directed at them as in an ambient form (53 percent and 47 percent, respectively) (Silverschanz et al. 2008).

Characteristics of Sexually Harassing Environments

By far, the greatest predictors of the occurrence of sexual harassment are organizational. Individual-level factors (e.g., sexist attitudes, beliefs that rationalize or justify harassment, etc.) that might make someone decide to harass a work colleague, student, or peer are surely important. However, a person that has proclivities for sexual harassment will have those behaviors greatly inhibited when exposed to role models who behave in a professional way as compared with role models who behave in a harassing way, or when in an environment that does not support harassing behaviors and/or has strong consequences for these behaviors. Thus, this section considers some of the organizational and environmental variables that increase the risk of sexual harassment perpetration.

Women working in environments where men outnumber women, leadership is male-dominated, and/or jobs or occupations are considered atypical for women experience more frequent incidents of sexual harassment (USMSPB 1995; Fitzgerald et al. 1997; Berdahl 2007b; Willness, Steel, and Lee 2007; Schneider, Pryor, and Fitzgerald 2011). In particular, the more male-dominated the work environment, the more women experience the gender harassment form of sexual harassment. For example, in one study looking at the effect of workplace gender balance, the researchers analyzed data from women employees of the federal

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courts. When comparing women who work in gender-balanced workgroups (i.e., equal numbers of men and women in the workgroup) with those who work with almost all men, the researchers reported women in the latter category were 1.68 times more likely to encounter gender harassment (Kabat-Farr and Cortina 2014).

The historical and cultural context of a work or education environment is of high relevance to the study of sexual harassment as well, since environments that are no longer male dominated in gender ratio may still be male dominated in their work practices, culture, or behavioral expectations.

The perceived absence of organizational sanctions increases the risk of sexual harassment perpetration. Perceptions of organizational tolerance for sexual harassment (also referred to as organizational climate for sexual harassment), are broken down into three categories: (1) the perceived risk to targets for complaining, (2) a perceived lack of sanctions against offenders, and (3) the perception that one's complaints will not be taken seriously (Hulin, Fitzgerald, and Drasgow 1996). Research has shown that perceptions of an organization's tolerance for all three forms of sexually harassing behavior are significantly related to both direct and ambient sexual harassment. In environments that are perceived as more tolerant or permissive of sexual harassment, women are more likely to be directly harassed (Fitzgerald et al. 1997; Williams, Fitzgerald, and Drasgow 1999) and to witness harassment of others (Glomb et al. 1997). In fact, one meta-analysis that combined data from 41 studies with a total sample size of nearly 70,000 respondents found perception of organizational tolerance to be the most potent predictor of sexual harassment in work organizations (Willness, Steel, and Lee 2007). In a recent national survey of 615 working men (Patel, Griggs, and Miller 2017), sexually harassing behavior was more commonly reported "among men who say their company does not have guidelines against harassment, hotlines to report it or punishment for perpetrators, or who say their managers don't care."

Social situations in which sexist views and sexually harassing behavior are modeled can enable, facilitate, or even encourage sexually harassing behaviors, while, conversely, positive role models can inhibit sexually harassing behavior (Dekker and Barling 1998; Perry, Schmidtke, and Kulik 1998; Pryor, LaVite, and Stoller 1993). In one study, college men who had professed a willingness to sexually coerce were found to be more likely to sexually exploit a female trainee when they were exposed to an authority figure who acted in a sexually exploitive way (Pryor, LaVite, and Stoller 1993). Hitlan and colleagues (2009) found that viewing a sexist film enhanced the tendency among the less sexist men to perform acts of gender harassment. In another experiment, men who viewed sexist TV clips were more likely to send women unsolicited sexist jokes and more likely to profess a willingness to engage in sexual coercion than men who watched programs portraying young, successful women in domains such as science, culture, and business (Maass, Cadinu, and Galdi 2013). Conversely, experiments show that sexual harassment is less likely to occur if those behaviors are not accepted by authority figures (Pryor, LaVite, and Stoller 1993). So, while social situations

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do not necessarily function as triggers for existing predilections to sexually harass, they can act as a force encouraging or discouraging men to sexually harass, demonstrating the power of practiced social norms (e.g., the social norms communicated by the actions of the people in an environment rather than their words or the words from official policy for an organization).

Other factors that research suggests increase the chances of sexual harassment perpetration are significant power differentials within hierarchical organizations and organizational tolerance of alcohol use. Hierarchical work environments like the military, where there is a large power differential between organizational levels and an expectation is not to question those higher up, tend to have higher rates of sexual harassment than organizations that have less power differential between the organizational levels, like the private sector and government (Ilies et al. 2003; Schneider, Pryor, and Fitzgerald 2011). Environments that allow drinking during work breaks and have permissive norms related to drinking are positively associated with higher levels of gender harassment of women (Bacharach, Bamberger, and McKinney 2007). Culturally, these are, again, patterns more common in currently or historically male-dominated workplaces.

FINDINGS AND CONCLUSIONS

1. **Sexual harassment is a form of discrimination that consists of three types of harassing behavior:** (1) **gender harassment** (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender); (2) **unwanted sexual attention** (unwelcome verbal or physical sexual advances, which can include assault); and (3) **sexual coercion** (when favorable professional or educational treatment is conditioned on sexual activity). *The distinctions between the types of harassment are important, particularly because many people do not realize that gender harassment is a form of sexual harassment*.
2. **Sexually harassing behavior can be either *direct* (targeted at an individual) or *ambient* (a general level of sexual harassment in an environment) and is harmful in both cases.** It is considered illegal when it creates a *hostile environment* (gender harassment or unwanted sexual attention that is "severe or pervasive" enough to alter the conditions of employment, interfere with one's work performance, or impede one's ability to get an education) or when it is *quid pro quo sexual harassment* (when favorable professional or educational treatment is conditioned on sexual activity).
3. **There are reliable scientific methods for determining the prevalence of sexual harassment.** To measure the incidence of sexual harassment, surveys should follow the best practices that have emerged from the science of sexual harassment. This includes use of the Sexual Experiences

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Questionnaire, the most widely used and well-validated instrument available for measuring sexual harassment; assessment of specific behaviors without requiring the respondent to label the behaviors "sexual harassment"; focus on first-hand experience or observation of behavior (rather than rumor or hearsay); and focus on the recent past (1–2 years, to avoid problems of memory decay). Relying on the number of official reports of sexual harassment made to an organization is not an accurate method for determining the prevalence.

4. **Some surveys underreport the incidence of sexual harassment because they have not followed standard and valid practices for survey research and sexual harassment research.**
5. **While properly conducted surveys are the best methods for estimating the prevalence of sexual harassment, other salient aspects of sexual harassment and its consequences can be examined using other research methods,** such as behavioral laboratory experiments, interviews, case studies, ethnographies, and legal research. Such studies can provide information about the presence and nature of sexually harassing behavior in an organization, how it develops and continues (and influences the organizational climate), and how it attenuates or amplifies outcomes from sexual harassment.
6. **Sexual harassment remains a persistent problem in the workplace at large.** Across workplaces, five common characteristics emerge:
   a. **Women experience sexual harassment more often than men do.**
   b. **Gender harassment (e.g., behaviors that communicate that women do not belong or do not merit respect) is by far the most common type of sexual harassment.** When an environment is pervaded by gender harassment, unwanted sexual attention and sexual coercion become more likely to occur—in part because unwanted sexual attention and sexual coercion are almost never experienced by women without simultaneously experiencing gender harassment.
   c. **Men are more likely than women to commit sexual harassment.**
   d. **Coworkers and peers more often commit sexual harassment than do superiors.**
   e. **Sexually harassing behaviors are not typically isolated incidents;** rather, they are a series or pattern of sometimes escalating incidents and behaviors.
7. **Research that does not include the study of women of color and sexual- and gender-minority women presents an incomplete picture of women's experiences of sexual harassment.** The preliminary research on the experiences of women of color, and sexual- and gender-minority women reveals that their experiences of sexual harassment can differ from the larger population of cisgender, straight, white women.

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a. **Women of color experience more harassment** (sexual, racial/ethnic, or combination of the two) than white women, white men, and men of color do. Women of color often experience sexual harassment that includes racial harassment.
b. **Sexual- and gender-minority people experience more sexual harassment** than heterosexual women do.

8. **The two characteristics of environments most associated with higher rates of sexual harassment are (a) male-dominated gender ratios and leadership and (b) an organizational climate that communicates tolerance of sexual harassment** (e.g., leadership that fails to take complaints seriously, fails to sanction perpetrators, or fails to protect complainants from retaliation).
9. **Organizational climate is, by far, the greatest predictor of the occurrence of sexual harassment, and ameliorating it can prevent people from sexually harassing others.** A person more likely to engage in harassing behaviors is significantly less likely to do so in an environment that does not support harassing behaviors and/or has strong, clear, transparent consequences for these behaviors.

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3

Sexual Harassment in Academic Sciences, Engineering, and Medicine

While much of the research on sexual harassment has focused on workplaces outside academia, the research reviewed in this chapter suggests that academia should not be considered an exception and that it faces similar rates of sexual harassment.[1] The goal of this chapter is to analyze the extent to which all three forms of sexual harassment[2] occur in academia, specifically in the fields of science, engineering, and medicine; consider the overall culture and subcultures in which it takes place; and identify conditions that increase the probability that sexual harassment behaviors will occur. This analysis aims to shed light on the extent to which women experience sexual harassment in science, engineering, and medicine; compare experiences across different environments; and understand how the organizational makeup of these fields contributes to the risk for sexual harassment. This chapter reviews how academia and academic science, engineering, and medicine specifically are unique environments in terms of sexual harassment.

[1] Wherever possible, the report cites the most recent scientific studies of a topic. That said, the empirical research into sexual harassment, using rigorous scientific methods, dates back to the 1980s. This report cites conclusions from the earlier work when those results reveal historical trends or patterns over time. It also cites results from earlier studies when there is no theoretical reason to expect findings to have changed with the passage time. For example, the inverse relationship between sexual harassment and job satisfaction is a robust one: the more an individual is harassed on the job, the less she or he likes that job. That basic finding has not changed over the course of 30 years, and there is no reason to expect that it will.

[2] The three types of sexual harassment are gender harassment, unwanted sexual attention, and sexual coercion. See Chapter 2 for further descriptions.

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THE ACADEMIC ENVIRONMENT IN SCIENCE, ENGINEERING, AND MEDICINE

The main conditions that increase the risk of sexual harassment being perpetrated against women—organizational tolerance for sexual harassment and male-dominated environments[3]—are ones that appear in academia generally, and specifically within the fields of science, engineering, and medicine.

Higher education environments are perceived as permissive environments in part because when targets report, they are either retaliated against[4] or nothing happens to the perpetrator. In a recent paper, one respondent who reported her experience of psychological and physical harassment from her advisor described the response to her reporting the experience in this way:

> So when I did talk to the faculty director or the chair of the department, I'd say that they gave us no choice but to leave the department. . . . After leaving the institution, the next year this advisor got three more students. There was no sort of repercussion. . . . I felt like I had this type of plague or something . . . it's forcing the person who was victimized to keep confronting and keep pushing. (Nelson et al. 2017, 6)

Higher education is also replete with cases where offenders are an "open secret" but are not sanctioned (Cantalupo and Kidder 2017). Interviews, conducted by RTI International with female faculty in science, engineering, and medicine who experienced sexually harassing behavior, reveal some of the issues that explain this general climate of accepting sexual harassment (RTI 2018).[5] The interview responses demonstrate that the behavior of male colleagues, whom higher-ranking faculty or administrators perceived as "superstars" in their particular substantive area, was often minimized or ignored. Even men who did not have the superstar label were often described as receiving preferential treatment and excused for gender-biased and sexually harassing behavior.

> I think also sometimes people are blinded by good signs and shiny personalities. Because those things tend to go hand in hand. You don't want to think that this person who's doing incredible work in getting all of these grants, is also someone who has created a negative environment for others. I've seen this over and over again. (*Nontenure-track faculty member in psychology*)

A theme that emerged in the interview data was that respondents and other colleagues often clearly knew which individuals had a history of sexually harassing behavior. The warnings were provided by both male and female colleagues, and were often accompanied by advice that trying to take actions against these

[3] See the discussion in Chapter 2 for more details on this research.

[4] See the discussion in Chapter 4 about retaliation and the limits of the law to protect against it.

[5] This research was commissioned by the committee, and the full report on this research is available in Appendix C.

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perpetrators was fruitless and that the best options for dealing with the behavior were to avoid or ignore it. Many respondents described the dialogue among women faculty to warn about or disclose sexually harassing behaviors as an unfortunate shared bond that was far too often the norm.

Similarly, expectations around behavior were often noted as an "excuse" for older generations of faculty, primarily men, to perpetrate sexually harassing behavior. Many respondents noted that the "old guard," in perpetrating this type of behavior, was doing what they have always done and was not likely to change, because of a general acceptance within academic settings.

> This is kind of a new thing that—and the mindset is so ingrained, like the people that say these things, they don't even realize that they are—so their intent is not to sexually harass people, but they do it automatically, and they don't even think about it. (*Professor in geosciences*)

The normalization of sexual harassment and gender bias was also noted as fueling this behavior in new cohorts of sciences, engineering, and medicine faculty. Respondents discussed the disheartening experiences of colleagues who entered training settings with nonbiased views and respectful behavior, but who concluded those experiences endorsing or dismissing sexually harassing and gender-biased behavior among themselves and others.

> I still don't think that the prospect of being sexually assaulted was as bad as watching the next generation of sexual harassers being formed. I think that was the worst part for me. (*Nontenure-track faculty member in medicine*)

Sometimes it takes many reports across multiple institutions for a perpetrator's actions to even be acknowledged (Cantalupo and Kidder 2017). This reality, as well as the perception widely held across higher education, means that few targets believe their complaints will be taken seriously.

Because many American colleges and universities were formed for the express purpose to educate men, higher education environments are also often historically male dominated, and science, engineering, and medicine in higher education are still numerically and culturally male dominated. While women have earned more than half of all science and engineering bachelor's degrees since 2000 (NCSES 2004, 2017), academic science and engineering as a whole continues to be very male dominated due to the high concentration of women in only a handful of specific scientific fields. As the National Science Foundation's 2016 Science and Engineering Indicators points out, men and women tend to fall into different fields of study, and these tendencies are consistent at all levels of higher education degree attainment. In 2013 alone, men earned 80.7 percent of bachelor's degrees awarded in engineering, 82 percent in computer sciences, and 80.9 percent in physics. Women, on the other hand, earned half or more of the bachelor's degrees in psychology, biological sciences, agricultural sciences,

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and all the broad fields within social sciences except for economics (NSF 2016). Even in biology-related fields where women make up more than one-half of all doctorate recipients, they are vastly underrepresented at the faculty level. A study by Jason Sheltzer and Joan Smith (2014) published in the *Proceedings of the National Academy of Sciences* found that of 2,062 life sciences faculty members at top-ranked programs in the United States, only 21 percent of full professors and 29 percent of assistant professors were women.

In medicine, although women have been earning medical degrees in numbers at least equal to men for several decades, female medical school faculty neither advance as rapidly nor are compensated as well as their male colleagues (Ash et al. 2004; Cochran et al. 2013). A survey conducted by the Association of American Medical Colleges further reveal the disparities in career advancement between men and women: 1 in 6 department chairs or deans were women in 2013–2014, up from 1 in 10 in 2003–2004; 38 percent, only a little more than a third, of full-time academic medicine faculty are women; and only 21 percent of full professors are women, as are 34 percent of full-time associate professors (AAMC 2014).

The culture of higher education workplaces, where boundaries between work and personal life are blurred and one is always "working," are particularly difficult on people with child care or elder care responsibilities, as well as for people who do not conform to gendered expectations for behavior or appearance (Caplan 1993). These people are most often women and sexual- and gender-minority people. Historically, the life of the mind was believed to be men's work, and while our society may have more enlightened views today on the contributions of women to higher education generally and science specifically, the structure of the academic workplace is still one best suited to men who have a wife at home serving as domestic caretaker full time (Valian 1999; Xie and Shauman 1998; NAS 2007). That is, the "ideal worker norm" is pervasive in academia. As Leskinen and Cortina (2014, 110) explain in their work on a broader conceptualization of gender harassment (a type of sexual harassment):

> The "ideal worker" is someone who works full time and consistently over his or her lifetime and who takes no leaves for pregnancy, child care, or other caregiving responsibilities [Williams, 2000]. Employers value and reward the ideal worker, despite the inherent stereotypical sex-based expectations (i.e., workplaces are structured around male bodies) that this ideal endorses [Williams, 2008]. Conversely, some employers punish personnel who fail to meet the ideal worker norm; this notion of "family responsibilities discrimination" is gaining attention among lawyers and social scientists as a significant barrier to women's employment and advancement [see Williams, 2008; Williams and Bornstein, 2008].

Furthermore, academic science, engineering, and medicine are hierarchical. At the graduate level, students have to rely on principal investigators who control

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funding, research direction, and recruitment decisions. In academic medicine, there are clear hierarchical roles and the training encourages a respect and trust of those at the top of the hierarchy: starting with attending physicians, followed by fellows, residents, and interns, and then medical students at the bottom. When hierarchy operates out of habit rather than as something that is constantly reflected on and justified due to experience or expertise, misuses of power can increase.

The nature of mentoring in science, engineering, and medicine creates unique risks for trainees. The mentor-mentee relationship can involve much time spent alone together, in the lab, in the field, or in the hospital, and sometimes in isolated environments. It also involves significant dependence on one mentor or a small committee because research projects, education and career mentoring, and funding are often all tied to the advisor and not in the control of the student.

In the medical field, training specifically takes place in hospital settings, over 24-hour "call" periods. Interns and residents (even the nomenclature attests to the trainees having a special relationship to the hospital training space) provide much of the patient care under the direction of faculty attending physicians who may or may not be physically present in the hospital for the educational benefits. Caring for sick patients, especially in the emergency room, the operating rooms, and the intensive care units is obviously very intense, tiring, and stressful, and because of the requirement for extended duty hours, call rooms with single or multiple beds are close by for when sleep is possible. The risk they pose for sexual harassment and sexual assault should be obvious (Komaromy et al. 1993). Additionally, research on the medical environment reveals that overall "mistreatment" is commonplace in all levels of the medical hierarchy, especially among medical school students, interns, and residents in all specialties. Combined, these environmental and mentoring factors mean that there are increased opportunities for sexual harassment perpetration, in environments with little structure or accountability for the faculty member, and a decreased ability for students to leave without professional repercussions (Sekreta 2006).

Within academic science, engineering, and medicine, substantial gender disparities exist. These range from the frequency with which men invite women to speak at conferences (Isbell, Young, and Harcourt 2012), how competent (Grunspan, Wiggins, and Goodreau 2014) and employable (Moss-Racusin et al. 2012) female students are perceived, the degree to which women and men self-cite (Symonds et al. 2006), how supported and inclusive a department feels (Fox, Deaney, and Wilson 2010), and the extent to which women feel they can make use of family-friendly policies even when they exist. Women are also more likely to hold teaching-intensive faculty positions over research-intensive ones, and so even when the national numbers appear to be increasing for the number of women in science, they are clustered in institutions where graduate students are not being trained, federal funding is less frequent, and in general are places where faculty receive less support to conduct independent work and contribute to the process of science (Hermanowicz 2012). And, even while the number of

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women appears in recent years to be increasing in the sciences, the reality is that only white women are increasing in numbers, and women of color are on the decline (Armstrong and Jovanovic 2015).

While this is not the mission of this report, we note that gender discrimination itself harms women and the broader meritocracy of science. And thus we conclude that together, gender discrimination and male domination are features of the academic science, engineering, and medicine climate that create a permissive environment for sexual harassment.

SEXUAL HARASSMENT OF FACULTY AND STAFF

In the best meta-analysis to date on sexual harassment prevalence, Ilies and colleagues (2003) reveal that 58 percent of female academic faculty and staff experienced sexual harassment. In addition to the academic setting, the meta-analysis examines sexual harassment in private-sector, government, and military samples. When comparing the academic workplace with the other workplaces, the survey found that the academic workplace had the second highest rate, behind the military (69%). The government and private-sector samples were on par with each other with 43 percent and 46 percent, respectively. The top two workplaces (the military and academia) are both more male dominated than the private sector and the government, demonstrating the significance this has on rates of harassment, and also suggesting that in areas of academia that are more male dominated (such as engineering and specific science disciplines and specialties of medicine), the rates of sexually harassing behavior may be higher.

In a more recent study of analyzing the experiences of women and men working in academia, the court system, and the military, the connection to male-dominated workplaces was confirmed for academia. It demonstrated that even at a unit level when the underrepresentation of women increased one unit, the odds that women would face gender harassment (a type of sexual harassment) increased 1.2 times (Kabat-Farr and Cortina 2014). For female faculty and staff in academia, research has also confirmed the general finding from other workplaces that the majority of the sexual harassment experienced was gender harassment and that the other two types of sexual harassment were rarely experienced without gender harassment also occurring (see Figure 3-1) (Schneider, Swan, and Fitzgerald 1997). Rosenthal, Smidt, and Freyd (2016) documented that this pattern—gender harassment being far more prevalent that other types of sexual harassment—persists today. Their focus was the experiences of graduate students, who in many ways function as university employees. Their research found that "the majority of harassment experiences involved sexist or sexually offensive language, gestures, or pictures (59.1%), with 6.4% involving unwanted sexual attention, 4.7% involving unwanted touching, and 3.5% involving subtle or explicit bribes or threats" (370).

Also note that sexual harassment can be bottom-up, coming from those who

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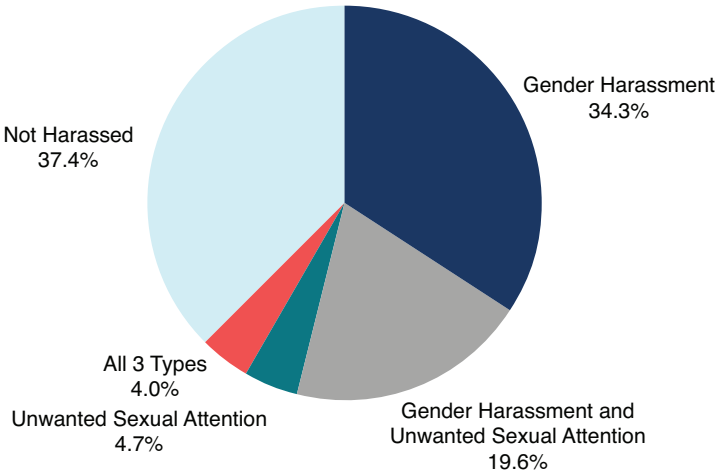

FIGURE 3-1 Percentage of types of sexual harassment experiences among female university employees.
SOURCE: Adapted from Schneider, Swan, and Fitzgerald 1997.

have less formal power in the organization; researchers often refer to this as "contrapower harassment." For instance, O'Connell and Korabik (2000) reported that 42 percent of their sample of women working in academia (as faculty, staff, or administrators) had encountered sexually harassing conduct from men at lower levels in the organizational hierarchy. Echoing many other studies, the majority of this subordinate-perpetrated harassment was gender harassment (e.g., insulting remarks about women, vulgar gestures, lewd jokes). Likewise, Grauerholz (1989) reported that 48 percent of women faculty at a large research university had encountered sexually harassing conduct from students; most commonly, this behavior entailed sexist comments (defined as "jokes or remarks that are stereotypical or derogatory to members of your sex"). Virtually all instances (99 percent) involved men as perpetrators. In one case, the student-on-faculty sexual harassment escalated to rape. To explain the dynamics underlying contrapower harassment, Grauerholz (1989) noted that "even in situations in which a woman has clearly defined authority, gender continues to be one of the most salient and powerful variables governing work relations." This echoes Gutek and Morasch's (1982) concept of "sex-role spillover," which argues that gender-based norms (i.e., woman as maid, woman as nagging mother) seep into the workplace. In this way, contrapower sexual harassment reflects the lower status of women (especially women of color) in society relative to men, and it replicates that hierarchy in organizations (Rospenda, Richman, and Nawyn 1998). Moreover, in the academic context, students have a certain degree of power over faculty when

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student evaluations influence promotion or reward decisions (e.g., Grauerholz 1989; Rospenda, Richman, and Nawyn 1998).

To gather a clearer picture of what the sexually harassing experiences were of women faculty in science, engineering, and medicine, our committee contracted RTI International to conduct a series of interviews with women who had experienced at least one sexually harassing behavior in the past 5 years (RTI 2018). When these women were asked to describe the most impactful experience, their responses varied, and included sexual advances, lewd jokes or comments, disparaging or critical comments related to competency, unwanted sexual touching, stalking, and sexual assault by a colleague. One respondent observed that most persons understood sexual harassment primarily in terms of unwanted sexual advances, but that gender-based harassment in academic settings was both widespread and impactful:

> Most of them are demeaning the woman, shutting her up in the workplace, demeaning her in front of other colleagues, telling her that she's not as capable as others are, or telling others that she's not [as] sincere as you people are . . . I think more stress should be on that. It's not just, you know, touching or making sexual advances, but it's more of at the intellectual level. They try to mentally play those mind games, basically so that you wouldn't be able to perform physically. (*Assistant professor of engineering*)

At the time of their interviews, most respondents characterized their experiences as sexual harassment. However, some respondents noted that they had not immediately recognized those experiences as such. Delayed awareness of sexual harassment was heavily influenced by the pervasive acceptance of gender-discriminatory behavior within the academic context. Many respondents reported that they were the only woman or one of a few women within their departments. Gender discrimination was often normalized in the male-dominated settings in which they worked, which interviewees believed had fueled sexually harassing behavior, fostered tolerance of it, and made differentiating it as such difficult.

SEXUAL HARASSMENT OF TRAINEES

In a recent effort to develop a campus climate survey for undergraduate students that could be used across institutions, researchers at RTI International (Krebs et al. 2016) conducted a nine-school pilot campus climate survey. The researchers focused on sexual assault primarily, and the survey questions on harassment were limited to crude sexual behavior and some forms of unwanted sexual attention (incidents of sexual assault were assessed separately from incidents of sexual harassment, and the sexist hostility component of sexual harassment was not assessed at all). The survey determined that the prevalence of female undergraduates who experienced crude behavior and nonassault forms of unwanted sexual attention in the 2014–2015 academic year ranged from 14 percent to as

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high as 46 percent in some universities.[6] The survey module did not include questions that would allow researchers to identify who the perpetrators were, and thus it is not clear whether the perpetrators were students, university staff, or faculty (Krebs et al. 2016).

In a second effort, starting in October 2014, Georgia State University convened a forum on campus sexual assault and harassment, which led to the development of the Administrator-Researcher Campus Climate Collaborative, referred to as ARC3, and which is led by Sarah L. Cook and Kevin Swartout from Georgia State University. Under the auspices of ARC3, a comprehensive survey instrument of sexual misconduct was developed with guidance from leading sexual violence researchers, student affairs and Title IX professionals, campus law enforcement, target/victim advocates, and counselors. The survey was developed for undergraduate and graduate students and included questions about the status of the perpetrator (faculty, staff, student, etc.). The ARC3 used state-of-the-art instruments based on the Sexual Experiences Questionnaire (SEQ) to ask behavior-based questions measuring sexual harassment, including all of its subtypes: gender harassment (broken down into sexist hostility and crude behavior), unwanted sexual attention, and sexual coercion (Swartout 2018).

To date, 150 institutions of higher education have used the ARC3 survey to measure their campus climate.[7] Two of those institutions, Penn State University and the University of Texas System, evaluated multiple campuses across their institution/in their system and thus included a large sample across multiple fields. The results show yet again that gender harassment is the most common form of sexual harassment and that women are sexually harassed more often than men. The overall rates of sexual harassment for students at these two institutions ranged between 20 and 50 percent depending on what level of education (undergraduate or graduate) they were in (Figure 3-3) and what the student's major was (see Figure 3-2).

The findings from the ARC3 surveys are among the first to compare the sexual harassment experiences of women students in science, engineering, and medical fields to those of women in other fields (non-SEM). The surveys revealed that women in engineering and medicine faced more sexual harassment in the course of their studies than women in non-SEM majors or women in science majors.

For harassment perpetrated by faculty and staff, female medical students were 220 percent more likely than non-SEM majors to experience sexual harassment, while female engineering students were 34 percent more likely than non-SEM majors to experience it (see Figure 3-2). Interestingly, there was a significant difference in one type of sexual harassment the students experienced:

[6] It is important to note that this rate is not a nationally representative estimate and should not be considered as one. The low rate is due to the selective definition of sexual harassment that does not include all three types of sexual harassment.

[7] ARC3 leaders Sarah L. Cook and Kevin Swartout manage the survey and provide it to institutions looking to set it up for their campuses. See http://campusclimate.gsu.edu/contact-us/.

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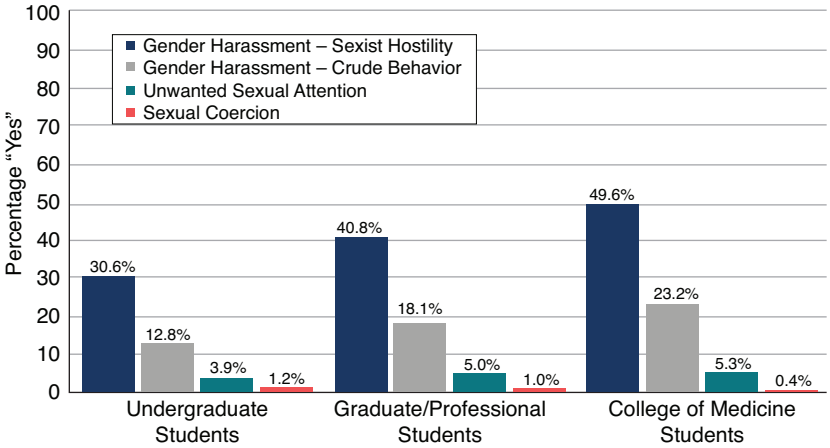

FIGURE 3-2 Faculty/staff-on-student sexual harassment incidence rates for female students by type/level of student and by type of sexual harassment (Penn State University). NOTE: The survey was given to 11,023 undergraduate students (2,945 responses), 4,000 graduate/professional (law) students (1,637 responses) at the University Park campus, and to 889 medical and graduate school students in the College of Medicine at the Hershey campus (411 responses).

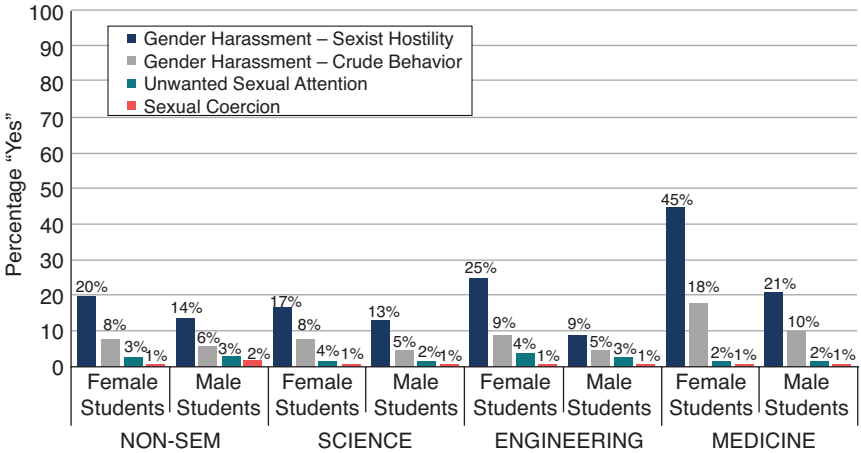

FIGURE 3-3 Faculty/staff-on-student sexual harassment incidence rates for female students, by type of sexual harassment (University of Texas System).

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crude harassment. Female medical students were 149 percent more likely than not in science, engineering, and medicine (non-SEM) majors to experience crude harassment by faculty or staff, while female engineering students experienced it at the same level as non-SEM and science students experienced it (8-9 percent, compared to 18 percent for female medical students) (see Figure 3-2). Almost half of women in medical school or enrolled as a graduate student in a college of medicine reported having experienced some form of sexual harassment (see Figures 3-2 and 3-3).

Using the ARC3 survey, Rosenthal, Smidt, and Freyd (2016) surveyed 525 graduate students regarding their exposure to sexual harassment and found that more than one-third (38 percent) of female graduate students experienced sexual harassment from faculty or staff, compared with only 23.4 percent of male graduate students. The study confirms that sexual harassment is common in higher education institutions and that female graduate students face higher rates of sexual harassment from faculty and staff compared with their male counterparts.

Sexual harassment can also be perpetrated by students on students. The Association of American University Women 2005 online survey, which used a non-SEQ set of behavior-based questions that left out sexist comments and focused on sexual behavior, found that 62 percent of all undergraduates had experienced sexual harassment. The research includes questions about the perpetrator, and the results showed that at college-related events and activities,[8] peer harassment[9] was significantly more common than harassment by faculty—80 percent of students who were harassed reported it was from peers or former peers and only 18 percent reported it was from faculty or staff (AAUW 2005).

While the ARC3 survey does measure peer harassment, we note that the ARC3 survey does not focus on any particular location when measuring experiences of sexual harassment. Respondents can report on student conduct occurring in any number of environments, both educational (e.g., classrooms, lectures, laboratories, libraries, patient rooms, surgical suites) and social (parties, bars, gyms, cafes, concerts, apartments, etc.). A major caveat of this measure is that it is not sensitive enough to distinguish harassing conduct (i.e., that which derogates, demeans, humiliates, etc.) from nonharassing, social-sexual behaviors from other students (e.g., sexual joking, flirting among friends). For example, if a female student reports that a fellow student distributed sexually suggestive materials or repeatedly asked her out on dates, there is no way to know whether this was upsetting versus humorous versus innocuous to her. Because of this blending of potentially offensive and inoffensive conduct, the result may be inflated prevalence estimates of student-on-student sexual harassment. For these reasons, the report

[8] This was defined as when students are in classes, when they are in campus buildings (including student housing, libraries, athletic facilities, administrative buildings, etc.), when they are walking around campus, and when they are at school-sponsored events (including sporting events, campus organizations or clubs, campus fraternity or sorority events).

[9] "Peers" refers to others at the same rank or level in the formal institutional hierarchy.

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does not rely on the ARC3 student-on-student data, but we note that this is a form of sexual harassment that does occur in the education/learning/training settings.

SEXUAL HARASSMENT WITHIN THE SCIENCES

The following section describes studies that have examined sexual harassment experiences of women specifically in the sciences. A study conducted in 2015 (Clancy et al. 2017) of 474 astronomers and planetary scientists found that women who experienced sexist comments were much more likely to be trainees (students) at the time and slightly more likely to experience it from peers or others at the same rank or level in the formal institutional hierarchy than from superiors. Supporting other findings, the women in this study were more likely than the men to report experiencing sexual harassment.

The study also asked respondents about other forms of harassment including racial harassment and asked whether they felt unsafe in their position because of either their gender or race. The study found that women were more likely than men to report feeling unsafe because of their gender (30 percent of women respondents versus 2 percent of men respondents) and that respondents of color were more likely to report feeling unsafe because of their race (24 percent versus 1 percent of white respondents). Women of color were the most likely to experience verbal racial harassment (compared with men of color and white men and women), and that they were equally likely as white women to experience verbal sexual harassment. Additionally, women of color were most likely to report feeling unsafe compared with men of color, white women, or white men, and almost 1 in 2 women of color reported feeling unsafe because of their gender (40 percent based on gender and 28 percent based on race).

This study supports other research on women of color that shows women of color experience more harassment (as a combination of sexual and racial harassment) and thus are likely to be having more negative experiences than other groups (Clancy et al. 2017). Overall, this research adds to the growing evidence that white women and women of color in the astronomy and planetary science fields are experiencing sexual harassment at a level similar to other workplaces with similar environmental variables.

Field research is an important part of scientific scholarship, but it is also an environment that can present increased risks for sexual harassment. A survey of academic field experiences (the SAFE study) identified systemic and problematic behaviors in scientific field sites that may lead to a hostile environment (Clancy et al. 2014). The study identified several characteristics of field-site environments and the sexual harassment that occurs: (1) there was a lack of awareness regarding codes of conduct and sexual harassment policies, with few respondents being aware of available reporting mechanisms; (2) the targets of sexually harassing behavior in field sites were primarily women trainees; and (3) perpetrators varied between men and women—when women were harassed, perpetrators were pri-

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marily senior to the trainees; however, when men were harassed, it was typically by a peer.

Clancy and colleagues (2014) used a snowball sampling technique to reach this diverse population of field scientists, and of those that responded, 64 percent (both men and women) had personally experienced sexual harassment in field sites in the form of inappropriate sexual remarks, comments about physical appearances or cognitive sex differences, or sexist or demeaning jokes, and more than 20 percent of respondents reported having personally experienced sexual assault. The research also found that harassment and assault at field sites were primarily targeted at trainees (students and postdocs), and specifically that 90 percent of the women who were harassed were trainees or employees when they were targeted at the field site. Significantly, the research found that in the field sites, women primarily experienced sexual harassment that came from someone superior to them in the field-site hierarchy.

This higher likelihood of the harassment being perpetrated by superiors is perhaps a unique characteristic that distinguishes research field sites from other workplace settings where it is more common for the harassment to come from peers. This characteristic of field sites is important in understanding the severity of the sexual harassment experienced because as the next chapter will show, the outcomes from sexual harassment can be worse if it comes from a superior who has power over the target.

In a 2017 follow-up, the SAFE team performed a thematic analysis of 26 interviews of women and men field scientists (Nelson et al. 2017). The first finding of this paper was that respondents had very different experiences of field sites where rules were absent, where they were present, and where they were present and enforced. That is, those field sites with high organizational tolerance for sexual harassment—field sites without rules, or those with rules but the rules were not enforced—were ones where respondents described sexual harassment and assault experiences. The second finding, that the scientists who were sexually harassed or experienced other incivilities had worse career experiences, also matches the broader workplace aggression literature. Finally, the authors found that egalitarian field sites were ones that set a positive example for scientists, had fewer incivilities, sexual harassment experiences, and sexual assault, and created positive experiences for respondents that reaffirmed their commitment to science. These data point a way forward, in the sense that organizational antecedents for sexual harassment in science work and education settings are similar to those of other workplaces, and that therefore the literature provides strong, evidence-based recommendations for reducing sexual harassment in science.

SEXUAL HARASSMENT WITHIN MEDICINE

The interviews conducted by RTI International revealed that unique settings such as medical residencies were described as breeding grounds for abusive be-

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havior by superiors. Respondents expressed that this was largely because at this stage of the medical career, expectation of this behavior was widely accepted. The expectations of abusive, grueling conditions in training settings caused several respondents to view sexual harassment as a part of the continuum of what they were expected to endure. As one respondent noted, "But, the thing is about residency training is everyone is having human rights violations. So, it's just like tolerable sexual harassment" (Nontenure-track faculty member in medicine) (RTI 2018).

With the exception of the ARC3 data from campuses with medical schools, unfortunately, much of the survey research conducted on the medical fields has not followed good practices for surveys on sexual harassment. As a result the prevalence numbers from these surveys on the medical field are not comparable and may be underreporting the rate of sexual harassment in these fields. One significant problem with comparing much of the data on the medical fields with other workplaces is the consistency of definitions used. In some, verbal harassment is separated out from the results of sexual harassment, and while they include verbal harassment in the form of sexist jokes as sexual harassment, they omit verbal harassment such as being called a derogatory name (Fnais et al. 2014; Fried et al. 2012). In other instances, the survey item that asks whether sexual harassment is occurring omits the crude behavior part of gender harassment (Jagsi et al. 2016), while some items combine and mix measures of sexual harassment with gender discrimination, resulting in the measurement of a much broader set of experiences (Baldwin, Daugherty, and Rowley 1996; Nora 2002; Frank et al. 2006).

Even so, the research can identify some characteristics of how sexual harassment occurs in medicine. In research that has examined different specialties in medicine, female surgeons and physicians in specialties that are historically male dominated are more likely to be harassed than those in other specialties, but only when they are in training. Once they are out of their residency and in practice they experience harassment at the same rates as other specialties (Frank, Brogan, and Schiffman 1998). These researchers suggested that for women in surgery and emergency medicine the higher rates of sexual harassment might be due to those fields having and valuing a hierarchical and authoritative workplace (1998). The preponderance of men in surgery and emergency medicine, and especially among leaders, is also likely a large factor in explaining the high harassment in these fields (Kabat-Farr and Cortina 2014). In two other studies, students perceived the experiences to be more common in the general surgery specialty than in others (Nora et al. 2002; Nora 1996), and other research reveals that respondents reported their perceptions of these harassing environments influenced their choice in specialty (Stratton et al. 2005). Other research suggests that sexual harassment may be worse depending on the medical setting; for instance, women perceived sexual harassment and gender discrimination to be more common in academic medical centers than in community hospitals and outpatient office settings (Nora et al. 2002).

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One important finding from the research on the environment of academic medical centers is that in addition to students, trainees, and faculty being harassed by colleagues and those in leadership, they are also reporting harassment perpetrated by patients and patients' families. The studies showing this also suggest that harassment from patients and patients' families is very common and one of the top sources of the harassment they experience (Fnais et al. 2014; Phillips and Schneider 1993; Baldwin 1996; McNamara et al. 1995). This inappropriate behavior by patients and patients' families needs to be recognized by leaders in academic medical centers, and specific statements and admonitions against sexual harassment should be included in the "Rights and Responsibilities" that are routinely presented to patients and families as they enter into both hospital and outpatient care in academic medical centers.

FINDINGS AND CONCLUSIONS

1. **Academic science, engineering, and medicine exhibit at least four characteristics that create higher levels of risk for sexual harassment to occur:**
   a. **Male-dominated environment,** with men in positions of power and authority.
   b. **Organizational tolerance for sexually harassing behavior** (e.g., failing to take complaints seriously, failing to sanction perpetrators, or failing to protect complainants from retaliation).
   c. **Hierarchical and dependent relationships between faculty and their trainees** (e.g., students, postdoctoral fellows, residents).
   d. **Isolating environments** (e.g., labs, field sites, and hospitals) in which faculty and trainees spend considerable time.
2. **Sexual harassment is common in academic science, engineering, and medicine.** Each type of sexual harassment occurs within academic science, engineering, and medicine at similar rates to other workplaces.
   a. Greater than 50 percent of women faculty and staff and 20–50 percent of women students encounter or experience sexually harassing conduct in academia.
   b. Women students in academic medicine experience more frequent gender harassment perpetrated by faculty/staff than women students in science and engineering.
   c. Women students/trainees encounter or experience sexual harassment perpetrated by faculty/staff and also by other students/trainees.
   d. Women faculty encounter or experience sexual harassment perpetrated by other faculty/staff and also by students/trainees.
   e. Women students, trainees, and faculty in academic medical centers experience sexual harassment by patients and patients' families in addition to the harassment they experience from colleagues and those in leadership positions.

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4

Job and Health Outcomes of Sexual Harassment and How Women Respond to Sexual Harassment

Knowing that greater than 50 percent of women faculty and staff and 20–50 percent of women students encounter sexually harassing conduct in academia,[1] the question now becomes how significant of a problem this is to those women; to others in the sexually harassing environments; to the disciplines of science, engineering, and medicine (SEM); and to society. Sexual harassment[2] has been studied in a variety of industries, social and occupational classes, and racial/ethnic groups. Negative effects have been documented in virtually every context and every group that has been studied. That is, the impact of sexual harassment extends across lines of industry, occupation, race, and social class (for meta-analytic reviews of these effects, see Chan and colleagues [2008], Ilies and colleagues [2003], Sojo, Wood, and Genat [2016], and Willness, Steel, and Lee [2007]). This chapter explores in more detail this research record on outcomes of sexual harassment and provides a conceptual review of the research[3] on outcomes that are associated[4] with sexual harassment experiences.

[1] See Chapter 3 for the research on these prevalence rates.

[2] There are three types of sexual harassment: gender harassment, unwanted sexual attention, and sexual coercion. See Chapter 2 for further descriptions.

[3] Wherever possible, the report cites the most recent scientific studies of a topic. That said, the empirical research into sexual harassment, using rigorous scientific methods, dates back to the 1980s. This report cites conclusions from the earlier work when those results reveal historical trends or patterns over time. It also cites results from earlier studies when there is no theoretical reason to expect findings to have changed with the passage of time. For example, the inverse relationship between sexual harassment and job satisfaction is a robust one: the more an individual is harassed on the job, the less she or he likes that job. That basic finding has not changed over the course of 30 years, and there is no reason to expect that it will.

[4] Much of the research in this area is based on correlational survey data, which cannot support definitive causal conclusions; there have, however, been some experiments that do point to causal

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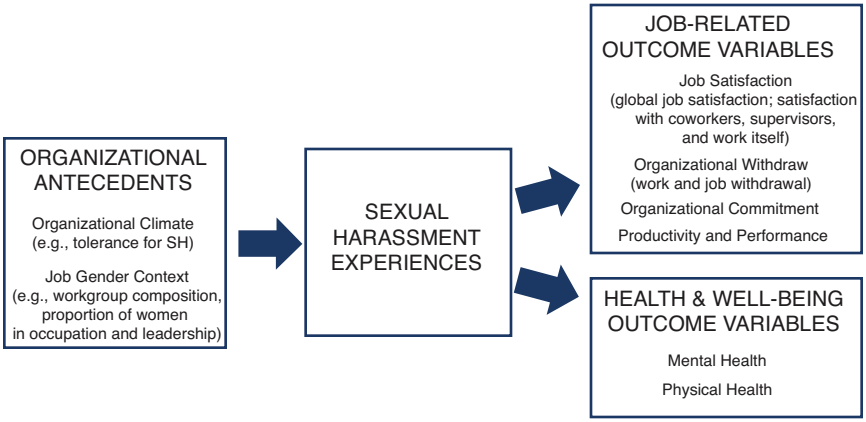

FIGURE 4-1 Visual representation of antecedents and outcomes from sexual harassment. SOURCE: Adapted from Willness, Steel, and Lee 2007.

OUTCOMES OF SEXUAL HARASSMENT FOR INDIVIDUALS

Numerous robust studies have documented links between sexual harassment and declines in psychological and professional well-being. As a result, researchers have established a conceptual model of the factors that predict sexual harassment experiences (antecedents, examined in Chapter 3) and the outcomes associated with sexual harassment experiences (Figure 4-1). Overall, the research has demonstrated that women's experiences of sexual harassment are associated with reductions in their professional, psychological, and physical health. The research also shows that the relationships between sexual harassment and these outcomes remain significant even when controlling for (1) the experiences of other stressors (e.g., general job stress, trauma outside of the work, etc.), (2) other features of the job (occupational level, organizational tenure, workload), (3) personality (negative affectivity, neuroticism, narcissism), and (4) other demographic factors (age, education level, race) (Cortina and Berdahl 2008). Some research also shows that sexual harassment has stronger relationships with women's well-being than other job-related stressors, which emphasizes just how significant this issue is in educational and work settings (Fitzgerald et al. 1997). Other studies, moreover, show that negative effects extend to witnesses, workgroups, and entire organizations. The more often women are sexually harassed in a context, the more they think

connections between harassment and outcomes (e.g., Woodzicka and LaFrance 2005; Schneider, Tomaka, and Palacios 2001). Most of these correlational studies do not report the proportion of each sample who experiences each outcome; they instead focus on the strength of the relationship between sexual harassment and outcomes.

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about leaving (and some do ultimately leave); the net result of sexual harassment is therefore a loss of talent, which can be costly to organizations and to science, engineering, and medicine.

Research has shown that even low-frequency incidents of sexual harassment can have negative consequences, and that these women's experiences are statistically distinguishable from women who experienced no sexual harassment (Schneider, Swan, and Fitzgerald 1997; Langhout et al. 2005). Not surprisingly, the research has also shown that as the frequency of sexual harassment experiences goes up, women experience significantly worse job-related and psychological outcomes (Fitzgerald et al. 1997; Schneider, Swan, and Fitzgerald 1997; Magley, Hulin, et al. 1999; Leskinen, Cortina, and Kabat 2011). Relatedly, research has shown that gender harassment (a type of sexual harassment, which tends to occur at high frequencies) can have similar effects as unwanted sexual attention and sexual coercion (types of sexual harassment, which tend to be rare). In other words, gender harassment can be just as corrosive to work and well-being (Langhout et al. 2005; Leskinen, Cortina, and Kabat 2011; Sojo, Wood, and Genat 2016). This emphasizes the importance of not dismissing gender harassment as a "lesser," inconsequential form of sexual harassment. It is also significant to note that the impacts women experience are in no way dependent on them labeling the experience as sexual harassment (Schneider, Swan, and Fitzgerald 1997; Cortina and Berdahl 2008; Magley, Hulin, et al. 1999; Magley and Shupe 2005; Munson, Miner, and Hulin 2001).

Professional Outcomes

Extensive research shows that sexual harassment takes a toll on women's professional well-being. This is true across a variety of industries, from academia to the military to the Fortune 500. Studies have considered a range of professional well-being outcomes, in particular, job satisfaction, organizational withdrawal, organizational commitment, job stress, and productivity or performance decline.

A host of studies have linked sexual harassment with decreases in job satisfaction. This finding applies to not only white women in the U.S. civilian workforce[5] but also employees in the U.S. military and police force,[6] women of color

[5] Bond et al. 2004; Cortina, Lonsway, et al. 2002; Fitzgerald, Drasgow, et al. 1997; Glomb et al. 1999; Harned and Fitzgerald 2002; Holland and Cortina 2013; Lim and Cortina 2005; Magley and Shupe 2005; Morrow, McElroy, and Phillips 1994; Munson, Hulin, and Drasgow 2000; Piotrkowski 1998; Ragins and Scandura 1995; Schneider, Swan, and Fitzgerald 1997.

[6] For example, Bergman and Drasgow 2003; Fitzgerald, Drasgow, and Magley 1999; Harned and Fitzgerald 2002; Harned et al. 2002; Langhout et al. 2005; Lonsway, Paynich, and Hall 2013; Magley, Waldo, et al. 1999.

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in the United States,[7] and nations outside of the United States.[8] When the relationship between sexual harassment and job satisfaction is studied in more detail, data show that the dissatisfaction is notably worse when assessing interpersonal relations with supervisors and coworkers; however, there is less of a decrement in satisfaction with noninterpersonal job aspects such as the work, pay, or career progress (Willness, Steel, and Lee 2007).

Studies examining organizational withdrawal sometimes further categorize this professional outcome as (1) work withdrawal (distancing oneself from the work without actually quitting) and (2) job withdrawal (turnover thoughts, intentions, or actions). Work withdrawal is defined as "employees' attempts to remove themselves from the immediate work situation while still maintaining organizational membership" (Schneider, Swan, and Fitzgerald 1997). It includes absenteeism (i.e., more frequent time off), tardiness, and use of sick leave (measured on scales where respondents indicated desirability, frequency, likelihood, and ease of engaging in these behaviors) and unfavorable job behaviors (e.g., making excuses to get out of work, neglecting tasks not evaluated on performance appraisals) (Schneider, Swan, and Fitzgerald 1997). Many studies have found that sexual harassment predicts work withdrawal (Barling, Rogers, and Kelloway 2001; Cortina et al. 2002; Fitzgerald et al. 1997; Culbertson and Rosenfeld 1994; Glomb et al. 1999; Holland and Cortina 2013; Lonsway, Paynich, and Hall 2013; Schneider, Swan, and Fitzgerald 1997; USMSPB 1995; Wasti et al. 2000).

In a meta-analysis of studies, researchers found that while both work and job withdrawal are related to sexual harassment experiences, work withdrawal was found to be more significantly related to sexual harassment than job withdrawal—meaning targets are more likely to disengage from their work but not as likely to leave their job. These strategies can be viewed as ways to avoid further exposure to sexual harassment (Willness, Steel, and Lee 2007).

The second type of organizational withdrawal, job withdrawal, is "defined by employees' intentions to leave their jobs and the organization itself and usually manifests through turnover or retirement" (Schneider, Swan, and Fitzgerald 1997). It is measured by asking respondents "to indicate the likelihood of resigning in the next few months, the desirability of resigning, the frequency of thoughts about resigning, and the ease or difficulty of resigning on the basis of financial and family considerations and the probability of finding other employment" (Schneider, Swan, and Fitzgerald 1997). Many studies have documented links between sexually harassing experiences and job withdrawal thoughts and intentions (Barling et al. 1996; Cortina, Lonsway, et al. 2002; Fitzgerald et al. 1997; Glomb et al. 1999; Lim and Cortina 2005; Holland and Cortina 2013; Lonsway, Paynich, and Hall 2013; Magley and Shupe 2005; O'Connell and Korabik 2000;

[7] For example, Bergman and Drasgow 2003; Cortina, Fitzgerald, and Drasgow 2002; Shupe et al. 2002; Piotrkowski 1998.

[8] Canada: Barling et al. 1996; O'Connell and Korabik 2000. Mainland China: Shaffer et al. 2000. Hong Kong: Chan, Tang, and Chan 1999; Shaffer et al. 2000. Turkey: Wasti et al. 2000.

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Schneider, Swan, and Fitzgerald 1997; Shaffer et al. 2000; Shupe et al. 2002; Wasti et al. 2000). Thoughts and intentions of leaving are critical to understanding how sexual harassment drives women out of an institution or field, because one of the best predictors of an action (such as leaving an institution or leaving the field) is *thought and intention* to commit that action. That being said, one study followed 11,521 military servicewomen over a 4-year time span, finding that sexual harassment led to *actual* turnover behavior over time; this effect held even after controlling for job satisfaction, organizational commitment, marital status, and rank (Sims, Drasgow, and Fitzgerald 2005).

Sexual harassment is also associated with reduced productivity and performance for the target (Barling, Rogers, and Kelloway 2001; Magley, Waldo, et al. 1999; USMSPB 1995; Woodzicka and LaFrance 2005). Some studies suggest that when organizational commitment declines, so do targets' performance and work productivity. One unique experiment demonstrated that women's verbal performance suffered as a result of subtle sexual harassment (Woodzicka and LaFrance 2005). Additional research has shown that it is not just targets' performance but also workgroup or team productivity that is undercut by sexual harassment experiences. Workgroup productivity is often assessed based on "respondents' perceptions of how well their workgroup performs quality work together" (Willness, Steel, and Lee 2007). One study demonstrated links between sexual harassment in teams and objective measures of those teams' financial performance (Raver and Gelfand 2005).

Another key measure of sexual harassment outcomes in the workplace is the commitment of individuals to their organization. This measure reveals feelings of disillusionment and anger with an organization and beliefs that the organization is to blame for the experiences they had (Willness, Steel, and Lee 2007). Significantly, while this is an impact on the target of the harassment, this outcome can also negatively affect the organization, as the reduced commitment to the organization may result in employees leaving the organization or taking retaliatory actions against the organization. Research shows that as women experience more instances of sexual harassment, the less committed they feel toward their place of work (Barling, Rogers, and Kelloway 2001; Bergman and Drasgow 2003; Fitzgerald, Magley, et al. 1999; Harned and Fitzgerald 2002; Langhout et al. 2005; Magley, Waldo, et al. 1999; Magley and Shupe 2005; Morrow, McElroy, and Phillips 1994; Schneider, Swan, and Fitzgerald 1997; Shaffer et al. 2000; Chan et al. 2008). In a meta-analysis of studies, Willness, Steel, and Lee (2007) found that the effect size of the relationship between sexual harassment experiences and organizational commitment[9] was similar to the effect size for global

[9] Assessed by a weighted mean correlation corrected for reliability, rc = –0.249.

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job satisfaction,[10] but lower than the effect size for satisfaction with supervisors[11] or coworkers.[12]

Many studies include job stress as a covariate in their harassment-outcome models, but when researchers have instead conceptualized job stress as an outcome, they have virtually always found that general job-related stress increases as sexual harassment becomes more frequent (Cortina, Lonsway, et al. 2002; Lim and Cortina 2005; Lonsway, Paynich, and Hall 2013; Magley and Shupe 2005; Morrow, McElroy, and Phillips 1994; O'Connell and Korabik 2000).

Other job-related outcomes beyond those covered by the above categories include: impaired team relationships and increased team conflict (Raver and Gelfand 2005); lower justice perceptions; greater distractibility (Barling, Rogers, and Kelloway 2001); and targets feeling the need to over-perform to gain acceptance and recognition in the workplace (Parker and Griffin 2002). For reviews of research on professional outcomes of sexual harassment, see Cortina and Berdahl (2008), Holland and Cortina (2016), and Fitzgerald and Cortina (2017).

Educational Outcomes

The impact that sexual harassment has on students at all levels of the educational continuum, from high school to graduate studies, is markedly similar to the impacts it has in the workplace. The following sections discuss educational consequences at the high school, undergraduate, and graduate school levels.

Research on students in high school who have experienced harassment shows that they report lowered motivation to attend classes, exhibit greater truancy, pay less attention in class, receive lower grades on assignments and in their overall grade point average, and seriously consider changing schools (Duffy, Wareham, Walsh 2004; Lee et al. 1996). Even young women who have not been harassed avoid taking classes from teachers with reputations for engaging in harassing behavior (Fitzgerald et al. 1988).

At the undergraduate level, sexual harassment (of which the most common type is gender harassment) has significant consequences on the educational path of students. The more often women students are harassed, the lower their assessments of the campus climate and likelihood of returning to the college or university if they had to make the decision again (Cortina et al. 1998). Even worse, sexually harassed students have reported dropping classes, changing advisors, changing majors, and even dropping out of school altogether just to avoid hostile environments (Huerta et al. 2006; Fitzgerald 1990).

The women who remain in school tend to suffer academically (Huerta et al. 2006; Reilly, Lott, and Gallogly 1986). If women feel that the academic environment is hostile toward them, they may not participate in informal activities that

[10] rc = –0.245.
[11] rc = –0.285.
[12] rc = –0.316.

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could enhance their experiences and result in academic advancement (Dansky and Kilpatrick 1997). Sexual harassment also may have an impact on a student's self-esteem (Barickman, Paludi, and Rabinowitz 1992). Therefore, low levels of academic engagement, performance, and motivation provide explanations as to why sexual harassment is related to poor grades among female college students (Cammaert 1985; Huerta et al. 2006).

Using the Administrator Researcher Campus Climate Collaborative (ARC3) survey, Rosenthal, Smidt, and Freyd (2016) found that consistent with studies on other populations of targets, sexual harassment experiences by graduate students were associated with posttraumatic symptoms for both men and women. Female graduate students who indicated that they had experienced sexual harassment also reported a diminished sense of safety on campus. The University of Texas analysis of the ARC3 data suggests that across academic disciplines women who experienced sexual harassment from faculty/staff reported significantly worse physical and mental health outcomes than those who had not experienced sexual harassment.

Health and Well-Being Outcomes

Researchers measure health and well-being based on standard psychology research scales that include multiple questions (e.g., about symptoms of anxiety and depression) appropriate for a general (nonpsychiatric, nonhospitalized) population. Many studies of this topic have appeared in the clinical and psychiatric literatures, and their findings are striking.

The more often women experience sexual harassment, the more they report symptoms of depression, stress and anxiety, and generally impaired psychological well-being (Bergman and Drasgow 2003; Bond et al. 2004; Cortina, Fitzgerald, and Drasgow 2002; Culbertson and Rosenfeld 1994; Fitzgerald, Swan, and Magley 1997; Fitzgerald, Drasgow, and Magley 1999; Glomb et al. 1999; Harned and Fitzgerald 2002; Langhout et al. 2005; Lim and Cortina 2005; Magley, Hulin, et al. 1999; Magley, Cortina, and Kath 2005; Parker and Griffin 2002; O'Connell and Korabik 2000; Piotrkowski 1998; Richman et al. 1999, 2002; Schneider, Swan, and Fitzgerald 1997; Schneider, Tomaka, and Palacios 2001; Vogt et al. 2005; Wasti et al. 2000). These results extend to women of color (e.g., Bergman and Drasgow 2003; Cortina, Fitzgerald, and Drasgow, 2002) as well as to gay men, lesbians, and transgender individuals (Irwin 2002). Other psychological outcomes of sexual harassment include the following:

- negative mood (Barling et al. 1996; Barling, Rogers, and Kelloway 2001; O'Connell and Korabik 2000);
- fear (Barling, Rogers, and Kelloway 2001; Culbertson and Rosenfeld 1994);
- disordered eating (Harned and Fitzgerald 2002; Huerta et al. 2006);

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- self-blame, lowered self-esteem (Culbertson and Rosenfeld 1994; Harned and Fitzgerald 2002);
- increased use of prescription drugs (Richman et al. 1999) and alcohol (Rospenda et al. 2008; McGinley et al. 2011);
- anger, disgust (Culbertson and Rosenfeld 1994); and
- lowered satisfaction with life in general (Cortina, Fitzgerald, and Drasgow 2002; Fitzgerald, Swan, and Magley 1997; Glomb et al. 1999; Lim and Cortina 2005; Munson, Hulin, and Drasgow 2000; Schneider, Swan, and Fitzgerald 1997; Wasti et al. 2000).

In a series of articles based on a longitudinal study of university employees, Richman and other social scientists documented associations between earlier sexual harassment and later alcohol use and misuse (Freels, Richman, and Rospenda 2005; Richman et al. 1999, 2002; Wislar et al. 2002).

Beyond showing significant associations between sexual harassment and psychological distress symptoms, some studies have investigated whether and when those symptoms meet criteria for a psychiatric diagnosis. If the sexual harassment is severe enough in either intensity (e.g., assault) and/or frequency and duration (multiple and repeated incidents over a significant length of time), targets are more likely to experience symptoms that rise to the level of a psychiatric disorder, including mood and anxiety disorders (Rosenthal, Smidt, and Freyd 2016; Ho et al. 2012; Fitzgerald, Buchanan, et al. 1999). For example, one study, based on a large national random sample of women, found that 1 in 5 self-identified sexual harassment targets reported symptoms fitting a DSM-IV diagnosis of Major Depression, and 1 in 10 had symptoms meeting criteria for posttraumatic stress disorder (Dansky and Kilpatrick 1997).

Clinical evaluation has demonstrated that women who experience sexual harassment incur often inevitable and multiple losses, which contributes to psychological stress and distress and which cannot be captured by a diagnostic label. Specific types of losses vary depending on the circumstances of each situation and are often exacerbated after formal reporting. The tangible losses women experience can include the loss of a job and its associated economic, personal, and social benefits. Of these, loss of income and economic security is often the most stressful (Unger and Crawford 1996). Women experiencing sexual harassment also incur intangible but significant losses. They often lose self-esteem and confidence in themselves and their competency, and they often report loss of motivation or passion for their work. In addition, disruptions and loss of significant relationships, inside and outside the workplace or academic community, are common. These can include loss of important mentoring or coworker relationships and strain on family and social relationships, including relationships with intimate partners and social networks. Social support inside and/or outside the workplace is one of the most significant factors that can mitigate the stress and distress sexual harassment causes. The disruption and loss of these relationships

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can deprive women of this support and can worsen the psychological and physical outcomes (Gold 2004).

When harassment results in stigmatization and the loss of a highly valued training opportunity or career, the effects on the target can be devastating, beyond the financial stresses associated with job loss. When a woman has made a personal, professional, and financial commitment to and investment in highly specialized science, engineering, and medical training, such as choosing to forego having children or investing years in "paying dues" to advance in her field, the loss of a training or employment position creates profound grief. For some women who value a science, engineering, and medical career in relatively small and highly specialized training institutions and occupations, as are often found in science, engineering, and medical fields, getting labeled as a complainer and someone who "causes trouble" can effectively end a woman's career. Even if she is able to leave the environment in which the harassment has occurred, a "reputation" may prevent the woman from being accepted into the handful of similar training programs or obtaining the few available positions in science, engineering, and medicine (Gold 2004).

Compared with the research on psychological health outcomes, the literature on physical health outcomes is less extensive and appears to be indirect (i.e., emerging as a result of its link to psychological health (Cortina and Berdahl 2008; Gold 2004). In other words, women who are experiencing psychological distress may report stress-related physical complaints as well. Some research has documented links to overall health perceptions or satisfaction (Bergman and Drasgow 2003; Fitzgerald, Swan, and Magley 1997, Fitzgerald, Drasgow, and Magley 1999; Harned and Fitzgerald 2002; Harned et al. 2002; Lim and Cortina 2005; Magley, Hulin, et al. 1999; Wasti et al. 2000). Others have identified specific somatic complaints associated with harassing experiences; these include headaches, exhaustion, sleep problems, gastric problems, nausea, respiratory complaints, musculoskeletal pain, and weight loss/gain (Barling et al. 1996; Culbertson and Rosenfeld 1994; de Haas, Timmerman, and Höing 2009; Fitzgerald, Swan, and Magley 1997; Piotrkowski 1998; Wasti et al. 2000).

Specifically, one experiment has demonstrated a causal connection between gender harassment, the most common form of sexual harassment, and physiological measures of stress. When women were exposed to sexist comments from a male coworker, they experienced cardiac and vascular activity similar to that displayed in threat situations.[13] This kind of cardiovascular reactivity has been linked to coronary heart disease and depressed immune functioning. The researchers conclude that if women are exposed to repeated, long-term gender harassment and the resulting physical stress, they could be at risk for serious long-term health problems (Schneider, Tomaka, and Palacios 2001).

[13] The researchers measured cardiac and vascular activity using electrocardiography (EKG), impedance cardiography (ZKG), and an automated blood-pressure device.

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Studies have shown that sexual harassment experienced by students is associated with negative health outcomes. According to the ARC3, data comparing the relationship between experiencing sexual harassment and negative physical and mental health outcomes across academic disciplines (i.e., non-SEM), female students who were sexually harassed had similar negative effects regardless of their disciplinary area. However, only female medical students who experienced sexual harassment by faculty or staff showed a negative impact on safety concerns; they reported feeling less safe on campus. Students who experienced sexual harassment by another student had similar responses as those who had been harassed by faculty or staff. Female medical school and engineering students both reported negative physical and mental outcomes, with female medical students also reporting feeling less safe on campus (see Swartwout 2018, Appendix D consultant paper in this report).

Outcomes and Harasser Power

While all types of sexual harassment will have negative effects, top-down sexual harassment (i.e., committed by a superior) is sometimes more harmful than peer harassment. For instance, studies have shown that working women who experience sexual harassment from higher-level men, rather than equal or lower-level men, experience greater impacts and negative consequences for targets' job satisfaction, intent to leave one's job, and organizational commitment, as well as health-related variables such as depression, emotional exhaustion, and physical well-being (Morrow, McElroy, and Phillips 1994; O'Connell and Korabik 2002). Moreover, research has reported that the more powerful the perpetrator, the more that women find his harassing conduct distressing (Cortina et al. 2002; Langhout et al. 2005). Huerta and colleagues' (2006) study of college students found that academic satisfaction was lower when the harassment came from higher-status individuals (i.e., faculty, staff, or administrators). Theoretical explanations for the greater consequences associated with top-down sexual harassment include the target's learned helplessness (Thacker and Ferris 1991), fear of the perpetrator's ability to coerce sexual cooperation, and fear of job-related repercussions for failing to cooperate (Bergman et al. 2002; Cortina et al. 2002; Langhout et al. 2005; O'Connell and Korabik 2000).

It is important to recognize, however, that sexual harassment more often comes from same-status peers rather than higher-status authority figures (in part because employees and students typically interact with peers more often than superiors, and in many contexts peers far outnumber those in power). Moreover, research has documented many negative effects of peer-perpetrated harassment (Morrow, McElroy, and Phillips 1994; O'Connell and Korabik 2000), and some effects are just as bad regardless of the status of the perpetrator (Huerta et al. 2006; Morrow, McElroy, and Phillips 1994). For instance, Huerta and colleagues (2006) found that sexual harassment related to student symptoms of anxiety and

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depression, irrespective of whether the harassment came from peers (i.e., fellow students) or from those in authority (administrators, staff, or faculty).

Outcomes for Underrepresented Groups

While it continues to be sparse, research examining the intersection of sexual harassment and race has been able to illuminate "unique, culture-specific factors" that affect the impacts of sexual harassment on women of color. A study by Cortina and colleagues (2002) on Latina populations showed that a set of sociocultural determinants specific to a population affect sexual harassment experiences. One of the main findings of this study supports the idea that sexual harassment experiences are more distressing for women of color when occurring simultaneously with other types of harassment in the workplace. That is, racial harassment in the workplace was the strongest factor associated with severe experiences of sexual harassment. This finding supports the idea that sexual harassment is perceived by the targets to be more severe in work and education environments that tolerate sexual, racial, and sexual-racial harassment (Cortina et al. 2002).

In addition to racial harassment, perpetrator power was also revealed to be a strong correlate with the severity of the sexual harassment experience. The study also found significant relations between the severity of the sexual harassment experience and Latina job satisfaction and mental health. The more severe the sexual harassment, the lower the satisfaction with work (which in turn relates to job withdrawal) as well as increased mental health issues (depressive, anxious, and somatic symptoms). This finding is consistent with studies on the impact of sexual harassment experiences of women in general (see above). A similar study conducted by Woods, Buchanan, and Settles (2009) examined the sexual harassment experiences of black women. The study looks specifically at cross-racial and intraracial sexual harassment experiences and how the two are appraised differently by black women. This study found evidence that perpetrator race plays a powerful predictor of sexual harassment appraisal. Black women in this study appraised cross-racial harassment to be more severe (i.e., more offensive, frightening, and disturbing) than intraracial harassment. These appraisals, moreover, were associated with more severe symptoms of posttraumatic stress (Woods, Buchanan, and Settles 2009). These studies, as do many others, demonstrate the nuanced dimensions by which women of color experience sexual harassment. Further research in this space would help to further illuminate the complicated dimensions of sexual harassment experiences.

Sexual- and gender-minority individuals, an often overlooked group, can also experience the impacts of sexual harassment differently. A study by Irwin (2002) reveals that the impact on health and well-being to gender minorities is alarming, with 90 percent of those in the sample indicating that they experienced increased anxiety and stress levels while on the job. Eighty percent of the respondents

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suffered from depression, 63 percent experienced a loss of confidence and self-esteem, and 59 percent expressed that their personal relationships suffered due to ongoing workplace harassment. Additionally, several studies do point to adverse effects of a generally hostile environment for this population, ranging from coming-out stress to using the wrong pronouns, to accessibility to safe bathrooms, which suggests it is important to study sexual harassment in this population to see how it may intersect with other forms of harassment (such as heterosexist harassment and transgender harassment) and incivility (DuBois et al. 2017).

Taken together, these studies demonstrate that the multiple layers of an individual's identity may affect the way one perceives and deals with sexual harassment in the workplace or academia.

OUTCOMES OF SEXUAL HARASSMENT FOR WITNESSES AND WORKGROUPS

Sexual harassment does not only impact the target but may also impact employees and coworkers who witness or hear about the experience. Several studies have attempted to document these impacts to show that negative impacts associated with indirect experiences of sexual harassment will also affect other women (and men) in the target's workgroup or team (Glomb et al. 1997; Miner-Rubino and Cortina 2004, 2007; Hitlan, Schneider, and Walsh 2006).

In a study of female employees from a public utility company, Glomb and colleagues propose that ambient sexual harassment, defined as the indirect exposure to sexual harassment or "the general or ambient level of sexual harassment in a work group as measured by the frequency of sexually harassing behaviors experience by others in a woman's work group" (1997, 309), will lead to similar negative outcomes as direct exposure. Glomb and colleagues point to research on organizational stressors such as racial harassment and organizational politics that are known to cause heightened stress to employees who are not themselves targets. In this study, they propose that such research suggests that "effects of job stressors are quite diffuse and extend beyond the focal target" (312). In extending this research to sexual harassment, Glomb and colleagues find that ambient sexual harassment in the workplace has a detrimental influence on an employee's job satisfaction and psychological conditions. According to their findings, women who experience sexual harassment directly *and* indirectly report higher levels of absenteeism and intentions to quit, and are more likely to leave work early, take long breaks, and miss meetings (job withdrawal).

Similar conclusions have been made from other studies. For example, a study by Miner-Rubino and Cortina (2004) found that all employees in the workplace—both female *and* male—can suffer from working in a climate perceived to be hostile toward women. Consequently, the concept of ambient sexual harassment has significant implications for organizations. The studies above confirm that sexual harassment is not only an individual problem but also an organizational problem.

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COPING WITH SEXUAL HARASSMENT: WHY WOMEN ARE NOT LIKELY TO REPORT

Only a very small literature examines how women respond to their experiences of sexual harassment, but it reveals that women do not respond the way many expect them to. As Fitzgerald, Swan, and Fischer (1995, 118) note, "legal proceedings . . ., in practice if not theory, hold the victim responsible for responding 'appropriately,' . . . placing the burden of nonconsent on the victim." They go on to highlight that, up to that point in time, frameworks for understanding women's responses to sexual harassment were typically grounded in an assumption that responses were typically viewed as simply more or less assertive (e.g., Gruber 1998). As Magley (2002) noted, "Unfortunately, one consequence of framing women's responses, purely as a continuum of assertiveness is that responses other than assertiveness can be interpreted as weakness on the part of the recipient or as evidence that she did not handle it properly." As we demonstrate in our review below, women's actual responses are much more complex than simply asserting/reporting or not.

As Magley (2002) found, based on data from more than 15,000 women, "frequently, a woman's responses, often aimed at ignoring or appeasing the harasser, are nonconfrontive and intent on maintaining a satisfactory relationship with the individual" (see also Wasti and Cortina [2003]). For example, nearly three-quarters (74.3 percent) of the women in one of seven of the datasets analyzed by Magley avoided their perpetrator, 72.8 percent detached themselves psychologically from the situation, 69.9 percent endured the situation without any attempt to resolve the situation, and 29.5 percent attempted to appease their perpetrator by making up an excuse to explain his behavior.

Seeking social support is also a typical response to sexual harassment. As summarized by Cortina and Berdahl (2008), approximately one-third of targets discuss their experience with family members and approximately 50–70 percent seek support from friends. In an effort to better understand the sexual harassment experiences of women in SEM fields, an area of research that has been scarcely explored, the National Academies Committee on the Impacts of Sexual Harassment in Academia commissioned the Research Triangle Institute (RTI) to conduct a series of interviews. The results from the interviews showed that women had numerous ways of coping with sexual harassment. For example, internal coping mechanisms included minimizing or normalizing the incidents (e.g., trying to ignore or laugh it off, not taking it personally); strategizing about how to be better prepared to respond to future incidents (or to redirect the person); engaging in mindfulness, spiritual, and self-healing activities; engaging in exercise or physical activity; trying to get tougher; and staying focused on their careers (RTI 2018). Women also reached out to friends and family, which was considered almost universally to be a positive choice. But reactions from colleagues turned out to be a mixed bag for these women. Here is what one woman heard from a colleague:

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> I would tell [friends] outside this profession who would be like, "Are you kidding me, what?" But the people who work for this institution were like, "Can't you just suck it up? This is not going to go well for you if you report. You don't want to make a fuss." I knew they were right, but at the same time, I really was like, "This is just too much. I shouldn't have to be preparing to get raped when I go into work." (*Nontenure-track faculty member in medicine*)

Other women found the advice from their colleagues to be extremely helpful. They reported that female colleagues in particular were empathetic and bolstered the overall quality of their work life. One woman explained the level of support as follows:

> I happen to be in a department that is well above the national average for women faculty in [predominantly male field]. Because of that, we have a really strong network of women who—I mean, we go out to coffee once a month just to talk about being female faculty from the full professor level all the way down to first-year assistant professors or instructors. Because of that, it's easier to face some of these issues when you kind of have a team behind you. I know I'm lucky in having that kind of network here; most women faculty don't. (*Assistant professor of engineering*)

In fact, some women said that without this support, they may have left their fields altogether. For those who did not have the support on campus, they sought it out at scientific conferences or professional forums. Finally, a few women turned to therapists to deal with their feelings following a sexual harassment incident. While only a small number took this route, those who did said that counseling was beneficial (RTI 2018).

When seeking support from those other than peers, only around one-third of women will reach out to those in their organization. Cortina and Berdahl (2008) found that only approximately one-third ever informally discuss their sexual harassment experience with their supervisors, which mirrors the 36.2 percent found by Magley (2002).

For making formal reports with an organization, the rates are even lower. Cortina and Berdahl (2008) found that only 25 percent of targets will file a formal report with their employer, and even a smaller fraction of them will take their claims to court. A report by the Association of American University Women (2005) reveals that almost half (49 percent) confide in a friend, 35 percent of undergraduate students tell no one, and only 7 percent report the incident to a college employee. Results from the 2016 ARC3 survey at the University of Texas System confirms that students have very low reporting rates, with only 2.2 percent of all students who experienced sexual harassment reporting it to the institution and 3.2 percent disclosing the experience to someone in a position of authority at the institution. In a study on graduate students, 6.4 percent of those who had been sexually harassed reported the incident (Rosenthal, Smidt, and Freyd 2016). For university faculty and staff, earlier research suggests the rates

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are similar to that for graduate students, with 6 percent reporting their experience (Schneider, Swan, and Fitzgerald 1997). Low reporting rates have been documented among all women, but women of color—black women, Asian American women, and Latinas—have been shown to report even less frequently than white women (e.g., Wasti and Cortina 2002).

As a coping mechanism, formal reporting for targets is the last resort: it becomes an option only when all others have been exhausted. Cortina and Berdahl (2008) explain that the reluctance to use formal reporting mechanisms is rooted in the "fear of blame, disbelief, inaction, retaliation, humiliation, ostracism, and damage to one's career and reputation." These fears are justified because reporting processes often bring few benefits and many costs to the targets. Studies show that women and nonwhites often resist naming something "discrimination" because it promotes their victimhood and loss of control (Bumiller 1987; Crosby 1993; Dodd et al. 2001; Stangor, Sechrist, and Jost 2001). Social psychologists have documented negative reactions such as contempt and laughter against women and African Americans who claim to have experienced discrimination (even when the subjects view evidence showing that discrimination probably occurred) (Kaiser and Miller 2003; Czopp and Monteith 2003). In a survey of 6,417 men and women in the military, the research demonstrated that not only could reporting sexual harassment trigger retaliation (despite this being illegal, see the discussion in Chapter 5), but also it was linked to lower job satisfaction and psychological distress (Bergman et al. 2002). Further, retaliation becomes more likely and severe when there is a power differential between the target and the harasser, as is often the case (Knapp et al. 1997). In another study, which surveyed 1,167 federal employees, the results show that employees with lower rank or hierarchical status in an organization experience higher rates of retaliation for reporting harassment (Cortina and Magley 2003).

Women who experience sexually harassing behaviors may also be unlikely to report because they believe or know that grievance procedures favor the institution over the individual. Research has shown that the more frequent the mistreatment is, the more that targets encounter retaliation—both professional and social—for speaking out (Cortina and Magley 2003). If targets fear reprisals, and feel that the institutional process will not serve them, they will be unlikely to report. In particular, students are often reluctant to start the formal grievance process with their campus Title IX officer because of fear of reprisal, expectation of a bad outcome, not knowing how to proceed, and concerns confidentiality cannot be guaranteed (Pappas 2016a; Harrison 2007).

In the qualitative study by RTI, female faculty responded similarly to questions about disclosure of sexual harassment: they would often feel that they had limited options for ways to address the issue without adversely affecting their careers. Furthermore, stark power differentials between the target and perpetrator exacerbated the sense of limited options. The researchers also noted that targets were often new faculty members, residents, and postdoctoral students, whereas

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their perpetrators were often high-ranking faculty, professional mentors, or widely recognized experts. Perceived threats to tenure prospects; ability to freely pursue research and scientific stature opportunities; and threats to physical, emotional, and mental health were significant factors for women who have been sexually harassed in weighing whether or how to disclose the incident (RTI 2018).

The RTI research also reveals what women's experiences were like when they did disclose or report an incident and shows that women who shared their experiences with their supervisors, deans, or chairs rarely experienced positive outcomes. A few expressed profound gratitude for having managers who believed them about their experiences and supported them in pursuing university-level reporting. More often, however, managers expressed mild sympathy but neither took any action nor encouraged the target to do so. Even more commonly, however, these proximal authority figures minimized or normalized the experience, discouraged further reporting, or recommended that the target "work it out" with her harasser (or some combination thereof). A woman who was harassed by her chair recounted the following:

> I thought I'd talk to the ombudsman person, but then I talked to the dean and he insisted that he has talked to the vice president of the university and she had said that it's just a bad start. You should have a three-way meeting with some external person where you come and talk and we'll try to help you resolve the differences. I was too scared to do that because he was already trying to put subtle pressure on me, the chair I mean, by assigning me another course and all those kind of things. (*Assistant professor of engineering*)

Still others experienced direct retaliation from those to whom they reported harassment. For instance:

> I reported to my program director, the chief resident, who I had already talked to about it, but this was more formal, and then the site director, because this was offsite . . . my program director pretty much left it up to the site director, who told me that I sounded just like his ex-wife, who we all know he hates, and that maybe if I stopped whining so much I would have more friends. So, they basically blew off the report then. And then he—the one I reported it to—started giving me failing grades. Like, we don't really get grades as residents but we have competencies, and where he had given me good grades previously, directly after me telling him about what was happening, then his reporting of my grades just all went downhill from there. (*Nontenure-track faculty member in medicine*)

For the reasons described in this section, institutions should not expect to gain a comprehensive understanding of the extent of sexual harassment on their campus from the number of sexual harassment cases reported by targets. Rather, institutions should work to gain a better sense for the prevalence and impact of sexual harassment through regular, anonymous campus climate surveys, as described in Chapter 2.

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OUTCOMES OF SEXUAL HARASSMENT IN ACADEMIC SCIENCE, ENGINEERING, AND MEDICINE

As has already been described in this report, women in academia have very different experiences of the science, engineering, and medical workplaces than men have. An atmosphere of gender discrimination pervades classrooms, laboratories, academic medical centers, field sites, observatories, and conferences, and women report that this climate contributes to the frequency of and experience with sexual harassment (RTI 2018, section 3-1). In addition to the organizational antecedents that characterize high-risk sexual harassment workplaces that tend to be found in science, engineering, and medicine—male domination and organizational tolerance—there are a few aspects of the job pipeline in these fields that make sexual harassment especially damaging to women's careers.

To illustrate how sexual harassment impacts the careers of women in science, engineering, and medicine in higher education, our committee commissioned RTI International to conduct a series of interviews with female faculty who experienced sexually harassing behaviors. When these women were asked about how they felt their experiences with sexual harassment affected their career progressions, the predominant answers from respondents was one of negative trajectories. Several respondents indicated that they were forced to make major transitions in their career as a result of these experiences. Three themes emerged from this discussion regarding the impacts on their job opportunities, advancement, and tenure: stepping down from leadership opportunities to avoid the perpetrator, leaving their institution, and leaving their field altogether.

Stepping down from leadership opportunities to avoid the perpetrator. One woman whose experience was reported to human resources was instructed to resign from an important committee position to avoid interaction with the perpetrator, who was the chair of the committee. Another dropped out of a major research project that was part of an early-career mentoring organization because her mentor raped her. In both situations, others perceived the women negatively because colleagues did not know the reason for their decision; they saw this as particularly harmful because both women were at early stages in their careers.

> So, there's been a negative kind of chain of events where supervisors at the institution have seen that I dropped out of the research project and may not understand, because they were never told what happened. So, it seems . . . I have had a black, I have been blacklisted in some ways and not invited to join other research projects and perhaps seen as a failure. (*Nontenure-track faculty member in geosciences*)

A third woman stepped down from an assistant dean position that she was very passionate about to avoid having to interact with the dean, who had harassed her.

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Leaving their institutions. Several women ended up leaving their institutions either because the climate was negative toward women or to avoid a specific perpetrator there who continued to harass them. Others were actively looking for opportunities that would enable them to leave for a better environment, but some questioned whether the environment would be any better at other institutions or not.

> That is why I made this decision of leaving that university, even though I liked the department, I liked the students, I liked the place. I had to leave it, just because I didn't want this bitterness to continue and affect me personally or professionally. (*Assistant professor of engineering*)

Leaving their fields altogether. One woman felt that she was forced out of her field because of retaliation for reporting sexual harassment, and another left her field to avoid interacting with the perpetrator.

These responses to sexual harassment, which are consistent with the most common coping mechanisms explained earlier in the chapter, are very problematic to science, engineering, and medicine, because they deprive the enterprise of a pool of talented women and limit their ability to advance and contribute to the work in these fields.

Specific analyses of the ARC3 data from the University of Texas System suggest there are some differences between academic disciplines in the outcomes from experiencing sexually harassing behavior. Women students in medical school, in the sciences, and in non-SEM fields who were harassed by faculty/staff reported feeling less safe on campus than those who had not experienced sexual harassment. Women engineering students were the only exception and did not report feeling less safe than those who had not been sexually harassed. Female science majors and non-SEM majors who experienced any sexual harassment by faculty or staff reported similar academic disengagement outcomes—reporting *missing class, being late for class, making excuses to get out of class*, and *doing poor work*—significantly more often than those who did not experience sexual harassment, while female engineering majors who experienced any sexual harassment by faculty or staff were only significantly more likely to report *missing more classes* and *making more excuses to get out of classes* than their peers who had not experienced harassment. And female medical students who experienced any sexual harassment by faculty or staff were only significantly more likely to report *doing poor work* than their peers who had not experienced sexual harassment.

Outcomes Connected with the Research Environments for Science, Engineering, and Medicine

Across the fields in academic science, engineering, and medicine, there is high value placed not only on your Ph.D. or M.D. institution but also on the lab, program, or hospital you come out of. The "pedigree" of your institutional af-

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filiation and advisor strongly influence your chances of obtaining a tenure-track faculty position, particularly at an R1 institution. Within this context, specific aspects of the science, engineering, and medicine academic workplace tend to silence targets as well as limit career opportunities for both targets and bystanders.

Informal communication networks known as "whisper networks,"[14] in which rumors and accusations are spread within and across specialized programs and fields, are common across many male-dominated work and education environments, including science, engineering, and medicine. Informal communication networks created by and for women are used to warn women away from particular programs, labs, or advisors. This has the effect of automatically reducing their options and chances for career success. Yet this protective type of networking is common and described by many women who experience sexually harassing behaviors and environments. For example:

> It's more calling them to discuss the tribal experience and just hear the yeah, I've dealt with it too, and it sucks and no, I don't have any ideas for how to fix it, but this isn't only happening to you, which is kind of the bonding moment. (*Assistant professor of engineering)*

These informal communication networks may be used to protect women from harassment, but they also limit opportunities (Sepler 2017; RTI 2018). When a female graduate student or postdoc finds herself experiencing sexual harassment, she has few choices to remove herself from the perpetrator or perpetrators aside from leaving that program or lab. This puts her at a significant disadvantage: if she leaves that program or lab, she may have no other options at that institution to conduct similar work. Consequently, her options are to start a brand new line of research or apply to a new Ph.D. program. This is likely why women who experience sexual harassment in the sciences often report lateral career moves, taking lesser jobs, continuing a working relationship with their perpetrator, or leaving science altogether (Nelson et al. 2017; RTI 2018). As one interviewee noted about her perpetrator:

> Because I work in this area of the world and work at certain sites where he is pretty well known, it kind of became clear that I was going to have to play along a little bit of the political game where future research would have to…I'd have to be careful about how I interact with this person. . . . Because my research was now starting to be centered around this area and he had this reputation and everyone knew him. So I had basically an arm's length professional connection with this person but then, also, he sort of started to be like as if he expected me to become the next mistress." (Nelson et al. 2017, 715).

So to remain in particular work contexts that they otherwise feel an attachment to (e.g., locations in the world, particular field sites, particular disciplines), many

[14] See http://www.newsweek.com/what-whisper-network-sexual-misconduct-allegations-719009.

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women have to perform a very delicate dance of not angering their aggressor, even while trying to stay out of harm.

Two issues within these fields compound to make it difficult for women to have normal work experiences, or to report. Much of the scientific, engineering, and medical enterprise still presents itself as a meritocracy where the best trainees and young scholars get the best jobs, and the best jobs in science are often believed to be tenure-track, research-intensive academic jobs. The system of meritocracy does not account for the declines in productivity and morale as a result of sexual harassment. When a woman receives unwanted attention or experiences put-downs, it can make her question her own scientific worth. Additionally, it can make scientific achievement feel like it is not worth it:

> Prior to the event I had hoped to be a number one scientist and go for a tenure professor position, or main research scientist, whereas now that is not in my scope. . . . So, I feel like I have refocused to more menial roles, perhaps staying as assistant research scientist as I have been doing, and now not stretching for anything greater. (*Nontenure-track faculty member in geosciences*)

The dependence on advisors and mentors for career advancement is another aspect of the science, engineering, and medicine academic workplace that tends to silence targets as well as limit career opportunities for both targets and bystanders. In a very real way, the academic pipeline is limited for women when their advisors or mentors are the perpetrators, or when those in supervisory roles are not understanding, supportive, or helpful when they disclose these experiences.

> [The director] believed my story but he didn't really know what to do. He was like, "In different cultures that's not abnormal." . . . He did talk to the guy, he just said that he needed to stay away from me and that I was feeling uncomfortable and I don't know how much it worked, it was still weird. Because at night we'd have a fire, and he'd still find his way to come and sit next to me and sit there and try to put his arm around me and I'd tell him to stop and leave or I'd move so that I'm never around him. (Nelson et al. 2017, 713)

As described in Chapter 2, male domination is a feature of some disciplines even when those disciplines numerically have even or greater numbers of women. The "macho" culture of some disciplines, particularly those that involve isolating spaces such as labs, patient rooms, or field sites, puts women in harm's way and creates a particularly permissive climate for sexual harassment. Women have shared that their colleagues at field sites feel the need to behave like "Indiana Jones," and enforce this behavior in others. In particular, women who have been sexually harassed report a type of testing behavior common in their workplaces:

> We would do these really, really long days but we wouldn't be warned when they were coming, they would just happen and so I wouldn't bring enough food. . . . And I would try to vocalize, "I am tired. I can't go any further. I need to eat." . . . The second time I spoke up, there was [sic] the other two girls who were quick

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> to say, "Yeah, we've been out a really long time, it's 8:00PM, let's go eat." We started getting snide comments like, "Oh, well the ladies are hungry so I guess we have to leave." (Nelson et al. 2017, 714)

Taken together, these aspects of the science environment tend to silence targets as well as limit career opportunities for both targets and bystanders. Targets of sexual harassment may also choose to attend fewer professional events or withdraw from the organization (Clancy et al. 2017), which has also been shown in other workplaces (Barling, Rogers, and Kelloway 2001; Cortina et al. 2002; Fitzgerald et al. 1997; Culbertson and Rosenfeld 1994; Glomb et al. 1999; Holland and Cortina 2013; Lonsway, Paynich, and Hall 2013; Schneider, Swan, and Fitzgerald 1997; USMSPB 1995; Wasti et al. 2000). At the same time, it is important to note that at least some women who have been sexually harassed have been shaped by those experiences, choosing to fight harder for their students, do research in the area of gender discrimination, create better field-site policies, or speak up when they observe victimization (RTI 2018; Nelson et al. 2017).

Outcomes Connected with the Medical Environment

The pattern of consequences experienced by women in the workplace and in undergraduate and graduate settings repeats itself when examining the academic medicine environment. In a survey of female family practice residents in the United States, a significant number of those who were sexually harassed experienced the following negative effects, similar to the experiences of women in workplaces generally: poor self-esteem, depression, psychological symptoms that required therapy, and, in some cases, transferring to other training programs (Vukovich 1996). Women who experienced coercive sexual harassment reported feeling a loss of personal autonomy and control, humiliation, shame, guilt, anger, and alienation as a result of the harassment (Binder 1992). In another study, female physicians who recalled experiences of sexual harassment as medical students reported they had diminished interest in their studies (55.9 percent), recurrent intrusive memories of the abuse (30.5 percent), severe depression (23.7 percent), and considered quitting their medical studies completely (28.8 percent) (Margittai, Moscarello, and Rossi 1996). Female physicians who reported previous experiences of sexual or gender-based harassment in medical training were also more likely to report a history of depression or suicide attempts (Frank, Brogan, and Schiffman 1998).

In terms of professional and educational consequences, women in medicine yet again experience outcomes consistent with earlier findings in other environments. Women in medicine with lower career satisfaction were also found more likely to report previous experiences of harassment during medical training (Hinze 2004; Nora et al. 2002). Further, perceived mistreatment among women in medicine was associated with increased cynicism (Wolf et al. 1991) and a

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lessened commitment to the profession (Lenhart et al. 1991). Finally, in a recent survey of physicians, of the respondents who reported being sexually harassed, 59 percent perceived a decline in their self-confidence, and 47 percent said that these experiences had an impact on their career path (Jagsi et al. 2016).

Impacts on the Integrity of Research

Research integrity relies on a set of ethical principles and professional standards that guide the behaviors of those involved in the research enterprise. The recent National Academy of Sciences report *Fostering Integrity in Research* (NAS 2017) lists six values that are most influential in shaping research integrity: objectivity, honesty, openness, accountability, fairness, and stewardship. Sexual harassment undermines at least three of these core values of research integrity. The first is accountability, which is defined as being "responsible for and stand[ing] behind their work, statements, actions, and roles in the conduct of their work" (NAS 2017, 34). More specifically, accountability for research supervisors means they are accountable for conducting themselves as professionals and for being attentive to the educational and career development needs of trainees. When a trainee is forced to leave a lab or program because his or her supervisor or a peer is a perpetrator and the supervising researcher does not stop the behavior, then the supervising researcher is violating the value of accountability.

The second value, stewardship, implies "being aware of and attending carefully to the dynamics of the relationships within the lab, at the institutional level, and at the broad level of the research enterprise itself" (NAS 2017, 36–37). This includes serving as mentors to young researchers and educating the next generation of researchers. If researchers are not aware and attending to issues of sexual harassment that are resulting in students, trainees, and early-career scholars missing out on events, opportunities, and the work of doing research, then they are not fulfilling the responsibility for good stewardship.

Finally, fairness in this context means "making professional judgments based on appropriate and announced criteria, including processes used to determine outcomes" (NAS 2017, 35). This seems the most obvious value that is violated by sexual harassment, since sexual harassment in the environments of science, engineering, and medicine are resulting in women being judged based on their gender, which is not an appropriate criteria. For example, when women scientists are told they are not the "right" person to go on field research trips, or when a senior researcher leaves the women students off the authorship list for papers or chooses only male students to work in his lab, the integrity of research is damaged because they are not upholding the value of fairness.

Given that sexually harassing behavior violates at least three key values of research, sexual harassment is damaging not just to targets and bystanders, but also to the integrity of science. The *Fostering Integrity in Research* report reflects this in its categorization of behaviors that affect the integrity of research. It states

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that there are three categories of behaviors that affect research integrity: research misconduct, detrimental research practices, and other misconduct—and sexual harassment is included under other misconduct (NAS 2017).

> The 1992 report *Responsible Science* put forward a framework of terms to describe and categorize behaviors that depart from scientific integrity [NAS-NAE-IOM 1992]. This framework was developed around the terms misconduct in science, questionable research practices, and other misconduct. (NAS 2017, 63)
>
> *Responsible Science* identified a category of unacceptable behaviors that the panel termed other misconduct. These behaviors are not unique to the conduct of research even when they occur in a research environment. Such behaviors include "sexual and other forms of harassment of individuals; misuse of funds; gross negligence by persons in their professional activities; vandalism, including tampering with research experiments or instrumentation; and violations of government research regulations, such as those dealing with radioactive materials, recombinant DNA research, and the use of human or animal subjects." (NAS 2017, 74–75)

The *Fostering Integrity in Research* report states that "this committee agrees that the category of other misconduct should remain as it was recommended in *Responsible Science*" (75).

Economic Impacts

The research described in this chapter demonstrates that sexual harassment can contribute to a woman's intention to leave her job, among many other negative consequences. Though no formal economic analysis has yet put a specific dollar amount to the cost of women's attrition from science, engineering, and medicine because of sexual harassment, the economic impact of scientists, engineers, and medical doctors opting to abandon research and practice in fields with high costs of entry is worth noting. Colleges and universities invest immense resources in training faculty and students in science, engineering, and medicine. One study (CHERI n.d.) calculated that start-up costs for new faculty in engineering and the natural sciences can range from $110,000 to almost $1.5 million, and when faculty leave the institution it can take up to 10 years to recoup the investment.

Though it is not currently known how many women leave faculty positions due to sexual harassment, we can infer from the research reviewed in this chapter that some women do leave institutions as a result of sexual harassment and that this loss is costly to individual institutions and to the advancement of knowledge. Federal and state agencies likewise invest heavily in the training and education of professionals in science, engineering, and medicine. Some have estimated the economic cost of a "newly minted" STEM Ph.D. at approximately $500,000. Multiplying this cost across all the women who leave science, engi-

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neering, and medicine or suffer reduced productivity or advancement because of sexual harassment is likely to reveal a significant loss of taxpayer dollars. A full assessment of the economic impact of sexual harassment in science, engineering, and medicine will first require a deeper understanding of the nature of the negative impacts of sexual harassment in these fields. Attrition from school or work, reduced productivity (of individuals and teams of researchers and students), barriers to advancement, and mental health concerns can each carry economic consequences. Additional research on the prevalence and impact of sexual harassment in science, engineering, and medicine could facilitate a formal economic analysis of the costs of harassment that would offer important new insight.

FINDINGS AND CONCLUSIONS

1. **Sexual harassment undermines women's professional and educational attainment and mental and physical health.** Negative outcomes are evident across lines of industry sector, occupation, race, ethnicity, and social class, and even when women do not label their experiences as "sexual harassment."
   a. When women experience sexual harassment in the workplace, the professional outcomes include declines in job satisfaction; withdrawal from their organization (i.e., distancing themselves from the work either physically or mentally without actually quitting, having thoughts or intentions of leaving their job, and actually leaving their job); declines in organizational commitment (i.e., feeling disillusioned or angry with the organization); increases in job stress; and declines in productivity or performance.
   b. When students experience sexual harassment, the educational outcomes include declines in motivation to attend class, greater truancy, dropping classes, paying less attention in class, receiving lower grades, changing advisors, changing majors, and transferring to another educational institution, or dropping out.
2. **Gender harassment has adverse effects.** Gender harassment that is severe or occurs frequently over a period of time can result in the same level of negative professional and psychological outcomes as isolated instances of sexual coercion. Gender harassment, often considered a "lesser," more inconsequential form of sexual harassment, cannot be dismissed when present in an organization.
3. **The greater the frequency, intensity, and duration of sexually harassing behaviors, the more women report symptoms of depression, stress, and anxiety, and generally negative effects on psychological well-being.**
4. **The more women are sexually harassed in an environment, the more they think about leaving, and end up leaving as a result of the sexual harassment.**

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5. **The more power a perpetrator has over the target, the greater the impacts and negative consequences experienced by the target.**
6. **For women of color, preliminary research shows that when the sexual harassment occurs simultaneously with other types of harassment (i.e., racial harassment), the experiences can have more severe consequences for them.**
7. **Sexual harassment has adverse effects that affect not only the targets of harassment but also bystanders, coworkers, workgroups, and entire organizations.**
8. **Women cope with sexual harassment in a variety of ways, most often by ignoring or appeasing the harasser and seeking social support.**
9. **The least common response for women is to formally report the sexually harassing experience.** For many, this is due to an accurate perception that they may experience retaliation or other negative outcomes associated with their personal and professional lives.
10. **Four aspects of the science, engineering, and medicine academic workplace tend to silence targets as well as limit career opportunities for both targets and bystanders:**
    a. **The dependence on advisors and mentors** for career advancement.
    b. **The system of meritocracy** that does not account for the declines in productivity and morale as a result of sexual harassment.
    c. **The "macho" culture** in some fields.
    d. **The informal communication network,** in which rumors and accusations are spread within and across specialized programs and fields.
11. **The cumulative effect of sexual harassment is significant damage to research integrity and a costly loss of talent in academic science, engineering, and medicine.** Women faculty in science, engineering, and medicine who experience sexual harassment report three common professional outcomes: stepping down from leadership opportunities to avoid the perpetrator, leaving their institution, and leaving their field altogether.

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5

Legal and Policy Mechanisms for Addressing Sexual Harassment

Across the past three decades, organizations have built up their anti–sexual harassment policies and reporting mechanisms—as required by law—and sexual harassment remains pervasive across many places of work (see the discussion in Chapter 2). This raises doubt about the effectiveness of these legally mandated mechanisms in eradicating sexual harassment.

Even though laws have been in place to protect women from sexual harassment in academic settings for more than 30 years, the prevalence of sexual harassment has changed little in that time. This chapter describes the legal framework for addressing sexual harassment, the implementation of the legal requirements by academic institutions, suggestions for improving them based on research, and how federal funding agencies and professional societies have addressed sexual harassment. We conclude that the legal system alone is not an adequate mechanism for reducing or eliminating sexual harassment. Adherence to legal requirements is necessary but not sufficient to drive the change needed to address sexual harassment. As such, academic institutions and federal agencies should treat the legal obligations for addressing sexual harassment under Title IX and Title VII law as a floor, not a ceiling, and work to move beyond basic legal compliance to promote sustainable, holistic, evidence-based policies and practices to address sexual harassment and promote a culture of civility and respect.

LEGAL AND POLICY HISTORY

The development of law and policies about sexual harassment in academic settings began in the 1970s, first with the passage of Title IX in 1972 (part of the Education Amendments of 1972), banning discrimination on the basis of sex

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under any education program or activity receiving federal funds, and later with judicial interpretations of Title VII of the Civil Rights Act of 1964, prohibiting sex discrimination and construing harassment as part of discrimination. Title IX applies to academic institutions receiving federal assistance, including financial aid for students (such as student loans), and bars the discrimination (which includes harassment) of those seeking education (AAUP 2016; USED 2015). Title VII discrimination protections are based on employment status. Women in academic science, engineering, and medicine fields may be students, employees, or both at once.

Title IX protections in education developed before the term "sexual harassment" had been coined, but it grew out of activist mobilization from groups such as the National Organization for Women and congressional energy around the Equal Rights Amendment. The first legislative movement came under the direction of Representative Edith Green from Oregon, whose work on the Subcommittee on Higher Education produced evidence documenting widespread discrimination on the basis of sex in education (House of Representatives, n.d.). At the time, for example, women were simply not admitted as students to many colleges and universities (even public universities such as the University of Virginia), or were refused readmission after marriage (a 1966 policy at Georgetown University's nursing school) (Rose 2018). As part of the effort, Senator Birch Bayh of Indiana took a provision of the stalled Equal Rights Amendment and introduced it as an amendment to the Higher Education Act of 1965 (HEA 1965, Pub. L. 89-329), later renamed the Patsy T. Mink Equal Opportunity in Education Act in honor of House coauthor Representative Patsy Mink of Hawai'i.

Title IX has become well known for its transformations of athletic opportunities for women and girls in educational settings, but its general principle is equal opportunity for men and women to seek and to complete their educations. Courts use interpretations of sex discrimination established under Title VII (the employment law) for Title IX, and so as sexual harassment law developed under Title VII, it applied under Title IX as well. Though the details of institutional obligations have been controversial and may shift under presidential administrations, it has been a legal principle for decades that allowing harassment on the basis of sex to close off access to educational opportunity for youth or adults violates Title IX.

The concept of sexual harassment grew out of the second-wave feminist movement of the 1970s, first coined as a term at Cornell University by Lin Farley and other scholars working on problems of women in the workplace (Epp 2010, 167; for additional extensive history, see Baker 2008; Cahill 2001; Saguy 2003). Activist mobilization against sexual harassment was energetic, composed of groups such as Working Women United, the Alliance Against Sexual Coercion, and campus organizing by students and faculty at Yale University and the University of Delaware (Epp 2010, 168). Popular media coverage of the issue in the mid-1970s included widely cited articles in the *New York Times* and *Redbook*, *Ms.*, *Ladies' Home Journal*, and *Glamour* magazines. By 1975, drafts

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of Catharine MacKinnon's (1979) treatise on sexual harassment (that would later form the basis of courts' acceptance of the legal concept) had been circulated, and in 1978, Lin Farley published *Sexual Shakedown: The Sexual Harassment of Women on the Job*. The Alliance Against Sexual Coercion, formed in Boston by anti-rape activists, published a detailed handbook in 1979 defining sexual harassment, outlining outreach and staff training for those working to combat it, describing how to survey to find out its extent within an organization, and outlining legal options for responding to it (Corcion 1979).

Scholars and activists observed from the beginning that sexual harassment happened in educational settings. To address that issue, the handbook includes a survey form designed for high school students experiencing harassment from teachers (66). Another prominent book from 1978, Constance Backhouse and Leah Cohen's treatise titled *The Secret Oppression: Sexual Harassment of Working Women,* opens with several interview transcripts from women describing sexual harassment experience, including a doctoral student describing being sexually pursued and kissed by her male faculty advisor against her will. Backhouse and Cohen observed that a graduate student's situation "is much like that of all working women" because "the future of a graduate student can be contingent on the good will of her supervising professor."

Feminist scholars shaped both the legal doctrine of sexual harassment as well as administrative plans for changing organizational cultures to combat it. Most significantly, they argued that sexual harassment amounted to illegal sex discrimination under Title VII of the 1964 Civil Rights Act (Farley 1978; MacKinnon 1979). Feminist scholars also put forth detailed organizational policy recommendations. Backhouse and Cohen (1978), Canadian feminists with careers in government and in business, published a management action plan in 1978 that recommended the core elements of organizational response widely used today, such as a strong policy statement from top leaders against sexual harassment; clear policy defining it and stating that it is unacceptable in the workplace; posting and publication throughout company manuals and publications; trainings; oversight procedures, including surveying employees; protecting targets from retaliation; and a complaint and disciplinary procedure for addressing complaints (1978, 185–193). By 1980 the Equal Employment Opportunity Commission (EEOC) issued guidelines supporting both MacKinnon's legal remedy and Backhouse and Cohen's recommended organizational responses, and courts and other federal agencies endorsed the guidelines (Epp 2010, 174).

Systematic surveys of personnel management journals show that by 2000, business professionals recommended the same model of "legalized accountability" created by scholars and the EEOC in 1980 (Epp 2010). The original EEOC guidelines emphasized prevention of sexual harassment, and by 1999, the EEOC cautioned that symbolic compliance with a policy would not be enough to shield employers from legal liability (Edelman 2016). Despite this guidance, courts and the EEOC defer to the compliance structure that organizations developed (i.e., a

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complaint process within Human Resources), taking its presence as evidence that rights against harassment are in fact being protected (Edelman 2016). A historical understanding of sexual harassment law and policy development reveals that (1) many of the same legal and organizational problems that this report confronts have been identified and discussed for decades, though effective change has been more elusive; (2) women's rights advocates and scholars have both produced and criticized sexual harassment law and policy since its inception, and continue to do so today; and (3) the overwhelming historical focus of sexual harassment law and policy development has been on harassment of a sexualized and coercive nature, not on the gender harassment type of sexual harassment that more recent research has identified as much more prevalent and at times equally harmful.

THE LEGAL REQUIREMENTS OF TITLE VII AND TITLE IX

This report does not attempt to describe all features of Title VII and Title IX in detail, but instead draws out what scholars know about how these laws are working from the legal and social science perspectives and derives lessons for combating sexual harassment in science, engineering, and medicine. It is also important to note that this report discusses research on all three forms of sexual harassment and is not limited by the legal definitions of prohibited conduct (or what would likely be found illegal in court), but rather encompasses conduct which organizational policies could address in order to prevent sexual harassment from rising to the level of illegal behavior. For example, one significant finding in this report is that the most common type of sexual harassment is gender harassment (sexist hostility and crude remarks, i.e., behaviors that are not sexual in nature), yet the Title IX publications remain focused on sexualized and coercive forms of sexual harassment, a narrower category.

Title VII of the 1964 Civil Rights Act and Title IX of the Education Amendments in effect work together to protect employees and students, respectively, from discrimination. Title VII focuses on protection of employees from discrimination based on an individual's race, color, religion, sex (including sexual harassment by judicial interpretation and pregnancy by amendment), or national origin. As noted in Chapter 2, sexual harassment under Title VII comes in two varieties: *quid pro quo* harassment (conditioning some feature of a target's job on sexual performance or submission) and *hostile environment* harassment (sex-based conduct that is sufficiently severe or pervasive from the perspective of a reasonable person to alter the terms or conditions of the target's employment, and is perceived by them as such). All forms of sexually harassing behavior,[1] whether or not the conduct is sexual in nature (e.g., sexist hostility that is not sexual), can be illegal forms of harassment if they occur "because of sex" and

[1] There are three types of sexual harassment: gender harassment, unwanted sexual attention, and sexual coercion. See Chapter 2 for further descriptions.

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meet the bar for severity or pervasiveness. Title IX addresses sex discrimination in educational programs or activities at institutions receiving federal assistance (including financial aid, meaning that it applies to nearly all colleges and universities). Department of Education materials from 2008 define sexual harassment under Title IX as "conduct that is sexual in nature; is unwelcome; and denies or limits a student's ability to participate in or benefit from a school's education program" (USED 2008, 3).

Both Title VII and Title IX apply in academic settings, sites of both employment and education. Institutional compliance with both laws has taken the form of widespread adoption of policies and procedures to deal with sexual harassment complaints (as a form of sex discrimination) and to inform employees and students of these policies and procedures. Unlike Title VII (under which these policies are recommended and widely adopted but not required under the statute), Title IX specifically requires the designation of an employee to coordinate compliance, adoption, and publication of a grievance procedure, and widespread notification that it does not discriminate (34 C.F.R. § 106.8-9). The legal regime of sexual harassment therefore includes the major pieces of federal legislation (Title VII and Title IX), but also their judicial interpretations as developed through case law; regulations, guidelines, and letters from each administrative agency in charge of implementing the statutes; and the internal claims filing and resolution processes in place within organizations.

While definitions of sexual harassment are similar under the two laws, Title IX and Title VII have different approaches to institutional liability for sexual harassment. Under Title IX, an educational institution must have been "deliberately indifferent" in the face of actual knowledge of the harassment. By contrast, Title VII's initial standard of liability for employers is much stronger, but is tempered by a generous affirmative defense against hostile environment claims. In 1998, two Supreme Court cases, *Burlington Industries, Inc. v. Ellerth*[2] and *Faragher v. City of Boca Raton,*[3] clarified the nature of legal liability in Title VII sexual harassment cases. An employer is vicariously (or automatically) liable for a supervisor's sexual harassment if the harassed employee suffered a tangible harm such as a demotion, firing, failure to promote, or, in the academic context, such harms as exclusion from a research site or lab; restrictions from using data; or withdrawal of promised fellowship support (examples of outcomes of quid pro quo harassment). Strict liability means that a court need only find that the harassment occurred with a tangible harm to the harassed person's working conditions (i.e., there is no separate investigation into whether the employing college or university was negligent). Employers are liable for a hostile work environment resulting from sexual harassment only if they were negligent, however—that is, if they knew or should have known about the harassment and failed to stop it. The

[2] *Burlington Industries, Inc. v. Ellerth*, 524 U.S. 742 (1998).
[3] *Faragher v. City of Boca Raton*, 524 U.S. 775 (1998).

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Ellerth and *Faragher* cases provided a two-pronged affirmative defense for organizations accused of negligently allowing the hostile work environment variety of sexual harassment to go on: if (1) the organization exercised reasonable care to prevent and correct workplace harassment (by having a written policy, trainings, and a grievance procedure) and (2) the harassed employee failed to take advantage of those mechanisms, the employer can limit or avoid liability (EEOC 2010). Organizations had already begun to adopt these personnel practices in the 1970s and 1980s, and by the time of these rulings in 1998, anti-harassment policies and grievance procedures were already widely used (Dobbin 2009; Edelman 2016).

The Department of Education's Office for Civil Rights (OCR) is the federal office charged with upholding Title IX. According to OCR, an institution's sexual harassment grievance procedures must be "prompt and equitable." An adequate policy must include the following:

- Give notice to students, faculty, and staff of the procedure and where complaints may be filed;
- Supply information about how procedures will be carried out when the sexual harassment involves employees, other students, or third parties;
- Provide an adequate, reliable, and impartial investigation of the complaint, with the opportunity to present witnesses and other evidence;
- Plan a response within a reasonable amount of time, give notice to all parties about the outcome of the complaint; and
- Take steps to prevent recurrence of any harassment and to correct its discriminatory effects on the complainant and others, if appropriate (USED 2001).

This 2001 Revised Sexual Harassment Guidance document remains in place even as the current administration has withdrawn the Obama administration's 2011 Dear Colleague Letter and 2014 Questions and Answers on Title IX and Sexual Violence document (USED 2017).

Legal scholars and scholars of organizations have been very critical of the incentives and assumptions supported under the legal response to sexual harassment. The incentive is to avoid liability by creating policies and procedures, and the assumption is that targets will quickly and vigorously use them. Calling these rulings "the triumph of form over substance in sexual harassment law," Joanna Grossman (2003, 4) observes that "rules are developed and incentives are created with little or no attention paid to whether these legally mandated employer interventions are likely to prevent harassment or adequately redress the harm it creates when prevention fails." Noting that following the *Ellerth* ruling, Justice Anthony Kennedy summarized the purpose of Title VII as "encourag[ing] the creation of antiharassment policies and effective grievance mechanisms"[4] rather

[4] See Digest of EEO Law, Volume XI, No. 6: https://www1.eeoc.gov//federal/digest/xi-6-2.cfm?renderforprint=1.

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than actually combatting sex-based harassment, Grossman argues that Justice Kennedy was "signaling a victory for a misguided culture of compliance, one in which liability is measured not by whether employers successfully prevent harassment . . . [and in which] employers could conceivably insulate themselves from liability entirely without making a dent in the underlying problem" (3).

A 2004 analysis by Anne Lawton (2004) of 200 legal cases based on the *Faragher* and *Ellerth* legal defenses showed that the courts in practice require employers to show only "file cabinet compliance" (i.e., the existence of policies and procedures on paper) before shifting the burden to the harassed employee to prove any retaliation or fears of retaliation or to justify why she delayed in reporting the harassment. Lawton cites much of the same research relied upon here to show that it is actually quite unusual for harassed employees to report misconduct and to behave in the way courts seem to expect, especially when retaliation for reporting is common. Lauren Edelman's (2016) theory of legal endogeneity, developed through extensive empirical study of legal requirements, lawsuits, and organizational adaptations to law, posits that "organizations respond to ambiguous law by creating a variety of policies and programs designed to symbolize attention to law," which spread, and then "employers and employees alike tend to equate the presence of these structures with legal compliance and become less aware of whether the structures actually promote legal ideals." Edelman's (2016) own data show that judicial deference to symbolic civil rights policies has become widespread and has increased over time, a watering down of discrimination laws that Tristin Green (2016) calls "discrimination laundering." These liability standards in both the Title IX and Title VII context coupled with the organizational response can help explain the empirical trends documented in this report: policies against sexual harassment are widely in place and have been for many years, but nonetheless sexual harassment in academia continues to exist and has not decreased

THE IMPLEMENTATION OF THE LEGAL REQUIREMENTS IN ACADEMIA

An important accompanying feature of the antidiscrimination regulatory requirements (alongside many others applied to the contemporary academic setting) is the growth of the college or university as not only an actor in the legal system but also as its own "entire private legal system" (Edelman and Suchman 1999). Scholars of law and organizations have observed that in recent decades, large bureaucratic organizations such as colleges and universities are quasi governments unto themselves; that is, a college or university typically operates its own police or security force; runs internal grievance and dispute resolution procedures; dispenses punishments and sanctions; manages public relations and information services; and employs in-house counsel staffs as well as administrators to oversee this legal order. The college or university is likely also the health care and psy-

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chological support services provider for students and perhaps even employees. Since very few disputes end up in the courts (Siegelman and Donohue 1990), these academic legal orders will handle the vast majority of problems internally.

Therefore, there are many legally significant features of these academic environments that extend far beyond sexual harassment law but which have significant implications for addressing harassment, particularly for promoting transparency about how harassment claims are handled. Transparency about outcomes may be legally required, permitted, or prohibited depending on the type of conduct (harassment that is also criminal versus noncriminal harassment), the status of the parties (students or employees), and the type of information (an outcome of an adjudication, a complaint, a personnel document, or a police report) (Koebel 2016). For example, private academic institutions are able to shield their personnel decisions, adjudication outcomes, and financial matters from public scrutiny, but state public records laws (variable, but modeled after the federal Freedom of Information Act) apply to public state colleges and universities. Additionally, the Higher Education Act of 1965 compels consumer-based disclosures by institutions that receive federal funds (information about admissions, graduation rates, costs, financial aid, student services, and so on). The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (known as the Clery Act) also applies to all institutions receiving federal funds and requires them to report crimes near or on campus, including sexual assaults. So while the Clery Act requires all institutions to report a crime, state open records laws may require only public institutions to disclose full campus police incident reports, for example. The Family Educational Rights and Privacy Act of 1974 protects the privacy of student records, including disciplinary actions, though after a finding against a perpetrator of a sex offense, the results of that proceeding may be disclosed (USED 2007). Under the Health Insurance Portability and Accountability Act, the Family and Medical Leave Act, and the Americans with Disabilities Act, academic employers are subject to privacy laws governing medical information and information on employees' disabilities and accommodations, and may also be subject to state law prohibitions on releasing information from a personnel file (such as past sexual harassment accusations). Academic employers may also be sued for invasion of privacy tort claims if they release embarrassing information about someone, and colleagues may hesitate to warn about sexual harassment concerns in the hiring or promotion context out of fear of being sued for defamation. Confidentiality agreements in settlements will also shield harassment cases from view and make it possible for perpetrators to seek new jobs and keep problems secret (Cantalupo and Kidder 2017).

The mandatory arbitration clauses that are standard in many employment contracts also bar women from taking sexual harassment claims to federal courts, handing them over to a quicker and less expensive arbitration system that shields the case from scrutiny and results in smaller awards (Gough 2014; Colvin and Gough 2015). A 2014 study of 700 employment discrimination cases found

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"starkly inferior" outcomes for employees in arbitration as compared with employees who took their cases to court (Gough 2014). The use of such mandatory arbitration clauses in nonunion employment contracts has increased over the past 20 years since the Supreme Court affirmed their validity, but the extent of their reach into the academic workplace with its unique tenure system (at least for tenured and tenure-track faculty) is unclear. The impact of binding arbitration clauses in the academy is not well studied, but any contract between an academic institution and its students or employees could currently require it. Adjunct and temporary faculty who are not unionized would be the most likely to work under contracts that remove access to federal courts through arbitration clauses. Even if these claims were not barred by arbitration clauses from reaching federal courts, it is still the case that judicial interpretations of Title VII have been the primary reason that law is such a weak weapon against sexual harassment (emphasizing existences of policies and trainings over their actual effectiveness when it is well documented that these are typically not effective). Moreover, most forms of sexist hostility and derogation that research has found to be damaging to women in science, engineering, and medicine would not meet the high bar for illegal harassment. Greater ease of access to the federal courts for sexual harassment claimants would certainly benefit some women and could shift incentives toward prevention by removing one liability risk management strategy, however.

Thus, while academic institutions combat sexual harassment in science, engineering, and medicine, they must also attend to an array of competing and sometimes contradictory obligations that may hamper the transparency and effectiveness of their efforts. Perhaps more importantly, institutions gain protection from liability by adopting standard practices that perpetuate ineffective policies and shield patterns, claims, perpetrators, and outcomes from scrutiny. The legal mechanisms in place to protect women from sexual harassment, and to address sexual harassment once it has occurred, have significant limitations. Any serious attempt to address sexual harassment through the law, through institutional policies or procedures, or through cultural change should at a minimum take into account the social science research demonstrating that targets of sexual harassment are unlikely to report and that there are more promising practices to enforce policies on sexual harassment.

Perhaps the most distinct feature of the academy as a workplace is the tenure system. The default legal status for an employee generally in the United States is that she works as an "at will" employee; that is, she can be fired or quit at any time. Union contracts or additional employment contracts add protections for workers above the at-will baseline. Tenure, by contrast, is a guarantee for a professor that after a period of probationary evaluation and review, she will be protected from being fired except for extraordinary reasons, such as financial exigency or program discontinuation (AAUP 2016). Tenure protects the academic freedom of the professoriate, ensuring that researchers and teachers can promote knowledge and discovery without fear that those who dislike their conclusions

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can oust them from the academy or stop their work. Tenure does not necessarily protect professors who are found to be sexual harassers from termination; however, termination of a tenured faculty member is a long and difficult process. Cantalupo and Kidder (2017) assess 26 examples of lawsuits filed by professors with tenure who were terminated because of their sexual harassment of their graduate students, and find that institutions prevailed in 20 of the 26 cases.

Only 21 percent of the academic labor force is composed of tenured faculty, however (AAUP 2016). Most are contingent faculty, including adjunct professors, who are hired to teach specific courses (with contracts renewed term to term), and graduate students and postdoctoral fellows, who also work as teachers. In addition, medical students and residents provide care in clinical settings, and undergraduates also work in labs and for professors on their research projects. The academic workplace and learning settings are therefore extremely unequal based on employment security status: some faculty cannot be fired or only with extraordinary difficulty, others who work with them are on the track to achieve such status but have not yet (and will be reviewed by their tenured colleagues), others who teach or do research in the same settings can be easily fired or not renewed, and others are moving through the institution as students in some capacity and must gain a credential, never planning to remain as long-term employees. Tenured faculty members are hired and reviewed by the college or university under extensive faculty governance procedures, but other academic employees such as lab assistants are likely to be hired by one faculty member on a project-driven basis and to be paid entirely through funds secured by that faculty mentor. Because of these inequities, people working, teaching, and learning together in science, engineering, and medicine will have very different perspectives about the safety of reporting sexual harassment and about other factors, such as investing time in a formal reporting process.

Title IX is best known for its significant social impacts in expanding women's opportunities in sport, including in academia. Any academic institution that receives federal support must comply with Title IX. In practice, this means that almost all academic institutions must implement the requirements of this law, which has only relatively recently been visible as the primary way to respond to sexual assaults and sexual harassment on campus. Colleges and universities have been under pressure to establish policies and procedures governing the prevention of and response to sexual harassment, but just as under Title VII, it is much more difficult to ensure that such policies and procedures are effective or user-friendly. Moreover, research has demonstrated that compliance with Title IX requirements is inconsistent, with many schools failing to meet even the low bar set by the legal requirements.

One study, which examined the websites of 496 U.S. colleges and universities (including public, private, and for-profit institutions), found that 67 percent of for-profit colleges and universities were noncompliant with Title IX because they did not have a publicly posted policy. The researchers investigated four aspects

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of institutional policies: whether each of the institutions had a policy posted, whether the policy included guidance on how to report sexual harassment (both formally and informally), whether multiple complaint avenues were in place, and whether prevention training was available. The study found that of the institutions that had a public policy, 70 percent were deficient in at least one of the aspects reviewed (Fusilier and Penrod 2015).

Brian Pappas, himself a former Title IX coordinator, has published two papers based on review of 1,200 documents and interviews with 14 ombuds and 13 Title IX coordinators from 22 large universities (Pappas 2016a, 2016b). In these papers, he describes the full legal and professional obligations of the nation's 25,000 Title IX compliance employees, who are subject to requirements under Title IX, Title VII, the 2013 reauthorization of the Violence Against Women Act (also known as the Campus SAVE Act), the Clery Act, the Family Educational Rights and Privacy Act, the due process guarantees of the Constitution, and administrative law. Another resource on the role and responsibilities of Title IX coordinators is available from the Association for Student Conduct Administration, a nationwide higher-education organization whose membership includes Title IX administrators. The association has published models for use in handling sexual misconduct cases involving students, drawing on a hearing model, an investigation model, or a hybrid of both (Association for Title IX Administrators 2012).

Based on his interviews with the 13 Title IX coordinators between 2011 and 2014, Pappas (2016b, 163) concludes that compliance with Title IX was "inconsistent at best," with Title IX coordinators departing from accepted procedures "to address the needs of survivors or alleged perpetrators, out of frustration with the inefficiencies of excessive formalism, and to address the organization's interest in resolving disputes and avoiding liability." The study reported that Title IX coordinators often do not follow the guidelines in the framework because they view them as overly formalistic. Further, Title IX coordinators reported working to avoid negative publicity by developing "managerial solutions that [merely] symbolize compliance" (2016b, 121). Overall, the picture of college and university Title IX compliance is one motivated more by "symbolic enforcement than true dedication to ensure a hostility-free campus" (2016b, 121).

To address these concerns, several institutions have taken a close look at their policies and revised them with the intention of improving responsiveness and providing more options for recourse. For instance, in the wake of a series of high-profile sexual harassment cases where those in leadership positions did not follow up on reports of sexual harassment, the University of California system has now specified that all members of the Title IX team have clearly identified roles and responsibilities in managing all processes related to cases of sexual harassment. In addition, a time line that ensures that all investigations are completed within 60 business days must be in place, and a decision or disciplinary action must be determined within 40 days after the end of the investigation. Any recommended disciplinary action must be reviewed and approved by a chancellor or chancellor-

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designee. After decisions have been made, all complainants and respondents will be informed of any outcomes.[5]

In another example, Yale University, which also dealt with a series of high-profile sexual harassment cases, took steps to improve its processes and promote transparency. Yale has established a body, known as the University-Wide Committee on Sexual Misconduct, tasked with handling all formal and informal complaints dealing with sexual misconduct. Like the University of California system, Yale has established time limits for resolving complaints and has made it clear that it will recommend sanctions if appropriate. Yale has also established a center called the Sexual Harassment and Assault Resources & Education Center,[6] where students can go to receive information and counseling, and a confidential phone hotline called "Walden,"[7] where students can report incidents anonymously. The university also publishes the semiannual Report of Complaints of Sexual Misconduct and an annual campus safety report (which includes sexual harassment) to inform the campus community about complaints brought to the university's attention and how they were resolved.[8] These reports are written to protect anonymity while also providing minimal descriptions and statistical summaries that reveal (1) the complainants and respondents role in the university (i.e., undergraduate student, graduate and professional student, postdoc, faculty, staff) and (2) the status of the complaint (if the complainant decided to pursue a formal complaint, if investigation is pending, any action taken by the university after investigation, etc.).[9] Finally, by bolstering the role of the Title IX office and clarifying how it works with the University-Wide Committee on Sexual Misconduct, the university is striving to provide more services for students (Marshall et al. 2011).[10]

Although it is laudable that Yale and the University of California system are taking steps to try to improve procedures and transparency, given that these changes are new, and that sexual harassment policies and procedures have rarely been evaluated at any institution, it is difficult to predict whether these models will be more successful in improving responsiveness to reports or to demonstrating to the university community that the institution takes these issues seriously. Yale and the University of California system could make a significant contribution to our understanding of effective institutional policies and practices if they conducted evaluations of these new models and made use of periodic, anonymous, campus climate surveys to study the rate of sexual harassment at their institutions.

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[5] See https://www.chronicle.com/blogs/ticker/u-of-california-system-changes-policies-for-responding-to-sexual-harassment-and-violence/119173.

[6] See https://sharecenter.yale.edu/.

[7] See https://walden.sites.yale.edu/.

[8] Yale University Annual Safety Report on Campus Crime and Fire Incidents: https://provost.yale.edu/sites/default/files/files/August-2016-Report.pdf.

[9] See https://provost.yale.edu/sites/default/files/files/August-2016-Report.pdf.

[10] See https://provost.yale.edu/sites/default/files/files/Guide_Preventing%20and%20Responding%20to%20Sexual%20Misconduct.pdf.

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Reporting Policies and Procedures

Another major weakness of the legal framework for sexual harassment is the expectation it sets for how targets of sexual harassment should behave for their complaints to be deemed credible and for them to be protected from retaliation. The presumption in the law that a target of sexual harassment will not be deterred by possible retaliation and will report the harassment in a timely manner is not evidence based. As described in Chapter 4, it is uncommon for women to formally report sexual harassment, and part of this is because when they do report they experience minimization or normalization of the experience, inaction by those in positions of authority, and/or retaliation.

Narrow judicial interpretations of retaliation clauses have weakened protections for those who report sexual harassment. Retaliating against someone for making a complaint of a rights violation is explicitly prohibited under Title VII and, though it is not mentioned in the text of Title IX, courts and regulations have affirmed that retaliation against someone for bringing a sex-based Title IX claim is also illegal (Brake 2005, 43). Under the reasonable belief doctrine, however, a plaintiff claiming retaliation after informally making her complaint must prove that she had a reasonable belief that the conduct violated the law in order to be able to invoke the retaliation clause later (Brake 2005, 79).

As law professor Deborah Brake explains, the reasonable belief doctrine makes retaliation protections difficult to use in practice because harassed employees often raise concerns informally and may not know or have a belief about the legal status of the conduct. For instance, the Supreme Court held that a woman who was given less desirable duties and removed from a supervisory position after complaining about derogatory sexual banter in a meeting ("I hear making love to you is like making love to the Grand Canyon") could not avail herself of the retaliation protection because this single incident would not meet the legal bar for a hostile work environment, and thus it was not reasonable for her to believe the conduct violated Title VII (*Clark County School District v. Breeden* 2001[11]). Thus, legal protections against retaliation do not extend to those informally raising concerns about harassing conduct that is less than the legal standard for severity or pervasiveness, even though academic institutions may want to encourage more open discussion about these aspects of organizational culture, because they are still damaging to women in science, engineering, and medicine careers.

The inaccurate assumption that targets will report is not unique to the issues of sexual harassment; rather, it is well known in the legal research that the vast majority of individuals who believe that they have been wronged do not mobilize their legal rights. Empirical studies of civil litigation suggest that only about 20 percent of individuals who feel that they have been wronged will pursue any type of action and only about 5 percent of perceived legal wrongs actually reach trial (Miller and Sarat 1980). Miller and Sarat (1980) call this the "dispute pyramid"

[11] *Clark County School District v. Breeden*, 532 U.S. 268, 270 (2001).

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to emphasize that the vast majority of "perceived injurious experiences" do not result in rights mobilization. Research has shown that there are numerous social, psychological, and cultural obstacles that explain why most people do not mobilize their legal rights (Felstiner, Abel, and Sarat 1980; Bumiller 1987; Bumiller 1992; Albiston 2005; Engel 2016).

For these reasons, institutions should consider the research on the harmful effects of reporting on targets when they consider whether and how to adopt mandatory reporting policies, also known as "compelled disclosure policies." Under such policies, any faculty member or college/university employee designated as a "responsible employee" who learns of sexual harassment on campus must report the incident to the Title IX office, even in cases where the target specifically requests that the information remain confidential.

In a recent study of a random sample of 150 college and university policies shows that most colleges and universities require campus employees to report student disclosures about sexual assault. The study found that a major rationale for mandatory reporting policies was that it would bring more incidents to the attention of college and university officials and promote the adjudication of a greater number of cases. Further, mandatory reporting policies allow colleges and universities to hold employees responsible who do not report incidents that have been disclosed to them, which some believe will compel administrators (e.g., department chairs, deans, etc.) to take allegations in their departments and colleges more seriously (Holland et al. 2018).

On the other hand, the study goes on to report conflicting evidence on the value of mandatory disclosure, including evidence that mandatory reporting may have a negative impact on targets, employees, and institutions. Of particular concern is the question of whether mandatory reporting is harmful because it takes control away from targets, in essence, revictimizing them. The RTI International study[12] found that outcomes from university-level reporting were diverse and sometimes complex. Many women who had pursued this route expressed dissatisfaction and frustration with how long it took, what was required of them, the treatment they received from those to whom they reported, their perceived lack of agency and confidentiality, and the outcomes for themselves and their harassers. One woman from the focus group (see Appendix C of this report) noted:

> I hated it . . . you are feeling bullied into revealing things, then you have no choice but to go through this process. It makes you feel even more powerless. For me, I felt worse every time I went to H.R. . . . I was bullied into [giving] coworkers' names that I may have even talked about the situation and if I don't then I would be in violation of the rules and therefore my job could be in jeopardy. It was a horrible experience and it made me, you know, if something else happened, I didn't want to do anything about it. (*Assistant professor of engineering*)

[12] This research was commissioned by the committee and the full report on this research is available in Appendix C.

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Indeed, some studies have shown that when control is taken away, targets report increased posttraumatic stress, depression, and anxiety (Orchowski, Untied, and Gidycz 2013; Peter-Hagene and Ullman 2014). One survey of college students found that only 12 percent had reported their harassment, and they gave a range of reasons to explain why not (Weiss and Lasky 2017). Fifty-six percent said that they did not see the incident as serious enough ("it was no big deal"), 7 percent did not think reporting it would help, another 7 percent were afraid of retaliation, 2 percent did not want to get the aggressor in trouble, and 22 percent did not want to bring negative attention to themselves. This research concludes with the recommendation that institutions pursue innovative, target-centered policies and practices, developed with input from targets as well as experts in sexual violence and mental health; those policies and practices should then be evaluated for their efficacy (Holland, Cortina, and Freyd 2018).

This movement toward mandatory reporting is attributed to the 2011 guidance from the OCR. In 2011 the OCR issued a "Dear Colleague Letter" with "significant guidance" for colleges and universities for complying with Title IX (USED 2017). In the question-and-answer portion of this document, the OCR defined a responsible employee as any employee who has

> authority to take action to redress sexual violence; who has been given the duty of reporting incidents of sexual violence or any other misconduct by students to the Title IX Coordinator or other appropriate school designee; or whom a student could reasonably believe has this authority or duty. (USED 2014, 15)

Many institutions have interpreted the requirements of the OCR "Dear Colleague Letter" to include mandatory reporting of student sexual harassment disclosures to college and university officials (usually the Title IX coordinator) by most—and sometimes all—employees.

In 2017, Candice Jackson was appointed the new head of the OCR and decided to repeal the previous OCR guidance (specifically, the 2011 Dear Colleague Letter and the 2014 Questions and Answers document) (*Chronicle of Higher Education* 2017). As a result the OCR's 2001 guidance on sexual harassment[13] is currently in effect. The 2001 guidance maintains the requirement for mandatory reporters by requiring institutions to designate "Responsible Employees," who are supposed to give the school notice of a report of sexual harassment when they learn about it.

Consensual Relationship Policies and Sexual Harassment Policies

A sexual relationship welcomed by both parties by definition cannot be categorized as harassment to them. That is, to those in the relationship, the behavior does not meet definitions of harassment as established by social science and law.

[13] See https://www2.ed.gov/about/offices/list/ocr/docs/shguide.pdf.

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In a study by Jennifer Berdahl (2007b, 644), the term sexual harassment is reserved for "behavior that derogates, demeans, or humiliates an individual based on that individual's sex."

However, there are circumstances in which the two parties' agreement to a relationship is not consensual, even while appearing to be consensual from the outside. In these situations, powerful individuals might lure subordinates, or even a succession of subordinates, into relationships that are not truly consensual because they are the result of pressure from one party that leads the other party to reluctantly consent to the relationship. Such relationships are exploitative and, in fact, constitute sexual harassment because they are unwanted and are the result of coercion. Additionally, such coerced relationships are likely to contribute to ambient harassment for others in the environment (e.g., within the campus department, or within the campus organization) when others are aware of the indirect or direct pressure that was used to establish the relationship. These pressured relationships are very difficult to identify for those observing the relationship from the outside, and thus leaders should consider requiring disclosure of relationships in any instance in which one has authority or power over the other. Such disclosure might assist in identifying individuals in a position of power who are serially pursuing students, faculty, or staff who are subordinate to them.

One way to prevent sexually exploitive situations is for leaders to be explicit and to remind colleagues and students regularly, and formally, that unwanted and coercive behavior is not permitted, and that consensual relationships where there is a clear power differential are discouraged. As the research on the antecedents to sexual harassment show, perceptions that an organization takes these issues seriously are correlated with lower rates of sexual harassment (Fitzgerald et al. 1997; Williams et al. 1999; Glomb et al. 1997). As such, these reminders may reassure targets of the unwanted attention and coercion that they can report it, and it will be taken seriously rather than feeling like there is no way out but to give in.

Even if parties to a relationship feel in no way coerced, consensual relationships with formal power differentials can become sexually harassing when they create a hostile environment for *others* in the context (e.g., within the campus department, or within the campus organization). That is, the law considers a consensual relationship as sexual harassment when it (1) results in favoritism based on sexual favors given and (2) becomes so widespread that women as a group are demeaned (Grossman 2005). The California Supreme Court explained it in this way: "when such sexual favoritism in a workplace is sufficiently widespread it may create an actionable hostile work environment in which the demeaning message is conveyed to female employees that they are viewed by management as 'sexual playthings' or that the way required for women to get ahead in the workplace is by engaging in sexual conduct with their supervisors or management." Legal scholar Joanna Grossman (2005) added that "it is only an office romance (or, perhaps, two or three) combined with *repeated* and *widespread* instances of favoritism, to the detriment of other employees, that begins to near the threshold

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for sex discrimination liability." Thus, it is important for institutional leaders to pay attention to sexual favoritism and its effect on others in the environment, especially students.

In efforts to both improve workplace and educational climate and respond to legal and public pressure around sexual misconduct, colleges and universities have recently adopted several approaches to employee-student and employee-employee sexual relationships, either banning relationships in some or all cases, discouraging those relationships, requiring disclosure, or opting not to attempt to regulate those relationships at all.[14] The impacts of this range of policy options are not yet known and need to be studied.

Consensual sexual relationships in cases of significant power differential may be important harbingers of a harmful organizational culture. On the other hand, policies regulating them may be a distraction from real problems of gender equality. The goal is to promote women's advancements in science, engineering, and medicine by eliminating harassment, but Yale Law School professor Vicki Schultz contends that bans on all consensual relationships in an organization "may even undercut the goal of achieving gender equality" (2003). Suppressing sexuality in the workplace serves managerial interests in efficiency, but it does not necessarily serve gender equality, which is not the same as the absence of all sexuality at work. According to Schultz, "companies can feel good about punishing individual employees for sexual offenses while doing little or nothing to address the overarching dynamics of harassment and discrimination that preserve gender hierarchy at work" (2067). Schultz's research on sexual harassment cases reveals that many of the cases are not really about sex, but rather about "labeling women as different and inferior, and for claiming favored jobs and positions of authority as preserves of men who embody an idealized masculinity" (2087).

Unfortunately, research is quite limited on the connections between consensual relationships and sexual harassment. It is not clear, for example, whether these connections are strong or common enough to merit their own policies. We believe developing answers to the following research questions could be helpful here:

- By what criteria are sexual relationships judged to be truly consensual? How frequently (or rarely) do consensual relationships evolve into coercive and unwanted relationships?
- Are some types of consensual sexual relationships, such as same-sex relationships, more likely to be noted with disapproval or more readily treated as problematic, regardless of how the people in the relationship describe their experience, because of bias against those types of relationships?
- How do employees and students perceive the favoritism that may or may not be conferred to a person of lesser power who is involved in the

[14] See http://counsel.cua.edu/fedlaw/nacuanoteamorousrelationships.cfm [January 2018].

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consensual sexual relationship, and how does that relationship affect the climate of the organization?

Sexual Harassment Training Policies

Another institutional practice that has been limited by a compliance-based approach is training of employees on sexual harassment. The affirmative defense created in 1998 by the U.S. Supreme Court in *Ellerth*[15] and *Faragher*[16] reduces liability when employers can demonstrate that they have "exercised reasonable care to prevent and correct promptly any sexually harassing behavior" (*Faragher*). Although not explicitly called for, educating employees via sexual harassment training rapidly became instituted as a central component of demonstrating such reasonable care, working on the assumption that such educational efforts lead to the prevention of sexual harassment (Bisom-Rapp 2001). However, according to recent research, the assumption that such training prevents sexual harassment has yet to be demonstrated (Magley et al. 2013; Tippett 2017). Further, courts have relied on the mere existence of such preventative efforts rather than on their effectiveness by neither reviewing the content of the training programs nor asking employers to evaluate their validity (Grossman 2003; Tippett 2017). As such, sexual harassment training programs should be understood to be just symbolic evidence of legal compliance with the 1998 Supreme Court decisions (Edelman 2016).

Unfortunately, fears of legal liability often prevent institutions from being willing to effectively evaluate training for its measurable impact on reducing harassment. As long as legal incentives are not in place and academic institutions are not held responsible for demonstrating that their prevention efforts are effective, trainings will likely go unevaluated, especially because a training that is found to be ineffective could expose the institution to legal liability. To ensure that sexual harassment trainings are effective, judicial interpretation of what is sufficient to meet the reasonable care requirement will have to change or academic institutions will have to be willing to risk liability and allow evaluators to study the impact of the trainings they have in place and then devote significant resources to improving them if they are found to be ineffective or, worse, have a negative effect. Academic institutions will have to take leadership and agency and move beyond what is required of them by law, to consider what is best for their students and employees.

[15] *Ellerth*, 524 U.S. 742.
[16] *Faragher*, 524 U.S. 775.

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THE IMPLEMENTATION OF THE LEGAL REQUIREMENT BY FEDERAL FUNDING AGENCIES

Recent high-profile cases of sexual harassment in science, engineering, and medicine have involved perpetrators who hold large grants from federal scientific and medical research funding agencies.[17, 18, 19] This has led many to question the degree of responsibility that federal agencies should take to ensure that tax dollars are not supporting sexual harassers.

In response to recent high-profile cases of sexual harassment perpetrated by federally funded researchers, the National Science Foundation (NSF), the National Institutes of Health (NIH), and the National Aeronautics and Space Administration (NASA) issued statements reemphasizing a "no-tolerance" stance on sexual harassment. For example, NSF released the following statement in 2016:

> NSF holds responsible the 2,000 U.S. colleges, universities and other institutions that receive NSF funding and requires their implementation of Title IX protections. And NSF encourages NSF-funded researchers and students to hold colleagues accountable to the standards and conditions set forth in Title IX, and to inform their institution of violations.
>
> For any NSF-funded entity that fails to adhere to Title IX, NSF will work with the Departments of Justice and Education to ensure compliance with nondiscrimination laws. NSF may terminate funding to any institution found to be in noncompliance with Title IX regulations and that does not voluntarily come into compliance. (NSF 2016)

While it is clear that federal funding agencies are concerned about sexual harassment in science, engineering, and medicine, it is not yet apparent whether and how these statements will translate into meaningful action. In general, federal agencies rely on the grantee institutions to investigate and follow through on Title IX violations, but given how little is known about the effectiveness and fairness of campus policies and procedures, this approach may have little real impact on addressing sexual harassment on campuses and in science, engineering, and medicine. To truly address the issue of sexual harassment, it may be necessary for federal agencies to demand that grantee institutions go beyond the requirements of Title IX. By not assessing and addressing the role of institutions and professional organizations in enabling individual sexual harassers, federal agencies may be perpetuating the problem of sexual harassment.

U.S. federal funding agencies could demonstrate that they take the issue of sexual harassment very seriously and hold individuals and/or institutions ac-

[17] See https://www.buzzfeed.com/azeenghorayshi/famous-astronomer-allegedly-sexually-harassed-students? [January 2018].

[18] See https://www.buzzfeed.com/azeenghorayshi/christian-ott-has-resigned? [January 2018].

[19] See https://www.theatlantic.com/science/archive/2017/10/sexual-harassment-fieldwork-science/542559/ [January 2018].

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countable by requiring academic institutions to report when someone on a grant has violated sexual harassment policy. To this end, Representative Jackie Speier has proposed legislation that would require academic institutions to report to federal research funding agencies when grantees have been found to violate the institution's sexual harassment policy, allowing a federal agency to take this into consideration when awarding grants.[20] Recently, NSF proposed new award requirements requiring organizations not only to report findings of sexual harassment, or any other kind of harassment regarding a principal investigator (PI) or co-PI or any other grant personnel to NSF, but also to report the placement of the PI or co-PI on administrative leave relating to a harassment finding or investigation. NSF proposes to use this information to potentially "take unilateral action as necessary to protect the safety of all grant personnel. The action taken may include suspending or terminating an award or requiring the awardee to replace or remove personnel" (NSF 2018). NSF is the first federal funding agency to propose a change to its reporting requirements, and how this new policy will be implemented is currently unclear; however, they may serve as a model for other funding agencies moving forward.

Regardless of how federal agencies move forward on this issue, we observed that it is difficult to find information about how agencies deal with sexual harassment cases today through the agencies' websites. It would be beneficial for federal agencies to make this information more easily accessible to the public and their grantees. Brief descriptions of the processes in place at NASA, NSF, and NIH are provided in Box 5-1.

BOX 5-1
How NASA, NSF, and NIH Respond to Allegations of Sexual Harassment Among Grantee Institutions

NASA

In a letter to grantee institutions on January 15, 2016, NASA Administrator Charles Bolden communicated NASA's sexual harassment policies, indicating that the agency does not tolerate sexual harassment and urged grantees to closely review their harassment policies and procedures. This letter was released in the wake of the astronomer Geoff Marcy case. In its compliance guidelines for grantees, NASA acknowledges "the issue of gender has become the focal point of a great deal of attention in the STEM [science, technology, engineering, and mathematics] fields, where the numbers of women remain low (particularly in such fields as physics, aerospace and electrical engineering, and computer

[20] See H.R. 6161 (114th): Federal Funding Accountability for Sexual Harassers Act.

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BOX 5-1 Continued

science)."[a] On August 8–9, 2016, NASA's Office of Diversity and Equal Opportunity held a MissionSTEM summit titled *Meeting the Nation's STEM Challenge*. For 2 days, experts in civil rights compliance and education discussed best practices for ensuring equal opportunity in STEM, and exchanged ideas for tackling the challenges faced by grantee institutions and compliance officials. The summit included conversations on "combatting stereotype threat, unconscious bias, microaggressions, and potentially exclusionary processes."[b]

NASA has baseline civil rights requirements for its grant and federal assistance recipients. Prior to the award, the grantee institution must show that it is in compliance with all federal civil rights laws, including Title VI and Title IX. NASA requires the grantees to sign an "Assurance of Compliance Form."[c] According to NASA's MissionSTEM website, since 2006, NASA has conducted two onsite Title IX compliance reviews per year. NASA has reviewed Title IX compliance in STEM programs in a host of areas relating to program administration and the program environment, including recruitment, admissions, education and awareness, and physical safety of the program environment, to name a few.[d] NASA's Office of Diversity and Equal Opportunity launched the MissionSTEM website in November 2012 to advance equal opportunity and provide technical assistance to its approximately 700 grant recipients, which include college and university STEM programs, museums, and science centers. The website includes such topics as filing a complaint, promising practices, diversity and inclusion leadership, and implicit bias.

NSF

Though NSF requires its grantee institutions to investigate and follow through on sexual harassment allegations, the agency has charged the understaffed NSF Office of Diversity and Inclusion (ODI) with ensuring that the agency and all recipients of funding are in compliance with Title IX and other laws that prohibit discrimination. NSF is also responsible for processing complaints from individuals from institutions that receive funding; this can be done through the internal complaint process or through the ODI. In addition, NSF conducts compliance reviews of grantee institutions. These involve looking at Title IX policies and procedures at the institution level and in the department that has received funding. Part of the review involves looking at statistical data on the selected department, policies, and procedures.[e] The ODI recently launched a dedicated website to consolidate information on sexual and other forms of harassment: www.NSF.gov/harassment.

NIH

NIH, too, has been concerned about the growing number of sexual harassment complaints in the sciences. As a result, under the direction of the Office of Equity, Diversity, and Inclusion, NIH is in the process of updating its policies. The changes have not yet been formally released, but the office has said that the new policies will include multiple ways for individuals to seek assistance, including through a confidential hotline. In addition, instead of going through the Office of Human Resources, individuals will report their complaint to a review committee, which will oversee the investigation and recommend interventions, including disciplinary action for the harasser. The process is designed to be efficient and

continued

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BOX 5-1 Continued

time sensitive, with the goal of resolving each problem as quickly as possible. The final element of the new anti-harassment measures is an online, mandatory training tool. Ultimately, the hope is that harassment can be prevented, not merely addressed when it occurs.[f]

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[a] See https://www.nasa.gov/press-release/nasa-administrator-communicates-harassment-policies-to-grantees.
[b] See https://missionstem.nasa.gov/MissionSTEM-Summit-2016.html.
[c] See https://missionstem.nasa.gov/compliance-requirements-nasa-grantees.html.
[d] See https://missionstem.nasa.gov/title-ix-education-amendments-act-1972.html.
[e] See https://www.nsf.gov/od/odi/.
[f] See https://nihrecord.nih.gov/newsletters/2017/01_27_2017/story4.htm.

SEXUAL HARASSMENT AND POLICIES ON RESEARCH MISCONDUCT AND RESEARCH INTEGRITY

NSF currently defines research misconduct as "fabrication, falsification, or plagiarism (FFP) in proposing or performing research, reviewing research proposals, or in reporting research funded" (45 C.F.R. 689.1.a). However, in the 1980s, when both NSF and the Public Health Service were developing definitions of research misconduct, they initially used language that allowed for allegations related to sexual misconduct. These definitions included both FFP and phrases that related to "other serious deviations" from accepted practices (Price 1994). Using this definition, NSF prosecuted a case in 1989 involving serious sexual harassment, sexual coercion, and rape of female students at a remote field site and in the perpetrator's office and car. Students were blackmailed by the professor by the withholding of their research data and resources (NSF 2002). NSF defended the use of the deviations phrase in the definition of misconduct and its use in the sexual harassment case (Buzzelli 1993) to make sure that behavior that affected research practice, including the appropriate training and mentoring of students, protection of intellectual property, and preventing hostile research environments, was covered. During this time the definition of misconduct promulgated by the Public Health Service was coming under attack because researchers worried that the "other serious deviations" phrase might be used to limit novel approaches to science (Schachman 1993).

In its 1992 report on integrity in the research process, the National Academy of Sciences (NAS) recommended removing the "other serious deviations" language and stated that the definition of research misconduct needed to be very

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specific (NAS 1992). In that report, the NAS defined research misconduct as fabrication, falsification, and plagiarism, and said "sexual harassment and financial mismanagement are illegal behaviors regardless of whether scientists are involved, but these actions are different from misconduct in science because they do not compromise, in a direct manner, the integrity of the research process" (26). Further, the NAS recommended that such behaviors, which affect the integrity of research, were covered by law or other policy and should be dealt with by those jurisdictions. The NAS definition of research misconduct was incorporated into a definition of research misconduct released by the Office of Science and Technology Policy (OSTP 2000) that was subsequently adopted by the federal government and most government-funded institutions. Misconduct thus became focused almost solely on fabrication, falsification, and plagiarism. The recent NAS report *Fostering Integrity in Research* (NAS 2017) reiterated that the formal definition of research misconduct is designed to apply only to those issues unique to the scientific process, upheld the current definition of research misconduct, and clearly states that sexual harassment is not included. That report instead categorizes sexual harassment as "Other Misconduct" that affects the integrity of research but is "not unique to the conduct of research, even when they occur in a research environment" (75). Additional items in this category include "the misuse of funds; gross negligence by persons in their professional activities, vandalism, including tampering with research experiments or instrumentation; and violations of government research regulations, such as those dealing with radioactive materials, recombinant DNA research, and the use of human or animal subjects" (75).

While sexual harassment is included as an issue that affects the integrity of research, some believe that not calling it research misconduct specifically may make it seem that it does not affect the integrity of research. In her paper discussing the legal challenges of sexual harassment for women in science, Ellen Sekreta (2006) said

> Title IX makes sex discrimination and sexual harassment illegal at research institutes; however, the force of the law is weakened by several factors. By excluding sexual harassment from the definition of "science misconduct" the federal government has reinforced the notion that sexual harassment affects neither the integrity of scientific research nor accepted scientific norms. (136)

Other members of the scientific community argue that sexual harassment is directly affecting the integrity of scientific work and thus should be defined as research misconduct.[21] They also call for processes and resources to be put into place that would more effectively investigate sexual harassment and prevent

[21] See http://www.sciencemag.org/news/2017/09/scientific-society-defines-sexual-harassment-scientific-misconduct; https://newrepublic.com/article/146733/scientists-accused-sexual-misconduct-can-still-get-government-grants; https://www.scientificamerican.com/article/science-suffers-from-harassment/; and https://www.chemistryworld.com/news/ustoo-movement-targets-sexual-harassment-in-science/3008715.article.

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harassers from continuing to receive federal funding. Federal funding agencies could handle sexual harassment by including it along with their efforts to enforce research misconduct, and such an approach would provide a mechanism for withdrawing funding and holding the institution and the individuals responsible.

Recent articles in scientific journals (Kuo 2017; Witze 2016; Hoy 2016) discuss the arguments for and against including sexual harassment in the definition of research misconduct. Several of the authors express concern that processes in place for investigating research misconduct are ill equipped to address allegations of sexual harassment in the research and educational environment and that other jurisdictions exist to address them. When this committee interviewed a panel of deans and other senior academic administrators, issues of increased cost, lack of expertise, and increased personnel resources, and the existence already of Title IX processes were cited as reasons not to bring sexual harassment into the realm of research misconduct. They indicated that for many colleges and universities, sexual harassment, infractions of the institution's honor code, and research misconduct (as federally defined) were each handled by different offices.

One of the consequences of strictly defining research misconduct as FFP is that many detrimental behaviors, from conflict of interest to harassment, can go unchecked when institutions focus exclusively on research misconduct rather than the broader concept of protecting research integrity. Research integrity experts such as Nicolas Steneck, a research ethicist at the University of Michigan, have recently indicated that reexamining the strict definition of research misconduct is needed. In his comments in a recent *Retraction Watch* article,[22] Steneck pointed out that the current definition of research misconduct "means that the vast majority of cases are not being addressed." Further, he said that the tendency to not want to trigger the formal process tends to make people "back away from it."

In the past few years, some scientific organizations, as well as parts of the federal government have opted to focus more broadly on policies about research integrity and on codes of ethics rather than on the narrow definition of research misconduct. This broader focus is allowing them to include and emphasize that sexual harassment is unethical and affects the integrity of research. Both the U.S. Geological Survey and the Department of the Interior have broader scientific integrity policies that apply to employees, appointees, volunteers, grantees, and contractors and include other professional behaviors in addition to the federally defined research misconduct behaviors.[23,24] Some scientific societies, like the American Geophysical Union (AGU),[25] the Institute of Electrical and Electron-

[22] See http://retractionwatch.com/2017/02/23/labeling-bad-behavior-scientific-misconduct-help-hurt-research-integrity-debate-rages/ [January 2018].

[23] See https://www2.usgs.gov/usgs-manual/500/500-25.html [April 2018].

[24] See https://www.doi.gov/scientificintegrity [April 2018].

[25] See https://ethics.agu.org/files/2013/03/Scientific-Integrity-and-Professional-Ethics.pdf/ [April 2018].

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ics Engineers,[26] Geological Society of America,[27] and American Astronomical Society,[28] have developed new ethics policies that explicitly call out sexual harassment and discrimination. These professional societies recognize the need to protect students and early-career scientists at meetings and on field trips and to include specific ethics codes related to those venues and as services such as the SafeAGU program that protect targets of harassment at meetings. Many of these policies require a high-level senior official be responsible for handling ethics code violations, a single investigation protocol that allows for the addition of expertise and processes related to the nature of the specific complaint, and collaboration with other jurisdictions as appropriate, and include programs for education and training. Only the AGU has changed its definition of research misconduct to extend beyond the federal definition of FFP and include sexual and other forms of harassment in their definition.[29,30] However, further changes in this direction should be expected since NSF recently awarded a grant for examining and developing training materials that present sexual harassment as research misconduct.[31]

The advantages of adopting a broader emphasis on research integrity is that it provides multiple options for targets of sexual harassment to report behavior (either as an ethics violation or as a Title IV or VII violation), multiple mechanisms for administrators to discourage harassment, and a way to specifically address the health of the research environment.

As shown in Chapter 4, sexual harassment in departments, research laboratories, and the field can create an environment that impacts the research conducted by both the individual and the group, damaging scientific careers, collaboration, performance, productivity, and the integrity of research.

While dealing with sexual harassment is difficult and making changes to existing systems will not be easy, a powerful incentive for change may be missed if sexual harassment is not considered equally important as research misconduct in terms of its effect on the integrity of research. For institutions such as professional societies that are beginning to address sexual harassment in their codes of ethics and policies on research integrity, it will be important to include collaboration as appropriate with the experts in sexual harassment, legal counsel, and the home institutions. Policies should have clear and detailed procedures, confidential due process that protects both complainant and respondent, fair and thorough evaluation of evidence by a panel of experts, and appropriate sanctions. For universities and funding agencies, considering sexual harassment as equally

[26] See https://www.ieee.org/about/corporate/governance/index.html [January 2018].

[27] See https://www.geosociety.org/GSA/Membership/Code_of_Conduct/GSA/Membership/Code_of_Conduct.aspx [January 2018].

[28] See https://aas.org/ethics [April 2018].

[29] See https://ethics.agu.org/files/2013/03/Scientific-Integrity-and-Professional-Ethics.pdf/ [April 2018].

[30] See https://harassment.agu.org/ [January 2018].

[31] See https://www.nsf.gov/awardsearch/showAward?AWD_ID=1725879 [April 2018].

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important as research misconduct will entail thoughtful revision of current policies and may benefit from the coordination and sharing of expertise across offices that deal with research misconduct, discrimination, and sexual harassment.

FINDINGS AND CONCLUSIONS

1. **The legal system alone is not an adequate mechanism for reducing or preventing sexual harassment.** Adherence to legal requirements is necessary but not sufficient to drive the change needed to address sexual harassment.
   a. An overly legalistic approach to the problem of sexual harassment is likely to misjudge the true nature and scope of the problem. Sexual harassment law and policy development has focused narrowly on the sexualized and coercive forms of sexual harassment, not on the gender harassment type that research has identified as much more prevalent and at times equally harmful.
   b. Much of the sexual harassment that women experience and that damages women and their careers in science, engineering, and medicine does not meet the legal criteria of illegal discrimination under current law.
2. **Judicial interpretation of Title IX and Title VII has incentivized organizations to create policies, procedures, and training on sexual harassment that focus on symbolic compliance with current law and avoiding liability, and not on preventing sexual harassment.**
   a. Private entities, such as companies and private universities, are legally allowed to keep their internal policies and procedures—and their research on those policies and procedures—confidential, thereby limiting the research that can be done on effective policies for preventing and handling sexual harassment.
   b. Various legal policies, and the interpretation of such policies, enable academic institutions to maintain secrecy and/or confidentiality regarding outcomes of sexual harassment investigations, arbitration, and settlement agreements. Colleagues may also hesitate to warn one another about sexual harassment concerns in the hiring or promotion context out of fear of legal repercussions (i.e., being sued for defamation and/or discrimination). This lack of transparency in the adjudication process within organizations can cover up sexual harassment perpetrated by repeat or serial harassers. This creates additional barriers to researchers and others studying harassment claims and outcomes, and is also a barrier to determining the effectiveness of policies and procedures.

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3. **Title IX, Title VII, and case law reflect the inaccurate assumption that a target of sexual harassment will promptly report the harassment without worrying about retaliation.** Effectively addressing sexual harassment through the law, institutional policies or procedures, or cultural change requires taking into account that targets of sexual harassment are unlikely to report harassment and often face retaliation for reporting (despite this being illegal).
4. **Fears of legal liability may prevent institutions from being willing to effectively evaluate training for its measurable impact on reducing harassment.** Educating employees via sexual harassment training is commonly implemented as a central component of demonstrating to courts that institutions have "exercised reasonable care to prevent and correct promptly any sexually harassing behavior." However, research has not demonstrated that such training prevents sexual harassment. Thus, if institutions evaluated their training programs, they would likely find them to be ineffective, which, in turn, could raise fears within institutions of their risk for liability because they would then knowingly not be exercising reasonable care.
5. **Holding individuals and institutions responsible for sexual harassment and demonstrating that sexual harassment is a serious issue requires U.S. federal funding agencies to be aware when principal investigators, co-principal investigators, and grant personnel have violated sexual harassment policies.** It is unclear whether and how federal agencies will take action beyond the requirements of Title IX and Title VII to ensure that federal grants, composed of taxpayers' dollars, are not supporting research, academic institutions, or programs in which sexual harassment is ongoing and not being addressed. Federal science agencies usually indicate (e.g., in requests for proposals or other announcements) that they have a "no-tolerance" policy for sexual harassment. In general, federal agencies rely on the grantee institutions to investigate and follow through on Title IX violations. By not assessing and addressing the role of institutions and professional organizations in enabling individual sexual harassers, federal agencies may be perpetuating the problem of sexual harassment.
6. **To address the effect sexual harassment has on the integrity of research, parts of the federal government and several professional societies are beginning to focus more broadly on policies about research integrity and on codes of ethics rather than on the narrow definition of research misconduct.** A powerful incentive for change may be missed if sexual harassment is not considered equally important as research misconduct, in terms of its effect on the integrity of research.

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6

Changing the Culture and Climate in Higher Education

This report reflects decades of legal and policy engagement with sexual harassment that has not resulted in a significant solution to the problem. Recent media coverage has featured reports of individuals who have been accused of sexually harassing women, particularly egregious cases involving assault and sexual coercion, and of follow-up reports on how organizations are firing these individuals. However, sexual harassment is not simply a problem of individual behavior. Rather, organizational climate plays a primary role in facilitating and enabling harassment. *Organizational climate* is defined as the shared perceptions within an organization of the policies, practices, and procedures in place (i.e., why they are in place; how people experience them; how they are implemented; what behaviors in the organization are rewarded, supported, and expected) (Schneider, Ehrhart, and Macey 2013).

Organizational climate is the single most important factor in determining whether sexual harassment is likely to occur in a work setting (see Chapter 2 for a discussion of factors that can predict sexual harassment is likely to occur). The degree to which a particular organization's climate is seen by those in the organization as permissive of sexual harassment has the strongest relationship with how much sexual harassment occurs in the organization (Willness, Steel, and Lee 2007). According to Hulin, Fitzgerald, and Drasgow (1996), the characteristics of organizations with a permissive climate toward sexual harassment include the following:

- Perceived risk to victims for reporting harassment,
- Lack of sanctions against offenders, and
- The perception that one's complaints will not be taken seriously.

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Permissive environments can make men with a proclivity toward harassment more likely to engage in those behaviors (Pryor, LaVie, and Stoller 1993). Additionally, perceptions that an organization is permissive of sexual harassment can lead to women's reluctance to report harassment because they believe their complaints will not be taken seriously or they will be subject to retaliation (Hulin, Fitzgerald, and Drasgow 1996; Offerman and Malamut 2002).

Workers' perceptions of an organizational climate permissive of sexual harassment are also associated with lower overall work satisfaction among employees and decreased satisfaction with coworkers and supervisors (Fitzgerald, Drasgow, and Magley 1999; Hesson-McInnis and Fitzgerald 1997; Settles et al. 2006). On the other hand, a positive climate decreases sexual harassment rates, reduces retaliation against those who confront and report harassment, and results in better psychological health and workplace experiences (Buchanan et al. 2014; Fitzgerald, Drasgow, et al. 1997; Glomb et al. 1997, 1999; Wasti et al. 2000).

An organizational climate that permits gender harassment (one of three types of sexual harassment) can be as damaging to women's success and professional advancement as the more egregious forms of sexual harassment.[1] A meta-analysis of 88 studies of sexual harassment based on 93 independent samples that contained responses from 73,877 working women showed that "more intense yet less frequent harmful experiences (e.g., sexual coercion and unwanted sexual attention) and less intense but more frequent harmful experiences (which in this analysis included gender harassment and the sexist organizational climate it can create) had similar negative effects on women's well-being" within the workplace (Sojo, Wood, and Genet 2016, 13;[2] see also Settles et al. 2006).

Gender harassment is far more common than other types of sexual harassment, yet to date, most institutions have focused on investigating and preventing the more dramatic, sexualized types (sexual coercion and unwanted sexual attention), with less attention paid to the more common gender harassment (consisting of sexist hostility and crude behavior). Fully taking stock of sexual harassment in an organization requires attention to all the types of sexual harassment and to the organizational climate that facilitates and enables the behavior.

The most common mechanisms for addressing sexual harassment revolve around identifying perpetrators through formal reports of their misdeeds. However the research reviewed in Chapter 4 finds that victims rarely report sexual harassment; this is especially true for gender harassment (e.g., Lonsway, Paynich, and Hall 2013), which many people do not realize is a form of sexual harassment (Holland and Cortina 2013). If reactive complaint mechanisms are the only

[1] There are three types of sexual harassment: gender harassment, unwanted sexual attention, and sexual coercion. See Chapter 2 for further descriptions.

[2] Sojo, Wood, and Genet (2016, 13) use the term "sexist organizational climate" to refer to "the experience of generalized negative attitudes towards women within the organization (e.g., frequent and unchallenged sexist jokes, judgments of women as less competent, pressure on women to change their behavior to match the work context)."

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route to intervention in an institution, then it most likely misses a majority of the sexual harassment that takes place. These mechanisms are absolutely necessary, but far from sufficient. They should be supplemented with proactive efforts to fix the organizational climate that is tolerating and facilitating sexual harassment, particularly gender harassment, of faculty, staff, and trainees in higher education.

To prevent and effectively address sexual harassment, systemwide changes are needed to the organizational climate and culture in higher education. While *organizational climate* is focused on the shared perceptions within an organization, *organizational culture* is defined as "the collectively held beliefs, assumptions, and values held by organizational members" (Stamarski and Hing 2015, 7; see also Trice and Beyer 1993, Settles et al. 2006, and Schein 2010). Ideally the climate reflects and supports the culture of the organization, and ideally the culture guides and sets the tone for the climate that members of an organization experience. The key is that climate and culture must be addressed together, because efforts to build a good climate will flounder if they conflict with the beliefs, assumptions, and values of an organization; conversely, only having the "right" culture will not result in the desired result if the processes and procedures are not organized around the collective and shared goals and beliefs (Schneider, Ehrhart, and Macey 2013).

To address the culture in an organization, it is crucial to recognize that organizational cultures are not neutral; rather, they reflect the norms and values of those who are and have been in leadership roles in the organizations, and these norms influence the formal and informal structures, organizational strategy, human resource systems, and organizational climates (Gelfand, Erez, and Aycan 2007). As a result, organizational culture cannot be addressed in isolation. Further, organizational leadership, and the signals that leaders send about civility, respect, and tolerance for sexual harassment, are powerful cues that individuals in the organization take seriously—and they adapt their own behaviors (if not their attitudes) accordingly.

Given the significance that organizational climate plays in preventing sexual harassment, this chapter focuses on six approaches that can improve the organizational climate and thereby prevent sexual harassment. Listed here from most to least novel, these approaches are what an organization committed to significantly reducing or eliminating sexual harassment in academia should work on implementing:

- Create a diverse, inclusive, and respectful environment;
- Diffuse the power structure and reduce isolation;
- Develop supportive structures and systems for those who experience sexual harassment;
- Improve transparency and accountability;
- Ensure there is diverse, effective, and accountable leadership that is un-

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ambiguous about its commitment to reducing and eliminating harassment; and
- Develop and use effective sexual harassment training.

In many ways these approaches reflect the three priorities identified for ending gender-based violence by the U.S. Department of State and U.S. Agency for International Development (2012). The priorities are (1) *prevention* of gender-based violence from occurring in the first place, and from recurring, by working with local grassroots organizations, civil society, and key stakeholders in the community, including men and boys; (2) *protection* from gender-based violence by identifying and providing services to survivors once the violence occurs; and (3) *accountability* to ensure that perpetrators are prosecuted and to end impunity by strengthening legal and judicial systems. These concepts, prevention, protection, and accountability, also serve as a useful shorthand for how institutions should address sexual harassment.

The following sections of this chapter elaborate on the six approaches identified by our committee, describing why they can improve the climate and discussing promising practices and models for achieving them. This chapter also discusses the importance of measuring progress and incentivizing institutions to make changes and implement these approaches. It concludes with a section on the important role played by professional societies and other organizations that facilitate research and training in altering the climate and culture in academic science, engineering, and medicine.

It should be noted that while the evidence related to many of the approaches in this chapter have demonstrated improved outcomes for women, there is much less evidence that they will improve outcomes for ethnic and racial minorities and sexual- and gender-minority women. It is possible that these actions will only improve the environment for straight white women, or that there are greater limits on how well these efforts will work for women of color and sexual- and gender-minority women.

CREATING A DIVERSE, INCLUSIVE, AND RESPECTFUL ENVIRONMENT

Diverse, inclusive, and respectful academic environments are environments where careers flourish, but sexual harassment does not. Such environments have a culture that values diversity, inclusion, and respect, but they also need to have a climate that demonstrates that these values are put into action. Diverse and inclusive environments are ones where cultural values around gender and racial equity align with a climate where policies and practices do not disadvantage groups of people, and thereby making them incompatible with sexually harassing behavior. Similarly, a respectful environment is one where civility and respectful work behavior are not just valued but also evaluated and rewarded, and this is

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reflected in policies and procedures. Respectful behavior is particularly important in preventing sexual harassment because sexual harassment often takes place against a backdrop of incivility,[3] or in other words, in an environment of generalized disrespect. This is especially true for gender harassment, because when it occurs, it is virtually always in environments with high rates of uncivil conduct (Cortina et al. 2002; Lim and Cortina 2005). Thus, promoting and establishing a culture of respect is a key component to preventing sexual harassment.

This section discusses how cultural values of diversity, inclusion, and respect can be integrated into policies, procedures, formal and informal structures, organizational strategies, and human resource systems, many of which already have problematic norms and values built into them. Specifically, this section will examine faculty hiring, evaluation, and reward structures, as well as interventions to create and promote an environment that demonstrates that it actualizes the values of diversity, inclusion, and respect.

We recognize that most of this section deals with the culture of the workplace environment in which faculty and staff are the key actors. In fact, students comprise the largest population on a college or university campus, and strategies to address cultural change and creating a climate in which sexual harassment is not tolerated must also include a focus on students. As such, we do urge that institutions apply and evaluate many of the same principles and similar interventions outlined below to the student population. We do not go into detail on specific steps campuses can take to address civility and respect on a student-to-student level because the research is limited in this area and because the changes at the faculty and staff level are likely to have significant impacts on student behavior in classroom, training, and research settings that are supervised by faculty and staff.

Diversity Initiatives

We note, that on their face, diversity initiatives may appear irrelevant to sexual harassment. However, they hold great promise for creating academic environments where women are not disadvantaged and where they are not seen as less valuable or less capable because of their gender. Diversity initiatives aim to address the challenges that nonmajority groups deal with when working and learning in a majority environment. Substantial evidence suggests that individuals from nonmajority groups, such as women of color, men of color, white women, and sexual and gender minorities, cannot bring their "whole selves" to their work. Instead, they must "code switch" while at work—that is, adopt the behavior patterns, speech, dress, and values of the majority group. This can be especially tricky for female-identified individuals, as trying to adopt behavior patterns of men can lead to labels of "bossy" or "bitchy" and thus lead to gender harassment

[3] Incivility refers to "low-intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect. Uncivil behaviors are characteristically rude and discourteous, displaying a lack of regard for others" (Andersson and Pearson 1999, 457).

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(Berdahl 2007b). At the same time, avoiding these behavior patterns can lead to less professional advancement.

Conformity to majority standards is harmful to the workplace as well as to the individual. Code switching and conformity behaviors lead to individuals from nonmajority groups having to constantly police themselves, which has been described as having a constant background process running, which is distracting and limiting when trying to do complex work (Hewlin 2009; Jones and Shorter-Gooden 2003; Johnson et al. 2016). Additionally, conformity means that people are unable to leverage those diverse experiences into novel problem-solving capabilities, which is the type of synergy that has been documented in successfully diverse workplaces. Thus, even when women are present in the workplace, if they face challenges in navigating a male-dominated culture, they still might choose to withhold their points of view in order not to challenge the existing culture—meaning that their diverse perspectives may still not be brought to bear in the workplace discourse (Van Kippenberg, Haslam, and Platow 2007; Van Kippenberg and van Ginkel 2010; Van Kippenberg, van Ginkel, and Homan 2013).

Diversity initiatives usually have two goals: increasing the number of underrepresented workers and creating synergy between people from varying backgrounds (Dwertmann, Nishii, and Knippenberg 2016). Because majority members expect to enjoy a sense of belonging to their organization, diversity initiatives may feel like a threat to their sense of self and their place in the workplace. Thus, organizations should expect some resistance to diversity initiatives and develop plans to cultivate support for such initiatives from the campus community. Resistance to diversity initiatives, and diverse workplaces more generally, can range from subtle acts of incivility to more extreme forms of undermining an institution (Hebl, Madera, and King 2008). Several interventions exist aimed at increasing pro-diversity beliefs and attitudes among majority members of an organization (van Veelen, Otten, and Hansen 2014; Courtois et al. 2014), particularly on shifting attitudes toward egalitarianism. This work highlights the importance of a bottom-up approach that relies on support from the campus community rather than from individuals at the top to change the culture of an institution. It also reveals how creating top-down policy mandates that ignore the important steps of building consensus and appreciation of the importance of a respectful workplace can lead to resentment and/or misinterpretation. The following section discusses some specific approaches for improving diversity by making changes to faculty hiring practices.

Faculty Hiring, Evaluation, and Reward Practices

Faculty hiring and promotion decisions are key points in the academic system where changes in policies and practices can have a significant effect on improving diversity and respect. Since one of the key predictors of sexual harass-

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ment is a male-dominated organizational context (see Chapter 2; USMSPB 1995; Fitzgerald et al. 1997; Berdahl 2007b; Willness, Steel, and Lee 2007; Schneider, Pryor, and Fitzgerald 2011; Kabat-Farr and Cortina 2014), it is important to address the issue of gender diversity in academia. Male-dominated organizational contexts are those settings that are numerically male dominated, have mostly men in authority roles, and/or have women working in traditionally male fields, and it is these settings that tend to have higher rates of sexual harassment. Two important steps in correcting this problem are achieving critical masses of women at every level[4] and changing policies and practices that are impeding the ability for women to enter and advance in academia. In other words, science and engineering departments and academic medical centers that hire more women, promote more women, and integrate more women into every level of the academic power structure may see a decline in harassment—among other benefits. In pursuing initiatives that seek to diversify the workplace, the goal should be "well-integrated, structurally egalitarian" places of work in which women and men equally share power and authority (Schultz 2003). To do so organizations need to align policies and processes so that they reflect the organization's cultural values that women and men are equals and that people should be treated respectfully. Approaches for this include reducing bias in hiring and promotion processes, considering applicants views and actions on improving diversity and inclusion, and evaluating faculty for cooperation, respectful work behavior, and professionalism.

Gender parity, specifically among *faculty,* is especially important, given that faculty lead and set the tone in labs, medical teams, classrooms, departments, and schools. A large body of social science research points to practices that can enhance gender diversity and excellence in faculty hiring. Evidence-based practices[5] supported by this research include the following:[6]

- Train faculty hiring committees, with particular attention to how to protect against bias from influencing decision making.[7]
- Take active and continuous steps to diversify the applicant pool.
- Cast a wide net by defining faculty searches as broadly as possible (a strategy known to increase the numbers of women applicants and applicants of color).

[4] Critical mass is often defined as women making up 30 percent of the population in a setting (Stewart, La Vaque-Manty, and Malley 2004, 2007; Valian 1999; Newton-Small 2017).

[5] These evidence-based hiring practices are summarized in a handbook created by the ADVANCE Program at the University of Michigan for the purpose of increasing both diversity and excellence among faculty. Available at http://advance.umich.edu/resources/handbook.pdf.

[6] Additional practices that reflect this evidence-based research from academic settings are also available for industry and corporate environments; see http://projectinclude.org/hiring#.

[7] See, for example, the STRIDE Faculty Recruitment Workshop pioneered at the University of Michigan at http://advance.umich.edu/.

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- Develop job-relevant hiring criteria, and keep those criteria central to hiring discussions (reducing the chance that gender, race, and ethnicity biases will shape those discussions).
- Use a standardized tool to evaluate candidates according to the hiring criteria.

When institutions are hiring new faculty and staff, it may help to be clear about the norms and standards of behavior related to professionalism, respectful work behavior, equity, and inclusion that are expected and that the organization is looking for. Additionally, hiring committees could include consideration of how well the candidate would be at upholding the behavior expectations of the organization—based on the candidate's prior experiences, letters of support, reference checks, and responses to interview questions. Hiring practices that hold promise for assessing a job candidate's values and behaviors on diversity, inclusion, professionalism, and respect include the following:

- Require diversity and inclusion statements from faculty and leadership applicants, requesting that they explicitly address not only their own beliefs about diversity but also their track records in supporting diversity[8] (e.g., their own actions have focused on broadening participation of women and people of color); applicants can also be asked to address the nature and impact of diversity within their academic disciplines, which can then be discussed directly in interviews.
- Require letters of recommendation to address applicants' leadership abilities in terms of their professionalism and respectful work behavior.
- Ask candidates direct questions about the role of respectful work behavior among all members of the academic unit and how they, as a leader, would respond if they witnessed harassing behavior among students, trainees, faculty, or staff. Similar questions could be asked of others (e.g., former staff or students) who have worked closely with the job candidate.

In circumstances where a candidate has a history of behavior that is inconsistent with values and behavior expectations of the institution, it is good practice for the institution to consider whether making the hire will contradict the values and goals of the organization. If it decides to hire someone with such a history, the institution could consider the use of probation or precautionary measures to prevent future behavior from occurring, and at a minimum should be very clear about what the standards of behavior are at the organization. Institutions may also want to consider how the candidate's history could influence the climate and

[8] During the course of the study the committee became aware of a number of departments in various academic institutions that request such statements. The committee is unaware of any research that documents how widespread this practice is.

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culture in a department, program, or the whole institution and consider the effect it may have on those who have previously been targets of sexual harassment.

Hiring practices such as those reviewed in this section could help to recruit and retain more women in fields dominated by men, which could help in the reduction of sexual harassment. However, it is critical to do more than "add women and stir" (Martin and Meyerson 1988); additional work is needed to align the culture or the values of the institution with its policies and practices. With this goal in mind, we now turn to issues of evaluating faculty for cooperation, respectful work behavior, and professionalism.

Faculty Evaluation and Reward Structures

Focusing evaluation and reward structures on cooperation, respectful work behavior, and professionalism rather than solely on individual-level teaching and research performance metrics could have a significant impact on improving the environment in academia. According to Jayne and Dipboye (2004, 415):

> When the task and the rewards require people to cooperate, organizational and team membership become more salient than the demographic differences among individuals . . . competitive or individualistic task designs, reward structures, performance appraisal practices, and compensation systems create barriers to cooperative interaction and prevent realization of the benefits of diversity. Actions to foster a cooperative culture include leadership emphasis on the common good, basing part of employees' compensation on organizational or group outcomes, collecting performance feedback on group members' performance from a variety of perspectives (e.g., peers, customers, subordinates), and celebrating successes on a regular basis.

This orientation toward collaboration and cooperation challenges the way many academic institutions organize their faculty hiring, merit, and promotion processes. However, where faculty members act as leaders and engage in their research or teaching with teams (including trainees), labs, medical trainee groups, and so on, there may be opportunities for evaluating and rewarding collaborative, respectful, and professional behavior (e.g., including some cooperative metrics, soliciting feedback from subordinates and trainees within regular review processes). Steps that colleges and universities could take to foster greater cooperation, respectful behavior, and professionalism at the faculty and staff level include the following:

- Evaluate faculty regularly (not just at key transition moments, such as tenure) for cooperation, respectful work behavior, and professionalism.
- Evaluate candidates for honor positions (e.g., chaired positions, Distinguished Faculty positions) for cooperation, respectful work behavior, and professionalism.

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- Collect feedback from all members of units (i.e., including students, staff), with attention to cooperation, respect, and professionalism, when evaluating candidates for positions at all levels.

In some institutions, a move toward greater cooperation and professionalism requires changes in the academic "star culture" that protects "bad actors." Academic star culture refers to the beliefs or assumptions that well-known academics on campus who command significant resources can operate without ordinary rules being applied to them.[9] Recent sexual harassment scandals in academia revealed the problems of star culture when luminaries in male-dominated fields allegedly engaged in years of sexual harassment with relative impunity (e.g., Geoffrey Marcy, Brian Richmond, David Marchant, and John Searle). For real change to happen in the academy, norms and rules (and consequences for violating them) would need to apply to all members of the campus community, no matter how famous or well funded.

Cultivating Respect and Civility

Timmerman and Bajema (2000, 190) define a positive social climate as employee oriented, one that "displays a concern for people, respects the workers, and is interested in the personal problems of the employees." In studying such positive social climates, they found that respondents who reported that their company had a more positive social climate, as well as placed a strong emphasis on advancing gender equity in the workplace and supported family-friendly policies, reported fewer instances of unwanted sexual behavior in the workplace. Thus, a key approach to preventing sexual harassment should be to cultivate a positive, respectful social climate at every level in academia. Such a goal is consistent with the educational missions of academic institutions. It is also consistent with recommendations of the co-chairs of the 2016 Equal Employment Opportunity Commission (EEOC) Task Force on the Study of Harassment in the Workplace; they recommended workplace training focused on respect and civility.

Incivility is defined by those who study workplace harassment as "rude, condescending, and ostracizing acts that violate workplace norms of respect, but otherwise appear mundane" (Cortina et al., 2017, 55). When used by these scholars it describes acts that are used by those in more powerful positions as a form of oppression against women, people of color, and other minorities (Cortina 2008). Some scholars worry that "civility" interventions erode free and critical speech (e.g., Calabrese 2015; Scott 2015). They urge critical analysis of incivility, with particular attention to power and who is claiming incivility is occurring. Indeed, when calls for civility come from the powerful, for the purpose of silenc-

[9] National Academies of Sciences, Engineering, and Medicine, *A Workshop on Strategies for Addressing Sexual Harassment in Academic Science, Engineering, and Medicine* (2017) (testimony of Jan Sepler). Available at http://sites.nationalacademies.org/PGA/cwsem/shstudy/PGA_177869.

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ing voices below them, this is deeply problematic. In academia recently, debates about civility versus free speech have been particular heated when academic leaders expressed views that seem to make civility a prerequisite for the free and open exchange of ideas (Cortina et al. 2017). However, calls for civility do not only originate from the top of the organization nor do they need to aim for censorship. For example, "occupational health psychologists promote calls for civility issued by stakeholders at all levels (including but not limited to leadership) for the purpose of protecting workforce health and wellbeing; the objective is to create dignified working conditions for all persons, especially those in the minority" (Cortina et al. 2017, 308). The academic community would benefit from continued discussion of how to evaluate civility and take into consideration how power influences the meaning of the term.

Harassment scholars have long recommended that organizations combine anti-harassment efforts with civility-promotion programs (Cortina et al. 2002; Lim and Cortina 2005). As Cortina and colleagues (2002, 307) explain, such an integrated strategy "would more adequately reflect the multidimensional nature of interpersonal mistreatment, which comes in general, gendered, and sexualized varieties. Such programs would also attract broader audiences, being relevant to both women and men and avoiding resistance met by interventions that exclusively target . . . sexual harassment." The goal would be to eliminate all elements of a hostile work environment, be they generic; based on gender, race, or ethnicity; or other factors. While there are numerous examples of successful workplace respect and civility programs, more research is needed to determine whether it is a best practice for reducing and preventing sexual harassment.

Successful workplace respect and civility interventions spin the focus of training from punitive to positive by highlighting behaviors in which employees should engage, rather than those they should avoid (such as sexual harassment). Some of these interventions, moreover, have evidence of their effectiveness. Specifically, the Civility, Respect, and Engagement at Work (CREW) program (Leiter et al. 2011) originated as an intensive 6-month intervention in veterans hospital administration settings and is geared to enhance employees' interpersonal awareness and communication skills.

CREW is both rigorous and structured, but also adaptive to the distinct needs of each work group or team. This intervention involves weekly or biweekly team meetings—supported by a trained facilitator—to establish shared unit norms. The group brainstorms specific behaviors that indicate respect and disrespect, resulting in a list of strengths and areas of concern. They engage in structured exercises (drawn from the "CREW Toolkit") to practice positive, respectful ways of interacting. The group then collectively generates a plan of action, and this plan is implemented, evaluated, and modified as needed. They continue to meet regularly to complete structured exercises, set goals, and evaluate progress. These meetings aim to promote teamwork and strengthen respect and trust among members as well as reduced absenteeism and overall incidence of workplace incivility (e.g.,

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Laschinger et al. 2012; Leiter et al. 2011; Osatuke et al. 2009). Whether shorter interventions can produce similar change remains unknown.

Field studies of the CREW intervention in health care settings find it to be effective in raising respect levels (Laschinger et al. 2012; Leiter et al. 2011; Osatuke et al. 2009). For example, Leiter and colleagues (2011) documented meaningful effects of CREW as implemented within hospital work units. Following 6 months of intervention, benefits included not only fewer uncivil interactions and more civil ones, but also lower burnout, fewer absences, and greater organizational trust, commitment, and satisfaction among employees. An outstanding question is whether interventions like CREW, in concert with other anti-harassment efforts, can be effective tools against sexual harassment in academic work settings.

Reducing Bias and Responding to Harassment—Including Bystander Intervention

An organization that is committed to improving organizational climate must address issues of bias in academia. Biases are deeply ingrained in our society and differential responses toward women and men are a result of long-term habitual behavior (Devine 1989). Individuals are often unaware of these implicit responses, which may be in contradiction to their conscious beliefs. Examples of these biases in organizational practices include the practice of aggressively interrupting seminar speakers during departmental talks or requiring work availability in the early mornings, evenings, or over weekends without consideration of family circumstances. Research strongly suggests that these patterns have a gendered effect that will be much harder on women presenting their research or talking in meetings and on working mothers' overall workplace success (Bernard and Correll 2010; Karpowitz and Mendelberg 2014; Stamarski and Hing 2015).

Research has shown that the evaluation of expertise for male and female scientists and engineers is highly dependent on the gender and gender identification of the individuals making the evaluation (Joshi 2014). Highly educated female candidates are seen as more qualified by female evaluators than by male evaluators in science and engineering fields. Further, males that identify strongly with their gender are more likely to rate a highly educated female more negatively than less-educated females.

In a review of research on bias and discrimination of women in science and engineering, the American Association for the Advancement of Science noted that establishing a "bias literacy" is an important precursor to effective intervention actions (Sevo and Chubin 2008). Literature also suggests that in addition to being aware of problematic behavior, individuals must learn to deliberately practice new behaviors until they become habitual (Bandura 1991).

The approach of habit breaking to reduce bias has been successful in academic training to reduce race bias (Devine et al. 2012). Using this previous work as a model, researchers at the University of Wisconsin designed a workshop for

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selected faculty in science, technology, engineering, mathematics, and medicine (STEMM) to increase bias literacy[10] and encourage intentional change in gender bias (Carnes et al. 2012). Faculty who attended workshops on gender bias habit-reducing interventions demonstrated positive behavioral changes, including increased personal awareness, internal motivation, perception of benefits, and success in engaging in gender equity–promoting behavior (Carnes et al. 2015). Further, when a critical mass attended the workshops (at least 25 percent of a department's faculty), self-reported actions taken to promote gender equity significantly increased. This study indicates that when training is provided to reduce personal bias, larger-scale departmental behaviors can change in an academic setting.

Ideally, culture change would prevent bias and acting on those biases against women altogether, reducing sexual harassment rates. It would be unrealistic to expect those biases to be totally eradicated, however. It is therefore important for leaders and members in higher education institutions to think also about how to respond when biases turn into harassment. Appropriate and effective response requires certain skills, which can be learned via training.

Bystander intervention training, for example, is an important tool in teaching people how to respond when they see problematic behavior. It has been increasingly promoted as a tool for reducing sexual misconduct, especially in contexts known to have high rates of misconduct (e.g., college campuses). Bystanders are individuals who witness an incident and have the opportunity to intercept it. As Holland, Rabelo, and Cortina (2016) explain, there are five critical steps to bystander intervention in problematic social or sexual situations: (1) notice the event, (2) interpret it as problematic, (3) assume personal responsibility for intervening in some way, (4) decide how to intervene, and (5) act on that decision. These steps apply to a wide range of problematic situations, including sexual ones.

Research has identified many ways that bystanders can intervene. Interventions can be direct or indirect; involve perpetrators, targets, or other bystanders; and occur before, during, or after problematic incidents (Holland, Rabelo, and Cortina 2016). For example, bystanders could take it upon themselves to directly confront a harasser, directly remove a target of harassment, or indirectly help by finding someone else to intervene (e.g., a friend of the target, someone in authority). Bystander education equips people with the skills necessary to take such actions. Implementation and evaluation of such education models have found it to be effective in improving knowledge about sexual violence, reducing endorsement of rape myths, and increasing the likelihood of bystander intervention behavior—at least among college students, both female and male (see, e.g., Banyard, Plante, and Moynihan 2004; Banyard, Moynihan, and Plante 2007). It is

[10] The term "bias literacy" was a construct coined by the American Association for the Advancement of Science, noting that literacy in a given topic area is a prerequisite to action (Sevo and Chubin 2008).

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unclear whether training programs such as this would be as effective in changing attitudes and behaviors surrounding sexual harassment among academic leaders, faculty, and staff, but this bystander education model holds promise (Feldblum and Lipnic 2016).

Another version of bystander education applies to expression of bias more broadly (i.e., not limited to sexual harassment). Designed to show participants how to recognize and report problematic behavior, this training revolves around two models: Confronting Prejudiced Responses (CPR) and Behavior Modeling Training (BMT).

CPR provides a way to help training participants understand the factors that promote and inhibit confronting discrimination or other offensive behavior. The CPR model acknowledges the many challenges a person may face when confronting discrimination by training a bystander to go through a series of steps before deciding whether and how to intervene. First, an individual must decide whether the action is discriminatory and then evaluate whether the situation is an emergency, decide whether he or she wants to take responsibility for intervening, identify a proper response, and, finally, decide whether to take action or not before confronting the discrimination (Ashburn-Nardo, Morris, and Goodwin 2008).

BMT is more concrete in describing specific skills that participants need to learn, and has been a part of training methodology in organizational settings since the 1970s (Goldstein and Sorcher 1974). In BMT training, participants view behavior models of those skills, practice or rehearse observed behaviors in a safe setting, and then transfer these skills to their work environments (Decker and Nathan 1985; Goldstein and Sorcher 1974; Taylor, Russ-Eft, and Chan 2005).

CPR and BMT are just two examples of skills-based trainings that center on bystander intervention. There are more, and different programs encourage intervention in different kinds of social, sexual, or criminal situations. The underlying message behind bystander training is that it promotes a culture of support, not one of silence. By calling out negative behaviors on the spot, all members of an academic community are helping to create a culture where abusive behavior is seen as an aberration, not as the norm (Banyard 2015).

DIFFUSING THE POWER STRUCTURE AND REDUCING ISOLATION

As described in Chapters 2 and 3, environments where people are isolated because of significant differences in power are more likely to foster and sustain sexual harassment. This power isolation occurs when there is a significant power imbalance—one party holds enough power and authority over the other that the former isolates the latter from being able to go to others for help without risking potentially serious retaliation. Regarding sexual harassment in science, engineering, and medicine, this occurs when power is highly concentrated in a single person, perhaps because of that person's success in attracting funding for research (i.e., academic star power) or because that person can influence the career options

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of those he supervises, and students or employees feel as if revealing the harassing behavior will have a negative impact on their own lives and careers (Nelson et al. 2017). If an organization aims to reduce the risk of sexual harassment and create a climate that does not tolerate sexual harassment, attention must be paid to diffusing the power that perpetrators take advantage of. Without addressing this imbalance, targets of sexual harassment will remain vulnerable to coercion and retaliation and will believe that perpetrators in positions of power will be taken more seriously then they will when they report—two characteristics of organizations with permissive climates toward sexual harassment.

Mechanisms for diffusing power more broadly among faculty and trainees (i.e., graduate students, postdoctoral researchers, and medical residents) can have the salutary effect of opening up the intellectual culture as it also reduces the risk of sexual harassment. One approach for diffusing power is to make use of egalitarian leadership styles that contrast with the authoritarian style most people are familiar with (i.e., where a person dictates policies, procedures, goals, and activities without any meaningful participation by the others lower in the hierarchy). Transformational style, one of the three egalitarian leadership styles,[11] is described as inspiring workers to do more than they originally expected, and research has found it is significantly and positively associated with team effectiveness (Flood et al. 2000). Using and encouraging this more egalitarian form of leadership could reduce the risk of sexual harassment because subordinates would be treated more as equals with experience and expertise to contribute to the work. Additionally, Nelson and colleagues (2017) reveal examples of what egalitarian leadership styles look like in research field sites that are associated with positive environments in which sexual harassment was prevented or addressed in a responsive and responsible manner. Characteristics of these sites included valuing all perspectives, even the views of the lowest-ranking graduate student (i.e., asked for input and not put down); those in power being approachable; tasks being shared equally; having an explicit culture of looking out for each other; and making accommodations to allow everyone to participate. Such egalitarian approaches maintain the respect for experience and expertise while enabling more scientists to contribute to a project and its leadership. This type of open intellectual culture can be fostered by improving supervision and training of leaders, especially at locations separated from the primary teaching and research facilities of the institution.

Colleges and universities can also consider power-diffusion mechanisms between advisors/mentors and mentees. Simplistic, dyadic mentoring arrangements not only place undue expectations that a single relationship can support and enhance a range of research skills developments and anticipated career development outcomes, but also risk concentrating power over those outcomes in a single individual. As an alternative to the traditional single-mentoring model,

[11] The three styles are transactional, transformational, and laissez faire (Flood et al. 2000).

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mentoring networks or committee-based advising allows for a diversity of potential pathways for advice, sponsorship, support, and informal reporting of harassment. Departments can take collective responsibility for trainees by conducting annual reviews of the trainees' progress at faculty meetings and discussing how to help trainees network and find positions well suited for them. These mentoring models can also be extended to postdoctoral scholars who are usually very isolated because they work with just one advisor and do not usually arrive with a cohort like graduate students do. Additionally, departmental and institutional ombuds offices could help facilitate alternative supports, thereby further diffusing any concentration of power.

For relationships with research advisors, mechanisms related to funding of both research projects and student stipends should be considered. For example, funding could be diffused by pooling funds in the department for attending conferences and hiring undergraduate research associates. Departments and institutions could also explore developing ways the research funding can be provided to the trainee rather than just the principal investigator. Institutions and departments could also take on the responsibility for preserving the potential work of the research team, by redistributing the funding if a principal investigator cannot continue the work because he/she has created a climate that fosters sexual harassment. Likewise, institutions could take organizational responsibility for the trainees by guaranteeing funding to the students even if the institution pulls funding from the principal investigator.

Isolation also results from confidentiality and nondisclosure agreements that limit sexual harassment targets' ability to speak with others about their experiences and can serve to shield perpetrators who have harassed people repeatedly. Legal scholar Catherine MacKinnon argues that changes should be made to institutional rules and statutory laws to prohibit or limit secrecy and nontransparency, including the use of forced arbitration, nondisclosure agreements, and confidential settlements.[12] Such statutory changes are already under consideration in California, where State Senator Connie Leyva plans to introduce legislation to ban confidentiality provisions in monetary settlements involving sexual harassment.[13] At the same time, lawyers in some states who represent targets of sexual harassment are considering challenging confidentiality agreements in courts based on the premise that most states have laws that prohibit any agreement that conceals a public hazard—and sexual harassment could be considered a public hazard in the workplace.[14]

[12] See https://www.nytimes.com/2018/02/04/opinion/metoo-law-legal-system.html.

[13] See http://www.latimes.com/politics/essential/la-pol-ca-essential-politics-updates-california-lawmaker-wants-to-ban-secret-1508428198-htmlstory.html.

[14] See https://www.csmonitor.com/USA/2017/1219/US-lawyers-reconsider-confidentiality-agreements-in-sexual-harassment-claims and https://www.forbes.com/sites/michellefabio/2017/10/26/the-harvey-weinstein-effect-the-end-of-nondisclosure-agreements-in-sexual-assault-cases/#459002982c11.

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SUPPORTIVE ENVIRONMENTS FOR TARGETS

Chapter 4 discussed at length how women who experience sexually harassing behavior fear reprisal and suffer both short-term and long-term psychological consequences of reporting the behavior. If targets fear reprisals, and feel that the institutional process will not serve them, then this will create a climate that is permissive of sexual harassment. Additionally, such conditions will make targets unlikely to report, which can limit the institutions' options for stopping the sexual harassment on campus and demonstrating that they take the issues seriously and sanction offenders—another important piece of creating a climate that is not permissive of sexual harassment.

Students are often reluctant to start the formal grievance process with their campus Title IX officer because of fear of reprisal, expectation of a bad outcome, not knowing how to proceed, and because confidentiality cannot be guaranteed (Pappas 2016a; Harrison 2007). The general perception that institutions are unable or fail to prevent or respond supportively to wrongdoings by individuals (institutional betrayal) leads to a climate of distrust. Smith and Freyd (2014) suggest organizations can instead demonstrate "institutional courage" by shifting their priorities from damage control to honest recognition of the target.

To demonstrate commitment to supporting the target, institutions should convey that reporting sexual harassment is an honorable and courageous action. This type of commitment should be extended not only to targets who come forward but also to bystanders who report their own experience or others' and to students, faculty, and staff when they enter the institution. Smith and Freyd (2014) point out that leadership must set a good example in order for this commitment to be replicated throughout all ranks of the organization.

Orienting Students, Trainees, Faculty, and Staff

Orienting students, trainees, faculty, and staff, at all levels, to the academic institution's culture and its policies and procedures for handling sexual harassment can be an important piece of establishing a climate that demonstrates sexual harassment is not tolerated and targets will be supported. Such orientation can be useful as people enter or join the campus community for the first time and annually to reinforce the information. This orientation would include information about policies; available resources and support; student, faculty, and staff code of conduct; roles and responsibilities; institutional-specific information about the Title IX office; and reporting locations. Such an orientation could also make clear how to initiate a report or advance a concern, what would happen during the process, and what they could expect to happen at the conclusion of an investigation. Easily accessible flyers or other handouts highlighting civility and the need to eliminate harassment can help convey the message quickly and efficiently, while also providing information that can be referred back to. Because of differences within all of the populations on campus, these orientations may need to be cus-

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tomized. For instance, developmental and behavioral achievements, milestones, and the known increased risks of sexual harassment for undergraduate students, especially minorities (Cantor et al. 2015; University of Michigan 2015), suggests that programs for these students should differ from those for graduate students and faculty and staff.

Target-led Institutional Response

As Chapter 5 discussed, studies have revealed conflicting evidence on the value of mandatory reporting, including evidence that it may be harmful to targets. Mandatory reporting mechanisms can be harmful because they take control away from targets and put it in the hands of a third party who may not have the target's health and safety in its best interest. Rather than instituting reporting procedures that can revictimize targets of harassment, institutions could build systems of response that empower those women by providing alternative and less formal means of accessing support services, recording information, and reporting. Institutional responses to sexual harassment could place the target's needs first, similar to the best practices now in use in response to sexual assault.[15] And to show true commitment to targets, institutions could provide multiple empowering mechanisms of reporting incidents that would give them the agency to bring their complaints forward and without fear of retaliation.

A target-centric institutional response enables people who experience sexual harassment to access support services, including counseling and professional assistance, without requiring them to make a formal report. Such systems integrate services to help targets navigate the multiple systems (social services, health care, legal, career/professional) they might need for support, similar to the victim-advocacy models for sexual assault that provide a single point of contact for interdisciplinary response and support.[16]

A response system can also empower targets by providing a way to document what happened, whether or not the incident is immediately (or ever) reported to authorities. If a target opts to initiate a report, the reporting process can remain target centric by keeping the target informed of the status of any investigation and disciplinary action that follows, as well as what to expect throughout the process; offering confidential legal and professional consultation; and continuing to promote access to support services.

[15] See, for example, the approaches of the University of Texas at Austin police and social work researchers at https://socialwork.utexas.edu/featured/a-groundbreaking-blueprint-for-sexual-assault-response/, or the U.S. armed forces at http://www.sapr.mil/index.php/victim-assistance.

[16] See, for example, the integrated model of child advocacy at http://dawsonplace.org/.

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Confidential Online Reporting Systems: CALLISTO

Callisto is one example of a technology that improves on the standard model for reporting sexually harassing behavior and enables targets to document the harassment without formally reporting. This online system allows targets to control the disclosure of information, access supportive services, and share information about alleged perpetrators who may commit serial offenses. Using the online system, targets have options to report an incident in any of three ways:

- Building time-stamped records of an incident;
- Formally reporting the incident electronically to campus authorities, often using the previously created time-stamped records; and
- Taking advantage of a matching system, where targets can opt to formally file the complaint if another report matches the same perpetrator.

Callisto was piloted at the University of California, San Francisco, and Pomona College in 2015 and was rolled out in 2016. It is currently available in 13 institutions and has a goal to be in 20 schools during the 2018–2019 school year.[17] The advantages of this approach are that it is safe, secure, and confidential, and gives targets a say in when the information is passed on to their institution.[18] An additional advantage for institutions is the Callisto system can provide general data on how many reports are being created even if they are not being formally filed. According to Callisto's website, sexual assault targets who visited their school's Callisto Campus website were 5 times more likely to report their experience than targets who did not. Callisto's matching system has also proven to have some impact, with 15 percent of sexual assault targets revealing that they have been assaulted by the same perpetrator as another target in the system. Furthermore, targets using Callisto Campus website tend to report 3 times faster than the national average (4 months versus 11 months). In 2017, Callisto redesigned its website to improve its user experience. Its approach was informed by user studies with students and experts who specialize in the institutional betrayal and forensic experiential trauma interview approach.

Anonymous Reporting

Anonymous reporting, in which targets report harassment without naming the person or persons responsible and without disclosing their own identity, is another means of respecting the needs of those who experience sexual harassment. The ability to record information about the harassment in a manner that targets can access, update, and disclose later if a formal complaint is filed gives

[17] See https://www.projectcallisto.org/Callisto_Year_2_highres.pdf.

[18] This system is referred to in the legal scholarship as an information escrow. The idea of using information escrows for sexual harassment is discussed in Ayres and Unkovic 2012.

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them control over a process that can otherwise seem at odds with their interest in moving forward with their work and studies.

Ombuds Office

Reporting channels outside of the usual workplace hierarchy, such as an ombudsperson, who can receive reports of harassment but are not officially part of the human resources or management response to reports of harassment, can provide critical independent support to persons experiencing harassment. In such informal reporting, the target is not going through formal channels but is sharing the information with a trusted staff member or ombudsperson. The advantage of this approach is that it is confidential and collaborative and can resolve the conflict without formal reporting, sanctions, or punishments if desired by the target (Buchanan et al. 2014).

Academic ombuds offices are one of the few places on campus that students can go to confidentially report an incident of sexual assault. Ombuds offices are meant to manage conflict constructively and informally, providing neutral and impartial information to the campus community, including students, staff, faculty, and/or administrators (Houk et al. 2016). The ombudsperson does not advocate for any individual or for the organization, but advocates for fair processes. These offices are unique in that they are independent of normal organizational structure and are completely confidential. Because of this, academic ombuds offices can serve as a valuable informal reporting mechanism for people who are seeking to report sexual harassment confidentially. Brian Pappas's (2016a, 112) research interviews with both Title IX coordinators and ombudspersons led him to conclude that a strict compliance-based regime that cannot guarantee confidentiality (run by a Title IX coordinator) will not be seen by campus targets as legitimate (i.e., able to handle these issues), but "ombuds are an ideal mechanism for encouraging reporting of sexual misconduct."

In April 2014 the Office of the President of the United States released *Not Alone – The First Report of the White House Task Force to Protect Students From Sexual Assault*, in which the White House Task Force emphasized the need to have a confidential reporting office.[19] The report states that "having a confidential place to go can mean the difference between getting help and staying silent" (2) and cites the now repealed 2011 recommendations from the Department of Education that colleges and universities should have "on-campus counselors and advocates—like those who work or volunteer in sexual assault centers, victim-advocacy offices, women's and health centers, as well as licensed and pastoral counselors—who can talk to a survivor in confidence" (3).

Under Title IX, an individual is obligated to report incidents of alleged sex-

[19] Available at https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Documents/1.4.17.VAW%20Event.TF%20Report.PDF.

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ual violence if the individual is a responsible employee of the school.[20] Whether or not an individual is considered a responsible employee is determined by the academic institution. Therefore, it is possible that ombuds offices at some colleges and universities are required to report sexual harassment under Title IX, forcing ombudspersons to break best practices and eliminating the option of an informal reporting office. However, some institutions have initiated policies to ensure not everyone is a mandatory reporter, to provide targets with additional informal options for reporting, and to give them more control over what happens with the information they have revealed. For example, the University of Oregon's policy has created three categories of employees: student-directed employees, confidential employees, and mandatory employees. According to these definitions, most faculty, graduate employees, and staff are student-directed employees. This means that instead of immediately reporting an incident of sexual harassment, the student-directed employee is required to provide the target with information about resources and reporting options. Importantly, the employee must also honor the target's wishes about whether to report the incident to the Title IX office.[21] Increasing informal, confidential options within the complaint-response system is important for academic institutions to create more supportive environments for those who have experienced sexual harassment. Most academic institutions have an ombuds office that serves the entire campus community, but expanding the ombuds office, perhaps to include an ombudsperson in each department or college, could provide more resources for individuals experiencing sexual harassment.

Restorative Justice Processes

Another type of informal reporting some institutions are exploring is the use of restorative justice processes. Unlike mediation, in which two parties are treated neutrally, "all models of [restorative justice] are premised on a responsible person or persons who either voluntarily accept responsibility for the wrongdoing or who have been found responsible through an appropriate fact-finding process" (Koss, Wilgus, and Williamsen 2014, 246; Koss 2014; McGlynn, Westmarland, and Godden 2012). This approach avoids a disciplinary hearing and punitive consequences. Rather, the target meets with an advisor or facilitator and considers what kind of action she would like to see take place. For example, she could request an apology or an open forum to discuss what happened. David Karp, a sociology professor at Skidmore College, developed such a program called the Campus PRISM (Promoting Restorative Initiatives for Sexual Misconduct) Project. It calls for accountability through collaboration and prevention through education.[22] This approach is new and does not yet have a strong research base. Furthermore,

[20] See https://www2.ed.gov/about/offices/list/ocr/docs/shguide.html.
[21] See http://around.uoregon.edu/content/uo-reaffirms-commitment-title-ix-and-support-students.
[22] See http://www.skidmore.edu/campusrj/documents/Campus_PRISM__Report_2016.pdf.

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some targets feel that it should not be used in all cases. For example, serial perpetrators probably should be addressed through formal channels. Also, there are concerns about training the facilitators to work appropriately with both targets and perpetrators. More research is needed to determine whether this approach is viable on a large scale.[23]

Reintegration of Targets

Once someone has taken steps to report a sexual harassment experience, institutions need to consider the kind of support individual targets might need immediately after the incident(s) and how to help them continue to manage their education and work over the long term. For example, if a student is harassed by a fellow student in the same class during a particular term, they may have to remain in class with that student for the remainder of that term, even after reporting an incident. If the target and the perpetrator have the same major, they may be in class together again during their time on campus, or at a minimum, while the investigation is under way.

Since student-on-student sexual harassment occurs in science, engineering, and medicine, institutions will need to consider how to support targets that may see their perpetrator repeatedly as they finish their training. To accommodate the target in these situations, universities may issue a mutual no contact order between the accused and the accuser, change class schedules, change the locks at the target's housing facility, and rescind building access of the accused (Winn 2017). If a harassment claim is made against a faculty or staff member, institutions must be prepared to take action to ensure the student is able to continue his or her work. These actions include considering whether a student requires a new faculty advisor, a new graduate supervisory committee, new thesis topics, and new funding, and how to handle restrictions the student may have on publication due to intellectual property issues. Institutions also need to consider the privacy and confidentiality of the target and how interdepartmental disruptions to reintegrate the target may put their confidentiality in jeopardy.

The Commander, Navy Installations Command (CNIC), in its Sexual Assault Prevention and Response Program, provides guidance on how supervisors should be considerate of the target after a report is filed. CNIC specifically states that supervisors must assist targets with administrative and logistical arrangements so that they can receive care. The policy is clear that supervisors should only inform those with a legitimate need to know why the target is absent or requires assistance and to always respect the target's privacy. CNIC also addresses issues

[23] See https://www.npr.org/2017/07/25/539334346/restorative-justice-an-alternative-to-the-process-campuses-use-for-sexual-assaul.

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of safety for the target by keeping the perpetrator away from the target and considering the target's input on moving to another unit.[24]

Considerations about reintegration of targets often do not receive enough attention when institutions set up their sexual harassment policies. The limited work done on this subject is not enough to identify promising practices for assisting targets, and therefore, more research is needed on how institutions can best serve targets after they have reported.

IMPROVING TRANSPARENCY AND ACCOUNTABILITY

One central, and perhaps more obvious, way to prevent sexual harassment is for academic institutions to clearly demonstrate that they do not tolerate it (i.e., that they promote an organizational climate that seeks to prohibit sexual harassment). Doing so requires making the community aware that perpetrators of harassment are being held accountable and that the institution takes the matter seriously.

Clear Anti-Harassment Policies

Developing and disseminating clear anti-harassment policies is crucial to ensuring the community knows what kinds of behavior are unacceptable. Regular, perhaps annual, dissemination of the policy in a manner in which it will be legitimately digested quickly and easily (i.e., using one-page flyers or infographics and not in legally dense language) can improve awareness and could demonstrate the importance the institution places on abiding by this policy. To ensure clarity, it is also important that the message across formats (print, e-mail, and presentations) and departments is consistent (Buchanan et al. 2014). A key component of clear anti-harassment policies is that they make clear that people will be held accountable for violating the policy. This can be done by stating in the policy the range of disciplinary consequences (depending on the policy violation) for individuals who violate these policies, as well as clearly laying out the processes and timeframes for each stage of the process (i.e., reporting, investigation, and adjudication).[25]

Progressive Disciplinary Actions

It may be tempting to infer that greater punitiveness is an important solution to harassment (sometimes termed *zero tolerance*). Such approaches suggest that

[24] Available at https://www.cnic.navy.mil/ffr/family_readiness/fleet_and_family_support_program/sexual_assault_prevention_and_response/supervising_an_assault_victim.html.

[25] Further detail on processes and guidance for how to fairly and appropriately investigate and adjudicate these issues are not provided because they are complex issues that were beyond the scope of this study.

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sexual harassment is finally being taken seriously. But insofar as the evidence gathered in this report suggests that a wide range of behaviors can have deleterious effects on women's careers in science, engineering, and medicine, we urge academic institutions to consider that a similarly wide range of responses may be appropriate. In short, punishments of harassers should be progressive, should "fit the crime," and should be disclosed to the community.

Progressive discipline (such as counseling, changes in work responsibilities, reductions in pay/benefits, and suspension or dismissal) that corresponds to the severity and frequency of the misconduct has the potential of correcting behavior before it escalates (Euben and Lee 2006) and without significantly disrupting an academic program. The use of a range of disciplinary actions may also increase the likelihood that targets report the behavior, since some targets choose not to report because they do not want to be seen as causing disruption to the status quo and just want the behavior to stop. Determining the appropriate disciplinary sanctions may be best determined based upon a review of the circumstances on a case-by-case basis; however, examples of what behavior would warrant different disciplinary actions could help improve transparency. Where appropriate, the responses could be both educational and focused toward potential rehabilitation. Furthermore, to demonstrate that the institution is not tolerating the sexually harassing behavior, the range of potential sanctions ought to be disclosed and the disciplinary decision should be made in a fair and timely way following an investigative process that is fair to all sides.[26]

Importantly, the disciplinary action should not be something that is often considered a benefit for faculty, such as a reduction in teaching load or time away from campus service responsibilities. In other words, perpetrators should not be "rewarded" for their behavior. Instead, consequences should take the form of actual punishment, such as cuts in pay or even termination. The following list of potential sanctions, in ascending order of severity, is meant to be illustrative, rather than exhaustive, of punitive actions, and is offered as an example:

- A sanction letter or warning
- Agreement for educational training or behavioral modification (e.g., substance abuse training)
- Restrictions on conditions of teaching and/or mentoring
- A formal entry into the performance review file and evaluation
- Temporary salary reduction
- Monetary restitution to targets
- Denial of tenure or emeritus status
- Forced administrative leave
- Separation from the college or university

[26] Further detail on processes and guidance for how to fairly and appropriately investigate and adjudicate these issues are not provided because they are complex issues that were beyond the scope of this study.

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- Public disclosure of actions taken
- Reporting to current funding agency about the violation of sexual harassment policy

In an effort to change behavior and improve the climate, it may also be appropriate for institutions to undertake some rehabilitation-focused measures,[27] even though these may not be sanctions per se. Such responses might include opportunities to learn, empathize, and recognize and value differences, and they might involve focus groups with professional facilitators, participation in restorative justice circles, and empathy training. Any training required to rehabilitate those who harass others should at a minimum follow the standards for effective training generally (e.g., face to face, longer duration, repeated/follow-up, etc.).

Improving Transparency and Accountability When Handling Formal Reports

Equally important for improving the climate is for academic institutions to be transparent about what happens when reports are formally filed and when people are found to have violated the policy. For the people in an institution to understand that the institution does not tolerate sexual harassment, it must show that it does investigate and then hold perpetrators accountable in a reasonable timeframe. This goes beyond having a policy that says so and requires showing that the institution is following through. There are obvious confidentiality concerns with being transparent about ongoing investigations—both for the target and for the accused perpetrator—however, there are ways that transparency can be achieved. Institutions can anonymize the basic information and provide regular reports that convey how many reports are being investigated and generally what the outcomes are from the investigation.

For example, Yale University publishes a semiannual Report of Complaints of Sexual Misconduct and an annual campus safety report (which includes sexual harassment) to inform the campus community about complaints brought to the university's attention and how they were resolved. These reports are written to protect anonymity while also providing minimal descriptions and statistical summaries that reveal (1) the complainant's and respondent's role in the university (i.e., undergraduate student, graduate and professional student, postdoctoral trainee, faculty, staff) and (2) the status of the complaint (whether the complainant decided to pursue a formal complaint, whether investigation is pending, any disciplinary action taken by the university after investigation, etc.).[28] This model provides information to keep the campus community informed, demonstrate that the institution is actively handling sexual harassment reports, and show that

[27] The committee found little research on this topic; however, there is a growing body of literature on restorative justice procedures, as discussed earlier in the chapter.

[28] See https://provost.yale.edu/sites/default/files/files/August-2016-Report.pdf.

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those who violate the policy are disciplined. Such a model likely improves the climate on campus around sexual harassment and also serves to hold the institution accountable.

Engaging the Academic Community in Policy and Practice Reviews

Another approach to demonstrating that the institution takes all three forms of sexual harassment seriously is to encourage internal review of its policies, procedures, and interventions for addressing sexual harassment, and to have interactive dialogues with members of its campus community (especially expert researchers on these topics) around ways to improve the culture and climate and change behavior.

Policy changes in an organization will likely change its culture and climate, and there are significant implications for various approaches for learning about and responding to complaints, as all institutions are legally required to do. As they comply with their best interpretations of what is legally required, institutional leaders have choices to make. Those choices include how transparent and open to stakeholders and information sharing the process will be; how generously an effort is funded; what entities on campus will control it and report on it; what array of formal versus informal and punitive versus rehabilitative options will be offered for processing and acting on complaints; what reporting mechanisms will be available and how they will work; and what liability risks—and liability for what, exactly—will be tolerated, anticipated, and planned for. Placing responsibility and control for sexual harassment planning and response at the highest administrative level guided by attorneys from the general counsel's office would likely produce a different organizational culture and climate than one guided by a more transparent group of faculty, students, and service providers for targets, for example.

Sexual harassment scandals are highly salient at present, and institutional leaders may feel considerable pressure to react quickly, making it more difficult to take a careful approach to the problem. Over-reactive policies can infringe the rights of the accused or go awry in historically predictable ways. Researchers have documented patterns of accusations of those considered to be "sexually deviant" (typically gay and lesbian people, but also people in other unconventional relationships, youth, black men, and people living with HIV) in episodes called "sex panics," which occur when society becomes focused on policing sex and sexuality, often during times of widespread anxiety about societal upheaval or scandal (Rubin 1984; Jenkins 1992; Halperin and Hoppe 2017). Even though the harms that trigger attention on policing sex and sexuality may be real, such as in sexual harassment and sexual assault, responses can be disproportionate or misdirected.

To prevent over-reactive policies, it is good practice for institutions to take careful steps to assess the problems they have, and then bring in a wide range of

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stakeholders who have different perspectives, status, and roles. It is also valuable for leaders to recognize that having an inclusive environment is a work in progress rather than a static item that is maintained. The environment must be continually assessed and revised as new students, faculty, staff, patients, problems, and identities enter academia. Taking a formal legal and liability-focused approach has not been effective in preventing sexual harassment incidents, and leaders would benefit from drawing on the expertise of those in the science, engineering, and medical fields on campus as well as the faculty experts who study climate, culture, organizations, gender, race, ethnicity, sexuality, and harassment.

In an effort to engage stakeholders and give a voice to traditionally disempowered groups, some institutions have created forums for students to share their perspectives on sexual harassment policies and initiatives to prevent sexual harassment. For example, Yale University has established two advisory boards, one for undergraduates and a second one for graduate and professional students. Both boards meet periodically with the Title IX Steering Committee and present student perspectives on sexual harassment policies, procedures, and programs.[29] The advisory board members commit to serving for a year and must undergo introductory training. Members attend regular meetings and collaborate with department/school leadership teams and with Title IX coordinators about education and prevention efforts, as well as local initiatives. In these ways, advisory board members have an opportunity to participate in the development and implementation of initiatives to promote a positive climate and culture at the university.

STRONG, DIVERSE, AND ACCOUNTABLE LEADERSHIP

Organizational scholarship makes clear the critical role that leaders play in creating and sustaining cultural change (Jayne and Dipboye 2004; Gelfand, Erez, and Aycan 2007; Taylor et al. 2011; Stamarski and Hing 2015; Kozlowski and Doherty 1989; Ostroff, Kinicki, and Muhammad 2012). Leaders in the academy, like corporate executives and government officials, set the tone within and without their institutions. Their public statements, institutional strategies, personnel policies, and demeanor create expectations and define professional norms, not to mention they affect the extent to which employees view change efforts cynically or trustingly (Wanous, Reichers, and Austin 2000). For these reasons and because it can be argued that sexual harassment is inconsistent with the values of the academy, academic leaders must do more than ensure they do not personally engage in sexual harassment. In fact, they have an obligation to speak and act boldly, unambiguously, and consistently in support of aggressive measures to raise awareness of the issue and to bring to bear all resources at their disposal to combat it. At a minimum, they must make clear to all that sexual harassment is unacceptable and that systems are in place to stop those who harass from con-

[29] See https://smr.yale.edu/get-involved/apply-join-student-advisory-board.

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tinuing their misconduct—an important piece of establishing a climate that is not permissive of sexual harassment.

It is crucial to emphasize that sexual harassment is defined broadly and includes sexist conduct (e.g., contemptuous comments about women; belittlement of female trainees; insults of men who are gay, petite, or in some other way "not man enough") and sexually crude conduct (references to women as "bitches" or "whores"). In other words, leaders should prohibit and seek to prevent not only sexually advancing forms of harassment but also the gender harassment form of sexual harassment. Compliance with legal requirements is not enough; aggressive, highly visible managerial implementation of anti-harassment policies and procedures in a concerted way not only raises awareness that policies and procedures are in place but also signals organizational commitment to reducing harassment (Gruber 1998). In other words, leaders' behaviors instruct members of the community about what to expect around sexual harassment, and any formal policies will be interpreted through the organizational climate they create and maintain.

Leaders should also take action to address the problematic cultural practices described earlier that limit the advancement of women at every level of academia and to work to create a culture that is supportive of diversity. Gelfand and colleagues (2007) argue that "leaders hold stereotypes with regard to which types of employees are best and they tend to reward employees who behave most consistently with their stereotypes." Furthermore, research reveals that the presence of leaders whose own identities overlap with those persons most likely to be targets of sexual harassment helps to reduce the likelihood of sexual harassment (Offermann and Malamnut 2002). Given the critical role that leaders play in setting the tone of organizational culture and the significance of their identity, it is plausible to suggest that more women of color and persons with minority ethnic, gender, and sexual identities in leadership positions will reduce the likelihood of sexual harassment in academic institutions.

While leaders at the top of an organization are influential and important to addressing culture change, lower-level leadership—for example, at the lab or center director, dean, and department chair levels—has a strong impact on the culture, climate, and everyday behaviors. Therefore, it is crucial that all levels of leadership are held responsible for creating this culture and climate change. Settles and colleagues (2006, 55) found that department chairs were able to improve the workplace environment for academic women in the sciences by fostering collegiality among faculty members. These department chairs did so by identifying areas of overlapping intellectual interest, ensuring gender equity in departmental assignments, and discouraging sexist behavior among faculty. In other words, an effective department leader can make a significant difference in the day-to-day experiences women scientists have within the academic workplace. Thus, a focus on the role of campus leadership in changing organization

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climate and culture must include all levels—from department chairs to deans to high-level campus administrators.

An example of how organizations can hold leaders accountable can be seen in the policies and procedures used by NASA. Within NASA, managers and supervisors are considered not only as receivers and decision makers on allegations of harassment, but also as leaders who take action to prevent harassment in the workplace and are accountable under the agency's annual performance review system. Additionally NASA produces an annual report on the functioning of its anti-harassment processes, which includes information on the number of cases addressed, the basis for each case (including sexual or nonsexual), the time required to process the case, and the remedial actions taken. This reporting process provides a mechanism for the leadership to monitor how the anti-harassment processes are functioning and whether changes or corrections need to be made.

Leaders without effective tools cannot implement the kind of institutional change required to address a problem as widespread and longstanding as sexual harassment in the academy. Like leaders in other professions such as law, health care, and technology, academic leaders often assume leadership positions with limited experience in management and very little training in supervision, organizational culture, or human relations. Academic leaders also face the additional challenge of supervising faculty, whose ranks include renowned intellectuals with formidable records of professional accomplishment. Faculty prize their independence and autonomy, are protected to varying degrees by the employment guarantees of the tenure system, and play a crucial leadership role in colleges and university governance. The unique employment context of the academy thus complicates the authority of academic leaders to change workplace cultures and climates and to impose discipline for violations of professional norms, both of which are necessary to preventing and reducing sexual harassment.

Leadership education, training, and support can enhance the ability of all academic leaders to address sexual harassment. Effective leadership training improves self-awareness and empathy, develops the skills and habits leaders need to persist and succeed, and broadens the perspectives of leaders through exposure to a wide range of constituencies, goals, and strategies. There are leadership training programs specific to academia that teach these skills,[30] and these programs should be working to include how to recognize and handle sexual harassment issues as a leader and in a manner that improves the culture and climate rather than just protects liability.

[30] American Council on Education Fellows Program, http://www.acenet.edu/leadership/programs/Pages/ACE-Fellows-Program.aspx; Berkeley Leadership for Educational Equity Program (LEEP), https://leep.berkeley.edu/leadership-educational-equity-program/leep; Council of Independent Colleges—Senior Leadership Academy, https://www.cic.edu/programs/senior-leadership-academy; Harvard Institute for Management and Leadership in Education, https://www.gse.harvard.edu/ppe/program/institute-management-and-leadership-education-mle; and Stanford Leadership Academy, https://cardinalatwork.stanford.edu/manage-lead/build-leadership-skills/stanford-leadership-academy.

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To incentivize leadership training, academic institutions could require academic leaders to have substantial management/leadership training specific to higher education before taking on leadership roles. This includes leadership positions at all levels of leadership, such as being the principal investigator of a laboratory, the director of an observatory, or the director of a field site, station, or school. Developing skills in conflict resolution, mediation, negotiation, and de-escalation would be valuable for leaders. Further, continuing to engage in professional development opportunities, in and outside of the academy, to include reviews of best practices for sustaining inclusive workplaces throughout their tenure as institutional leaders, would also benefit academic institutions. Reviews and critiques of sexual harassment incidents and workplace climate assessments should be a part of routine professional development for leadership teams inside institutions and across professions.

EFFECTIVE SEXUAL HARASSMENT TRAINING

While sexual harassment training is the most traditional approach to preventing sexual harassment, it has not been shown to do so. The scholarship on effective sexual harassment training is sparse, but it clearly indicates that, as noted in the 2016 EEOC report, "Much of the training done over the last 30 years has not worked as a prevention tool—it's been too focused on simply avoiding legal liability" (see Chapter 5 discussion).

When, in rare instances, institutional sexual harassment trainings are evaluated for their effectiveness, they have shown mixed results depending on what purpose they are being evaluated for. For example, several reports in the public domain, including the 2016 EEOC Task Force report, have suggested that there is no evidence that training helps prevent harassment (Folz 2016). However, another goal of most sexual harassment training programs is to alter employees' knowledge about the nature of, and organizations' policies about, sexual harassment. There are a few research studies that suggest that this does occur *for students* (Moyer and Nath 1998; Perry, Schmidke, and Kulik 1998; York, Barclay, and Zajack 1997). While for working adults, this knowledge only improved for men in one sample or for white employees in another diverse sample (Magley et al. 2013). In a sample of managers, sexual harassment training was associated with over-sensitization of identifying scenarios as sexual harassment, although there was no effect on accurate identification of how to respond to the scenarios (Buckner et al. 2014). A critical review of published studies on sexual harassment training effectiveness by Roehling and Huang (2018) found that sexual harassment training is relatively consistent in increasing the knowledge of sexual harassment and internal reporting of perceived sexual harassment. However, it finds that it is unclear to what extent knowledge acquired in training is retained and applied.

While improving knowledge about sexual harassment and policies and pro-

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cedures for reporting it are useful for helping people to use those systems, the research does not show that this sort of training is reducing or preventing sexual harassment. This is in part because knowledge and attitudinal change do not predict behavior change very well (Alliger and Janak 1989; Alliger et al. 1997; Blume et al. 2010) and reducing sexual harassment requires changes in behaviors.

What is worse is that very few trainings are even evaluated for their effect on behavior change. A 2013 meta-analysis (Kalinoski et al. 2013) revealed how uncommon it is to evaluate trainings for their ability to change behaviors—only six of the studies in the meta-analysis of diversity and sexual harassment trainings looked at actual behavioral change. And in what could be considered the gold standard outcome for training—reduction in sexual harassment—one study found that training did not reduce sexual harassment (Magley et al. 2013).

Researchers that have evaluated trainings for their effect on students' and working adults' personal attitudes or perceptions of organizational tolerance for sexual harassment have found little effect. They found that training did not affect attitudes in either the student samples (Antecol and Cobb-Clark 2003; Perry, Schmidtke, and Kulik 1998) or the working adult samples (Magley et al. 2013). This is not surprising given that Bingham and Scherer note "attitudes are highly resistant to change." What is worse is that there was actually a backlash effect of a brief training intervention for one sample of men such that, after the training, they were more likely to blame a target of sexual harassment than those who did not receive the training (Bingham and Scherer 2001). Work by Tinkler, Gremillion, and Arthurs (2015) also suggests that policy training on harassment has the potential to activate gender stereotypes and backlash against women, especially in the administration of mandatory non-customized training.

Taken together, the surprisingly sparse—yet robust—set of studies on sexual harassment trainings shows that trainings can improve knowledge of policies and awareness of what is sexual harassment; however, trainings have either no effect or a negative effect on preventing sexual harassment. Given that changing behavior has more of a direct link to reducing sexual harassment, that actions can be taken to inhibit sexually harassing behavior (even among those that hold sexist attitudes or beliefs that rationalize or justify harassment, see Chapter 2), and that changing attitudes is difficult, effort seems better spent on developing and using sexual harassment trainings aimed at changing people's behaviors rather than on their attitudes and beliefs. Ultimately, it is individuals' actions and behaviors that both harm targets and are illegal, not their thoughts.

To consider how to conduct training so that it increases the likelihood that it will improve knowledge and change behavior, the research on diversity trainings can provide some insights. A meta-analysis of diversity and sexual harassment trainings (Kalinoski et al. 2013) suggests that whether such training improves knowledge, beliefs, or behaviors depends on several factors, including how the training was delivered, who delivered the training, where it was delivered, for whom it was delivered, why it was delivered, and the desired outcome of the

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training. In other words, the context of the training is of importance. This research concludes that positive effects are most likely when training

- lasted more than 4 hours,
- was conducted face to face,
- included active participation with other trainees on interdependent tasks,
- was customized for the audience, and
- was conducted by a supervisor or external expert.

In addition to how training is conducted, the organizational context around the training can also influence effectiveness. Three recent studies on sexual harassment trainings have found that the organizational context affects the efficacy of the training. First, knowledge and personal attitudes were changed for employees who perceived that their work unit was ethical, regardless of their personal sense of cynicism about whether the training might be successful (Cheung et al. 2017). Second, in a sample of *untrained* employees, perceptions that their organization tolerated sexual harassment influenced employees' cynicism about the success of possible training, even more so than their own personal beliefs about sexual harassment, which then affected their motivation to learn from the possible training (Walsh, Bauerle, and Magley 2013). Third, in a meta-analysis of sexual harassment trainings, Roehling and Huang (2018, 13) conclude that training can contribute to the prevention or reduction of sexual harassment if "(a) it is conducted in accordance with science-based training principles and (b) the organizational context is supportive of the SH [sexual harassment] training efforts." Based on their examination of the theory and empirical findings of sexual harassment literature, Roehling and Huang provide a conceptual framework for organizing and understanding sexual harassment training effectiveness and the primary factors that interact to influence it. The primary factors include the following:[31]

- Training objectives
- Training design and delivery
- Trainee characteristics
- Organizational context (aligned policies and practices, leadership support, climate and culture)
- Proximal outcomes (reactions, knowledge, skills, attitudes, perceived organizational tolerance of sexual harassment)
- Intermediate outcomes (incidence of sexual harassment, responses to sexual harassment)
- Distal outcomes (litigation, productivity, turnover)

[31] See the full chart at http://onlinelibrary.wiley.com/doi/10.1002/job.2257/full.

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The context of the training, the organization, and the individuals' motivations are, clearly, all important to understanding the effectiveness of sexual harassment training. Given both the ubiquity of sexual harassment training and the broader organizational training literature that has repeatedly found such factors to be crucial, the paucity of scholarship in this area is surprising (Goldstein and Ford 2002). To the extent that the general training literature provides broad guidelines for creating impactful training that can change organizational climate and behavior, they include the following:

- Cater training to specific populations; in academia this would include students, postdoctoral fellows, staff, faculty, and those in leadership.
- Attend to the institutional motivation for training, which can impact the effectiveness of the training; for instance, compliance-based approaches have limited positive impact.
- Conduct training using live qualified trainers and offer trainees specific examples of inappropriate conduct. We note that a great deal of sexual harassment training today is offered via an online mini-course or the viewing of a short video.
- Describe standards of behavior clearly and accessibly (e.g., avoiding legal and technical terms).
- Establish standards of behavior rather than solely seek to influence attitudes and beliefs. Clear communication of behavioral expectations, and teaching of behavioral skills, is essential.
- Conduct training in adherence to best standards, including appropriate pre-training needs assessment and evaluation of its effectiveness.

Further, to ensure the success of training in general, it is paramount that it be based on the organization's identified needs—that is, based on the goals and objectives of the organization and the extent to which the elimination of harassment advances those goals and objectives—and, in fact, is itself one of those goals. This is almost never discussed in conjunction with sexual harassment training, but it needs to be. Conducting a needs assessment, developing training centered on those needs, and then appropriately evaluating its success have long been considered to be the three cornerstones of successful training (Goldstein and Ford 2002).

Based on the research reviewed in Chapter 2 regarding the prevalence and antecedents of sexual harassment, the needs analysis should be based on collecting data from all employees and include, minimally, an understanding of the prevalence of sexual harassment within the organization, the extent to which supervisors are perceived to tolerate sexual harassment, and knowledge about reporting procedures.

Another minimal pre-training criterion to include in the needs assessment is employees' motivation to learn, given that the general training literature high-

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lights its importance as driving the success of intervention efforts (Colquitt, LePine, and Noe 2000; Noe and Schmitt 1986). Numerous studies have shown that motivation to learn is a driver of short-term outcomes, including reactions, knowledge and skill acquisition, and transfer (e.g., Baldwin and Ford 1988; Bell and Ford 2007; Colquitt, LePine, and Noe 2000; Sitzmann et al. 2008). In brief, when trainees are more motivated to learn, better training outcomes are generally observed. Given the goals of the training, it could also include employees' general attitudes about sexual harassment and indicators of employees' professional and emotional well-being, to link with their experiences of harassment. Importantly, a needs analysis should be based on data from employees, not on assumptions from human resource personnel or senior management.

From this needs analysis, the training should be developed to address goal-specified gaps (Goldstein and Ford 2002). One-size-fits-all approaches to training cannot address specific organizational needs, nor will they work to reduce employees' cynicism about the potential gain from the training. Finally, the needs analysis ought to directly tie to the evaluation plan associated with the training. Evaluation should be routinely expected as one of the components of the intervention, not as an additional burden; such evaluation would replicate the earlier needs assessment to demonstrate change in sexual harassment, climate perceptions, and knowledge about harassment policies/procedures.

Our committee believes effective sexual harassment training can positively affect organizational climate, change behavior, and reduce workplace harassment; however, it recognizes that even effective training cannot occur in a vacuum—"it must be part of a holistic culture of non-harassment that starts at the top" (Feldblum and Lipnic 2016, v). Similarly, training that specifically addresses sexual harassment is only one piece of the puzzle (it is important to have adequate focus elsewhere), but it is a vital component.

MEASURING PROGRESS AND INCENTIVIZING CHANGE

Increased public attention to the problem of sexual harassment has heightened the reputational harm to colleges and universities that acknowledge sexual harassment exists within their academic programs and workplaces. As a result, collecting data about sexual harassment puts academic institutions at risk of not only losing in court but also of creating a public appearance of hostility to women and gender equity. Additionally, the legal system around sexual harassment promotes the creation of policies and training on sexual harassment that focus on compliance and avoiding liability, and not on preventing sexual harassment. To counter this, colleges and universities need to be incentivized to publicly identify and measure the problems and work to address them.

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Evaluation and Assessment of Organizations

Creating a climate that prevents sexual harassment requires first having a clear understanding of the existing climate and tracking it over time. Given the discussion earlier in this chapter, that means measuring the climate in relation to sexual harassment, diversity, and respect. Measuring and assessing the climate often, through surveys and other tools, can enable prevention and response strategies to be adapted and implemented to reduce sexual harassment and other forms of incivility that arise. Information from such regular surveys can help organizations better understand the frequency and nature of sexual harassment that is occurring, as well as the likelihood that it will be reported promptly. The data that emerge from these assessments can also reveal long-term trends about the nature and incidence of harassment and the effectiveness of training initiatives (Buchanan et al. 2014). Conducting regular assessments and releasing the results publicly can also have the positive effect of demonstrating the organization's commitment to monitoring and addressing the problem of sexual harassment—a factor in creating a climate that does not tolerate sexual harassment.

For measuring the experiences of students, the recent creation of the Administrator-Researcher Campus Climate Collaborative (ARC3) survey has already met with great participation on the part of colleges and universities in understanding many aspects of campus climate, including modules on sexual harassment perpetrated by either faculty/staff or other students. From the ARC3 website:[32]

> ARC3 is not a membership organization. It is a collaborative of sexual assault researchers and student affairs professionals who came together to respond to the White House Task Force on Keeping Students Safe on Campus, particularly the need to develop a campus climate survey informed by all who would use it. Participants met at the Campus Climate Forum at Georgia State University, Atlanta, Georgia, in October 2014. A second, smaller group of participants met at the Madison Summit for Campus Climate and Sexual Misconduct at the University of Wisconsin–Madison, in February 2015 where participants developed the ARC3 survey.

The survey was developed by expert researchers in the area of violence against women (rape, sexual harassment), is freely available for institutional use, and has been implemented at hundreds of institutions of higher education. College and university groups can request additional information about the survey,[33] as well as additional guidance on administering such surveys[34] from the ARC3 website.

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[32] See http://campusclimate.gsu.edu/.

[33] See http://campusclimate.gsu.edu/arc3-campus-climate-survey/request-arc3-survey-technical-documents/.

[34] See https://www.justice.gov/ovw/protecting-students-sexual-assault#campusclimate.

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Although the ARC3 survey can be of great utility to institutions in understanding and tracking campus climate for students, there is no similar tool for understanding similar climate constructs for faculty, staff, interns, residents, or postdoctoral fellows. Faculty, staff, and postdocs do have differing experiences on campuses and, as such, the ARC3 survey for students would not be directly relevant. However, developing a similar, population-appropriate tool could be of great value for academic institutions for the anonymous snapshot of their existing climate.

According to Smith and Freyd (2014), one of the best first steps an institution can take toward remedying the harms targets experience from reporting sexual harassment (what they call institutional betrayal) is by regularly engaging in self-study (also see Freyd and Birrell 2013). Self-study includes asking questions—Are you making it easy or difficult for people to report the experience? Are you rewarding or punishing targets for reporting this experience (e.g., with loss of privileges or status)? Are you creating an environment in which this experience seems likely or unlikely to occur?—that can better prepare institutions to respond to future problems. Engaging in self-study will also allow institutions to make previously unnoticed problematic institutional structures visible and lead to important discussions of power.

For measuring diversity efforts, Jayne and Dipboye emphasize the importance of conducting a needs assessment for each organization. To be effective, a diversity initiative must be "tailored to the situation, including the culture and unique business and people issues facing the organization" (2004, 416). Once the needs are established, organizations would develop a plan, establish concrete metrics to evaluate its effectiveness, and use surveys, focus groups, and exit interviews of all members of the institution to monitor progress over time. In general, "organizations need to critically analyze how organizational structures, processes, and practices separately and collectively serve to perpetuate discrimination in organizations, and need to understand how the contexts in which organizations are embedded serve as critical inputs that affect levels of discrimination" (Gelfand, Erez, and Aycan 2007, 29).

Some researchers have developed promising tools to measure specific aspects of workplace climate. Lisa Nishii (2013) from Cornell University, for example, developed a three-dimensional "climate for inclusion" scale. The three dimensions include (1) a foundation of fairly implemented employment practices and diversity-specific practices that help eliminate bias, (2) interpersonal integration of diverse employees, and (3) inclusion in decision making or the extent to which diverse perspectives are actively sought and integrated. In addition, Walsh and colleagues (2012) developed the Civility Norms Questionnaire – Brief, which assesses coworker civility climate. All of the tools and approaches in this section can be useful in evaluating an institution's climate and the progress it is making to prevent sexual harassment.

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Incentivizing Change

Sometimes institutions and the people within an institution need to be incentivized to make changes. This can be true when the changes do not appear to be necessary for the institution to still achieve its goals or when individuals do not appreciate the significance of the problem. Incentive systems can be voluntary or can make use of requirements, and they can also be based on positive or negative incentives. Regardless of how they are set up, they may not be successful in creating the desired organizational change if they do not reach beyond those at the top of the institution—they need to incentivize change down the hierarchy of the organization.

Award systems, such as the Athena SWAN (Scientific Women's Academic Network) program,[35] are examples of tools that created positive incentives to bring about change. Begun in the United Kingdom, the Athena SWAN program has built-in incentives for departments and institutions as a whole to meet high standards in promoting gender equity and diversity. A key incentive is obtaining bronze-, silver-, and gold-level awards for both achievement and improvement.

Bronze-level applications must present a solid foundation for eliminating gender bias and creating an inclusive culture. This includes both a quantitative and a qualitative assessment of gender equality in the institution or department, a 4-year plan that addresses activities that are already in place and how to learn from them, and an organizational structure to carry out the proposed actions. Silver-level recognition is awarded to institutions or departments that display a significant improvement in promoting gender equality and addressing challenges since the Bronze award application. Additionally, institutions must address what they are doing to help individual departments apply for Athena SWAN awards. To achieve Gold recognition, an institution or department must show a significant and sustained record of promoting gender equality both within and beyond the institution or department. These institutions must provide data demonstrating how Athena SWAN principles are embedded within the institution or department and that they have taken an intersectional approach to analyzing data and creating solutions to identified challenges. Additionally for institutional awards, at least one department in the institution must have a gold award and the majority of the institution's departments must hold silver awards. Through these requirements the program promotes healthy competition by encouraging departments within institutions to work together collaboratively to achieve shared goals (Malcom et al. 2017).

In 2013 the Equality Challenge Unit commissioned a research team from Loughborough University to study the impact of Athena SWAN in higher education institutions in the United Kingdom (Equality Challenge Unit 2014). One key finding from this study was the effectiveness of the charter in advancing women's careers in STEMM. Academic/research staff who were categorized in the Silver

[35] See https://www.ecu.ac.uk/equality-charters/athena-swan/.

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award departments indicated higher satisfaction with their career performance and opportunities for training and staff development compared with staff from departments with no awards. Academic/research staff in the Silver award departments also rated fairness of workload allocation higher than their peers in non-award departments and indicated that they believed Athena SWAN improved their visibility, self-confidence, and leadership skills.

Beyond individuals, the 2013 study by the Equality Challenge Unit also examined ways in which Athena SWAN could improve institutional practices. The study noted that the implementation of Athena SWAN at higher education institutions in the United Kingdom provided "credibility, focus, and impetus for gender work already taking place in [higher education institution]s and also had positive impacts beyond STEM departments" (5). Evidence from this study showed that there were visible cultural changes within participating institutions, though it varied from institution to institution. In some institutions the study noted a visible increase of women representation in senior positions. Some institutions also reported positive changes in staff recruitment as a result of their participation in Athena SWAN. While the study noted persistent barriers in changing institutional culture, it also found that with departmental and senior leadership engagement in the process of putting the award system in place, the changes that resulted from implementation of Athena SWAN were sustainable.

Through face-to-face interviews and a survey of 59 women and men at the University of Oxford (which had achieved Athena SWAN awards in multiple departments) Ovseiko and colleagues (2017) studied perceptions of the impact of the Athena SWAN program. They found that respondents believed the program resulted in positive structural and cultural changes, such as increased support for women's careers, greater appreciation of caring responsibilities, and efforts to challenge discrimination and bias. Respondents reported some limitations of the program: they believed it had a limited ability to address power and pay imbalances and that it was not able to move beyond the limitations of the culture in the university and wider society.

One of the major reasons Athena SWAN was adopted by so many institutions in the United Kingdom was a requirement in 2011 by the National Institute for Health Research that a program or department had to have a silver-level award to be considered for Biomedical Research Centre funding.[36] The research by Ovseiko and colleagues (2017) reveals that many respondents believed the positive changes from Athena SWAN may not have happened without the link to research funding. Respondents said the funding link provided a powerful motivation for institutional leaders to achieve the silver-level award and then to maintain the changes and attention to the diversity issues. Some noted that this linkage to research funding did create perverse incentives to achieve the award and not to necessarily achieve the structural and cultural changes to improve diversity, and

[36] See https://www.nature.com/news/uk-gender-equality-scheme-spreads-across-the-world-1.22599.

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may have raised the importance of achieving the award to the level that problems were "swept under the carpet to avoid jeopardizing the award application process" (7). Other research funding organizations in the United Kingdom are considering similar requirements for institutions to be eligible for research funding[37, 38] or are recommending Athena SWAN could serve as the evidence needed to demonstrate an institution is taking action to address equality and diversity.[39]

The United States is currently adapting Athena SWAN by building a program called STEM Equity Achievement (SEA Change). Through collaboration and sharing best practices, multiple institutions are developing a program to reward institutions by reaching bronze, silver, and ultimately, gold levels.[40] The SEA Change program is being overseen by the American Association of the Advancement of Sciences and is being designed to encourage involvement at the faculty and departmental level in identifying local challenges and actions.[41] Furthermore, institutions will not be able to move to the next level unless a certain number of departments also achieve that level. Conversely, departments cannot achieve a given level unless their institution has achieved at least a bronze-level award. In this way, SEA Change sets up what the white paper calls "a virtuous cycle of collaboration" (Malcom et al. 2017). For SEA Change to see the same level of adoption as Athena SWAN has, it may require funding agencies to make similar recommendations or requirements as was done in the United Kingdom. One option for spurring adoption would be for funding agencies to require the bronze-level award before being eligible for research grants that focus on improving diversity, such as the National Science Foundation's INCLUDES awards.[42]

Another way to incentivize change would be to require public disclosure of campus climate survey data and/or the number of sexual harassment reports made to campuses. The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (known as the Clery Act)[43] is a model of this type of incentive system. It requires all institutions receiving federal funds to report crimes near or on campus, including sexual assaults. A similar requirement could be instituted by federal funding agencies or Congress.

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[37] See http://www.sfi.ie/research-news/news/irish-funding-bodies-to-require-athena-swan-gender-equality-accreditation-for-higher-education-institutions/.

[38] See https://www.timeshighereducation.com/news/wellcome-trust-explores-diversity-rules-funding-applications#survey-answer.

[39] See http://www1.uwe.ac.uk/aboutus/visionandmission/equalityanddiversity/accessforall/athenaswan/planningandsubmission/reasonstoapply.aspx.

[40] The requirements for these awards are currently in development and are likely to reflect the model established by Athena SWAN.

[41] See https://www.aaas.org/news/sea-change-program-aims-transform-diversity-efforts-stem.

[42] INCLUDES: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science. See https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505289.

[43] See https://clerycenter.org/policy-resources/the-clery-act/.

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THE ROLE OF PROFESSIONAL SOCIETIES AND ORGANIZATIONS THAT FACILITATE RESEARCH AND TRAINING

Professional societies exist to advance and support their specific disciplines and communities. They often have mission statements and principles that encompass goals for their science, engineering, or medicine, and the ethics of their profession, created by their members. Through journals, media, conferences, workshops, student programs, and professional training, they are a powerful influence and important part of the career and advancement of those in science, engineering, and medicine. Because professional societies have this influence, they have a responsibility to join academic institutions in addressing sexual harassment in academic science, engineering, and medicine. Other organizations that facilitate the research and training of those in science, engineering, and medicine, such as collaborative field sites (i.e., national labs and observatories) also share this responsibility. Sexual harassment in academic science, engineering, and medicine cannot be addressed in higher education if the standards of behavior are not also upheld in these off-campus environments.

Professional societies have more freedom to develop independent policies and practices for dealing with sexual harassment than federal agencies have, so they are in an ideal position to take action in preventing sexual harassment and affecting cultural change. Several societies have come forward in the past few years to take a strong stand on the issue of sexual harassment among its membership. As such, professional societies have the potential to be a powerful driver of change through their position to help educate, train, codify, and reinforce cultural expectations for their respective scientific, engineering, and medical communities.

Although each society has taken a slightly different approach to addressing sexual harassment, there are some shared approaches, including the following:

- Enacting new rules related to conference attendance and codes of conduct.
- Including sexual harassment in codes of ethics and investigating reports of sexual harassment. (This is a new responsibility for professional societies, and these organizations are considering how to take into consideration the law, home institutions, due process, and careful reporting when dealing with reports of sexual harassment.)
- Requiring members to acknowledge, in writing, the professional society's rules and codes of conduct relating to sexual harassment during conference registration and annual membership sign-up and renewal.
- Supporting and designing programs that prevent harassment and provide skills to intervene when someone is being harassed (e.g., Astronomy Allies and the American Geophysical Union's (AGU) Safe program).
- Strengthening statements on sexual harassment, bullying, and discrimination in professional societies' codes of conduct, with a few defining it as *research misconduct*.

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- Factoring in harassment-related professional misconduct into scientific award decisions.

Two associations have taken action to strengthen their policies in response to issues of sexual harassment in their fields, the American Astronomical Society (AAS) and the American Geophysical Union (AGU). These organizations share two common features: their fields have relatively low numbers of women and the nature of their work involves attending numerous meetings and conducting research in the field. Studies have shown that these activities are prime settings for sexual harassment (Clancy et al. 2017).

What sets AGU's policy[44] apart from other professional societies is that it now places sexual harassment under the umbrella of research misconduct. Although there is not universal agreement that sexual harassment belongs in this category, AGU issued a statement explaining why it believes their decision is appropriate: "Scientific misconduct also includes unethical and biased treatment of people. . . . These actions violate AGU's commitment to a safe and professional environmental required to learn, conduct, and communicate science."[45] Under the new guidelines, anyone can file a complaint. After doing so, the AGU member can ask for protections against harassment, which include "barring the respondent from a complainant's talk, barring a respondent from an AGU activity, or providing the complainant with an escort during AGU activities. If the complaint goes to a full investigation at AGU or at the home institutions, AGU may consider further actions" (AGU Ethics Policy 2017). For example, the code of conduct section of the AGU Ethics Policy states:

> We affirm that discrimination, harassment (including sexual harassment), or bullying in any scientific or learning environment is unacceptable, and constitutes scientific misconduct under the AGU Scientific Integrity and Professional Ethics Policy. Such behavior should be reported and addressed with consequences for the offender, including but not limited to AGU sanctions or expulsion as outlined in this Policy. In addition, as part of AGU's commitment to providing a safe, positive, professional environment, the SafeAGU Program has been created to provide trained staff and volunteers to meeting attendees if they need to report harassment, discrimination, bullying or other safety/security issues during an AGU meeting, or to request confidential support when dealing with harassment related issues that may not rise to the level of a formal ethics complaint. (AGU Ethics Policy 2017, 4)

AAS's policy does not include sexual harassment with research misconduct, but it has issued a strong statement on this issue:

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[44] AGU Scientific Integrity and Professional Ethics Policy, available at https://harassment.agu.org/files/2017/03/ScientificIntegrityandProfessionalEthics_Member-Review-Draft_March2017.pdf.

[45] See http://www.sciencemag.org/news/2017/04/geophysics-society-hopes-define-sexual-harassment-scientific-misconduct.

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> As a professional society, the AAS is committed to providing an atmosphere that encourages the free expression and exchange of scientific ideas. In pursuit of that ideal, the AAS is dedicated to the philosophy of equality of opportunity and treatment for all members, regardless of gender, gender identity or expression, race, color, national or ethnic origin, religion or religious belief, age, marital status, sexual orientation, disabilities, veteran status, or any other reason not related to scientific merit. Harassment, sexual or otherwise, is a form of misconduct that undermines the integrity of Society meetings. Violators of this policy will be subject to discipline.[46]

AAS provides clear direction on how to report an incident and what the investigation will involve. The statement also makes a point of saying that retaliation will not be tolerated.[46] Members of AAS have also developed grass roots efforts to prevent and respond to sexual harassment at meetings. For example, the Astronomy Allies is a self-organized group that serves as a visible resource at conferences to discourage harassing behavior, for example, by offering conference attendees a safe escort back to hotel rooms at night, and offers support and counsel to targets of sexual harassment.

The Entomological Society of America developed a code of conduct[47] in 2013 in response to the preliminary results of the SAFE study (Clancy et al. 2014), and which was launched in time to be effective for its annual conference that year. Other professional societies, such as the Society for Neuroscience, have issued a statement of values, but the Society for Neuroscience does not list behaviors associated with sexual harassment. It also has developed a guide for behavior at meetings.[48]

It appears that many additional professional societies are now taking concrete actions, similar to AAS and AGU, to address the issue of harassment in science. Based on these actions and the role of professional societies in the fields of science, engineering, and medicine, professional societies should be viewed as organizations that are helping to create culture and climate changes that reduce or prevent the occurrence of sexual harassment. They should provide support and guidance for members who have been targets of sexual harassment. Further, they should use their influence to address sexual harassment in the scientific, medical, and engineering communities they represent and promote a professional culture of civility and respect.

Collaborative field sites, where researchers from a wide range of institutions frequently gather for use of specific facilities, should establish standards of behavior and set policies, procedures, and practices similar to those recommended for academic institutions and following the examples of professional societies. These sites, such as Oak Ridge National Laboratories, the Green Bank

[46] See https://aas.org/policies/anti-harassment-policy.
[47] See https://www.entsoc.org/conduct.
[48] See https://www.nature.com/news/scientific-groups-revisit-sexual-harassment-policies-1.18790.

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Observatory, and the National Synchrotron Light Source at Brookhaven National Laboratories, to name just a few, host visiting scientists year-round to use their facilities. Brookhaven National Laboratories itself hosts more than 2,200 users from 41 states and 30 countries every year.[49]

Chapter 3 discussed how field sites present increased risks for sexual harassment and unique challenges for addressing these reports. Field sites present heightened risks for women trainees (Clancy et al. 2014), and sites where rules and standards for appropriate behavior lacked clarity often had higher incidents of reported sexual harassment than those with clear rules (Nelson et al. 2017). Additionally, jurisdiction over reports of sexual harassment from visiting scholars is often vague, since individuals are outside the bounds of their respective campuses. Therefore, a comprehensive discussion about addressing sexual harassment in higher education would be incomplete without taking these field sites into consideration.

FINDINGS AND CONCLUSIONS

1. **A systemwide change to the culture and climate in higher education is required to prevent and effectively address all three forms of sexual harassment.** Despite significant attention in recent years, there is no evidence to suggest that current policies, procedures, and approaches have resulted in a significant reduction in sexual harassment. It is time to consider approaches that address the systems, cultures, and climates that enable sexual harassment to perpetuate.
2. **Strong and effective leaders at all levels in the organization are required to make the systemwide changes to climate and culture in higher education.** The leadership of the organization—at every level—plays a significant role in establishing and maintaining an organization's culture and norms. However, leaders in academic institutions rarely have leadership training to thoughtfully address culture and climate issues, and the leadership training that exists is often of poor quality.
3. **Environments with organizational systems and structures that value and support diversity, inclusion, and respect are environments where sexual harassment behaviors are less likely to occur.** Sexual harassment often takes place against a backdrop of incivility, or in other words, in an environment of generalized disrespect. A culture that values respect and civility is one that can support policies and procedures to prevent and punish sexual harassment, while a culture that does not will counteract efforts to address sexual harassment.
    a. Evidence-based, effective intervention strategies are available for enhancing gender diversity in hiring practices.

[49] See https://www.bnl.gov/bnlweb/pubaf/fact_sheet/pdf/FS_UserFacilities.pdf.

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b. Focusing evaluation and reward structures on cooperation and collegiality rather than solely on individual-level teaching and research performance metrics could have a significant impact on improving the environment in academia.
c. Evidence-based, effective intervention strategies are available for raising levels of interpersonal civility and respect in workgroups and teams.
d. An organization that is committed to improving organizational climate must address issues of bias in academia. Training to reduce personal bias can cause larger-scale changes in departmental behaviors in an academic setting.
e. Skills-based training that centers on bystander intervention promotes a culture of support, not one of silence. By calling out negative behaviors on the spot, all members of an academic community are helping to create a culture where abusive behavior is seen as an aberration, not as the norm.

4. **Reducing hierarchical power structures and diffusing power more broadly among faculty and trainees can reduce the risk of sexual harassment.** Departments and institutions could take the following approaches for diffusing power:
   a. Make use of egalitarian leadership styles that recognize that people at all levels of experience and expertise have important insights to offer.
   b. Adopt mentoring networks or committee-based advising that allows for a diversity of potential pathways for advice, funding, support, and informal reporting of harassment.
   c. Develop ways the research funding can be provided to the trainee rather than just the principal investigator.
   d. Take on the responsibility for preserving the potential work of the research team and trainees by redistributing the funding if a principal investigator cannot continue the work because he/she has created a climate that fosters sexual harassment and guaranteeing funding to trainees if the institution or a funder pulls funding from the principal investigator because of sexual harassment.
5. **Systems and policies that support targets of sexual harassment and provide options for informal and formal reporting can reduce the reluctance to report harassment as well as reduce the harm sexual harassment can cause the target.**
   a. Orienting students, trainees, faculty, and staff, at all levels, to the academic institution's culture and its policies and procedures for handling sexual harassment can be an important piece of establishing a climate that demonstrates sexual harassment is not tolerated and targets will be supported.
   b. Institutions could build systems of response that empower targets by providing alternative and less formal means of accessing support ser-

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vices, recording information, and reporting incidents without fear of retaliation.

c. Supporting student targets also includes helping them to manage their education and training over the long term.

6. **Confidentiality and nondisclosure agreements isolate sexual harassment targets by limiting their ability to speak with others about their experiences and can serve to shield perpetrators who have harassed people repeatedly.**
7. **Transparency and accountability are crucial elements of effective sexual harassment policies.** Systems in which prohibitions against unacceptable behaviors are clear and which hold members of the community accountable for meeting the behavioral and cultural expectations established by leadership have lower rates of sexual harassment.
   a. Key components of clear anti-harassment policies are that they are quickly and easily digested (i.e., using one-page flyers or infographics and not in legally dense language) and that they clearly state that people will be held accountable for violating the policy.
   b. A range of progressive/escalating disciplinary consequences (such as counseling, changes in work responsibilities, reductions in pay/benefits, and suspension or dismissal) that corresponds to the severity and frequency of the misconduct has the potential of correcting behavior before it escalates and without significantly disrupting an academic program.
   c. In an effort to change behavior and improve the climate, it may also be appropriate for institutions to undertake some rehabilitation-focused measures, even though these may not be sanctions per se.
   d. For the people in an institution to understand that the institution does not tolerate sexual harassment, it must show that it does investigate and then hold perpetrators accountable in a reasonable timeframe. Institutions can anonymize the basic information and provide regular reports that convey how many reports are being investigated and what the outcomes are from the investigation.
   e. An approach for improving transparency and demonstrating that the institution takes sexual harassment seriously is to encourage internal review of its policies, procedures, and interventions for addressing sexual harassment, and to have interactive dialogues with members of their campus community (especially expert researchers on these topics) around ways to improve the culture and climate and change behavior.
8. **While sexual harassment training can be useful in improving knowledge of policies and of behaviors that constitute sexual harassment, it has not been demonstrated to prevent sexual harassment or change people's behaviors or beliefs, and some training shows a *negative* effect (or impact).** Sexual harassment training efforts need to be evaluated and studied

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to determine their efficacy and indicate where they need to be changed or improved, particularly the types of training that show *negative* effects.

9. **To the extent that the training literature provides broad guidelines for creating impactful training that can change climate and behavior, they include the following:**
   a. **Cater training to specific populations;** in academia this would include students, postdoctoral fellows, staff, faculty, and those in leadership.
   b. **Attend to the institutional motivation for training,** which can impact the effectiveness of the training; for instance, compliance-based approaches have limited positive impact.
   c. **Conduct training using live qualified trainers and offer trainees specific examples of inappropriate conduct.** We note that a great deal of sexual harassment training today is offered via an online mini-course or the viewing of a short video.
   d. **Describe standards of behavior clearly and accessibly** (e.g., avoiding legal and technical terms).
   e. **Establish standards of behavior rather than solely seek to influence attitudes and beliefs.** Clear communication of behavioral expectations, and teaching of behavioral skills, is essential.
   f. **Conduct training in adherence to best standards,** including appropriate pre-training needs assessment and evaluation of its effectiveness.
10. **Creating a climate that prevents sexual harassment requires measuring the climate in relation to sexual harassment, diversity, and respect, and assessing progress in reducing sexual harassment.**
11. **Efforts to incentivize systemwide changes, such as Athena SWAN,[50] are crucial to motivating organizations and departments within organizations to make the necessary changes.**
12. **Sexual harassment in academic science, engineering, and medicine will be more effectively addressed in higher education if the standards of behavior are also upheld in off-campus environments such as professional society meetings and collaborative research and field sites.**
13. **Professional societies have the potential to be powerful drivers of change through their capacity to help educate, train, codify, and reinforce cultural expectations for their respective scientific, engineering, and medical communities.** Some professional societies have taken action to prevent and respond to sexual harassment among their membership. Although each professional society has taken a slightly different approach to addressing sexual harassment, there are some shared approaches, including the following:
   a. Enacting new codes of conduct and new rules related specifically to conference attendance.

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b. Including sexual harassment in codes of ethics and investigating reports of sexual harassment. (This is a new responsibility for professional societies, and these organizations are considering how to take into consideration the law, home institutions, due process, and careful reporting when dealing with reports of sexual harassment.)
c. Requiring members to acknowledge, in writing, the professional society's rules and codes of conduct relating to sexual harassment during conference registration and during membership sign-up and renewal.
d. Supporting and designing programs that prevent harassment and provide skills to intervene when someone is being harassed.
e. Strengthening statements on sexual harassment, bullying, and discrimination in professional societies' codes of conduct, with a few defining it as *research misconduct*.
f. Factoring in harassment-related professional misconduct into scientific award decisions.

14. **There are many promising approaches to changing the culture and climate in academia; however, further research assessing the effects and values of the following approaches is needed to identify best practices:**
    a. Policies, procedures, trainings, and interventions, specifically how they prevent and stop sexually harassing behavior, alter perception of organizational tolerance for sexually harassing behavior, and reduce the negative consequences from reporting the incidents. This includes informal and formal reporting mechanisms, bystander intervention training, academic leadership training, sexual harassment training, interventions to improve civility, mandatory reporting requirements, and approaches to supporting and improving communication with the target.
    b. Mechanisms for target-led resolution options and mechanisms by which the target has a role in deciding what happens to the perpetrator, including restorative justice practices.
    c. Mechanisms for protecting targets from retaliation.
    d. Rehabilitation-focused measures for disciplining perpetrators.
    e. Incentive systems for encouraging leaders in higher education to address the issues of sexual harassment on campus.

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7

Findings, Conclusions, and Recommendations

Preventing and effectively addressing sexual harassment of women in colleges and universities is a significant challenge, but we are optimistic that academic institutions can meet that challenge—if they demonstrate the will to do so. This is because the research shows what will work to prevent sexual harassment and why it will work. A systemwide change to the culture and climate in our nation's colleges and universities can stop the pattern of harassing behavior from impacting the next generation of women entering science, engineering, and medicine.

Changing the current culture and climate requires addressing all forms of sexual harassment, not just the most egregious cases; moving beyond legal compliance; supporting targets when they come forward; improving transparency and accountability; diffusing the power structure between faculty and trainees; and revising organizational systems and structures to value diversity, inclusion, and respect. Leaders at every level within academia will be needed to initiate these changes and to establish and maintain the culture and norms. However, to succeed in making these changes, all members of our nation's college campuses—students, faculty, staff, and administrators—will need to assume responsibility for promoting a civil and respectful environment. It is everyone's responsibility to stop sexual harassment.

In this spirit of optimism, we offer the following compilation of the report's findings, conclusions, and recommendations.

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FINDINGS AND CONCLUSIONS

Chapter 2: Sexual Harassment Research

1. **Sexual harassment is a form of discrimination that consists of three types of harassing behavior:** (1) **gender harassment** (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender); (2) **unwanted sexual attention** (unwelcome verbal or physical sexual advances, which can include assault); and (3) **sexual coercion** (when favorable professional or educational treatment is conditioned on sexual activity). *The distinctions between the types of harassment are important, particularly because many people do not realize that gender harassment is a form of sexual harassment*.
2. **Sexually harassing behavior can be either *direct* (targeted at an individual) or *ambient* (a general level of sexual harassment in an environment) and is harmful in both cases.** It is considered illegal when it creates a *hostile environment* (gender harassment or unwanted sexual attention that is "severe or pervasive" enough to alter the conditions of employment, interfere with one's work performance, or impede one's ability to get an education) or when it is *quid pro quo sexual harassment* (when favorable professional or educational treatment is conditioned on sexual activity).
3. **There are reliable scientific methods for determining the prevalence of sexual harassment.** To measure the incidence of sexual harassment, surveys should follow the best practices that have emerged from the science of sexual harassment. This includes use of the Sexual Experiences Questionnaire, the most widely used and well-validated instrument available for measuring sexual harassment; assessment of specific behaviors without requiring the respondent to label the behaviors "sexual harassment"; focus on first-hand experience or observation of behavior (rather than rumor or hearsay); and focus on the recent past (1–2 years, to avoid problems of memory decay). Relying on the number of official reports of sexual harassment made to an organization is not an accurate method for determining the prevalence.
4. **Some surveys underreport the incidence of sexual harassment because they have not followed standard and valid practices for survey research and sexual harassment research.**
5. **While properly conducted surveys are the best methods for estimating the prevalence of sexual harassment, other salient aspects of sexual harassment and its consequences can be examined using other research methods,** such as behavioral laboratory experiments, interviews, case studies, ethnographies, and legal research. Such studies can provide information about the presence and nature of sexually harassing behavior in an organization, how it develops and continues (and influences the organizational climate), and how it attenuates or amplifies outcomes from sexual harassment.

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6. **Sexual harassment remains a persistent problem in the workplace at large.** Across workplaces, five common characteristics emerge:
   a. **Women experience sexual harassment more often than men do.**
   b. **Gender harassment (e.g., behaviors that communicate that women do not belong or do not merit respect) is by far the most common type of sexual harassment.** When an environment is pervaded by gender harassment, unwanted sexual attention and sexual coercion become more likely to occur—in part because unwanted sexual attention and sexual coercion are almost never experienced by women without simultaneously experiencing gender harassment.
   c. **Men are more likely than women to commit sexual harassment.**
   d. **Coworkers and peers more often commit sexual harassment than do superiors.**
   e. **Sexually harassing behaviors are not typically isolated incidents;** rather, they are a series or pattern of sometimes escalating incidents and behaviors.
7. **Research that does not include the study of women of color and sexual- and gender-minority women presents an incomplete picture of women's experiences of sexual harassment.** The preliminary research on the experiences of women of color, and sexual- and gender-minority women reveals that their experiences of sexual harassment can differ from the larger population of cisgender, straight, white women.
   a. **Women of color experience more harassment** (sexual, racial/ethnic, or combination of the two) than white women, white men, and men of color do. Women of color often experience sexual harassment that includes racial harassment.
   b. **Sexual- and gender-minority people experience more sexual harassment** than heterosexual women do.
8. **The two characteristics of environments most associated with higher rates of sexual harassment are (a) male-dominated gender ratios and leadership and (b) an organizational climate that communicates tolerance of sexual harassment** (e.g., leadership that fails to take complaints seriously, fails to sanction perpetrators, or fails to protect complainants from retaliation).
9. **Organizational climate is, by far, the greatest predictor of the occurrence of sexual harassment, and ameliorating it can prevent people from sexually harassing others.** A person more likely to engage in harassing behaviors is significantly less likely to do so in an environment that does not support harassing behaviors and/or has strong, clear, transparent consequences for these behaviors.

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Chapter 3: Sexual Harassment in Academic Science, Engineering, and Medicine

1. **Academic science, engineering, and medicine exhibit at least four characteristics that create higher levels of risk for sexual harassment to occur:**
   a. **Male-dominated environment,** with men in positions of power and authority.
   b. **Organizational tolerance for sexually harassing behavior** (e.g., failing to take complaints seriously, failing to sanction perpetrators, or failing to protect complainants from retaliation).
   c. **Hierarchical and dependent relationships between faculty and their trainees** (e.g., students, postdoctoral fellows, residents).
   d. **Isolating environments** (e.g., labs, field sites, and hospitals) in which faculty and trainees spend considerable time.
2. **Sexual harassment is common in academic science, engineering, and medicine.** Each type of sexual harassment occurs within academic science, engineering, and medicine at similar rates to other workplaces.
   a. Greater than 50 percent of women faculty and staff and 20–50 percent of women students encounter or experience sexually harassing conduct in academia.
   b. Women students in academic medicine experience more frequent gender harassment perpetrated by faculty/staff than women students in science and engineering.
   c. Women students/trainees encounter or experience sexual harassment perpetrated by faculty/staff and also by other students/trainees.
   d. Women faculty encounter or experience sexual harassment perpetrated by other faculty/staff and also by students/trainees.
   e. Women students, trainees, and faculty in academic medical centers experience sexual harassment by patients and patients' families in addition to the harassment they experience from colleagues and those in leadership positions.

Chapter 4: Outcomes of Sexual Harassment

1. **Sexual harassment undermines women's professional and educational attainment and mental and physical health.** Negative outcomes are evident across lines of industry sector, occupation, race, ethnicity, and social class, and even when women do not label their experiences as "sexual harassment."
   a. When women experience sexual harassment in the workplace, the professional outcomes include declines in job satisfaction; withdrawal from their organization (i.e., distancing themselves from the work either physically or mentally without actually quitting, having thoughts or

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intentions of leaving their job, and actually leaving their job); declines in organizational commitment (i.e., feeling disillusioned or angry with the organization); increases in job stress; and declines in productivity or performance.

b. When students experience sexual harassment, the educational outcomes include declines in motivation to attend class, greater truancy, dropping classes, paying less attention in class, receiving lower grades, changing advisors, changing majors, and transferring to another educational institution, or dropping out.

2. **Gender harassment has adverse effects.** Gender harassment that is severe or occurs frequently over a period of time can result in the same level of negative professional and psychological outcomes as isolated instances of sexual coercion. Gender harassment, often considered a "lesser," more inconsequential form of sexual harassment, cannot be dismissed when present in an organization.
3. **The greater the frequency, intensity, and duration of sexually harassing behaviors, the more women report symptoms of depression, stress, and anxiety, and generally negative effects on psychological well-being.**
4. **The more women are sexually harassed in an environment, the more they think about leaving, and end up leaving as a result of the sexual harassment.**
5. **The more power a perpetrator has over the target, the greater the impacts and negative consequences experienced by the target.**
6. **For women of color, preliminary research shows that when the sexual harassment occurs simultaneously with other types of harassment (i.e., racial harassment), the experiences can have more severe consequences for them.**
7. **Sexual harassment has adverse effects that affect not only the targets of harassment but also bystanders, coworkers, workgroups, and entire organizations.**
8. **Women cope with sexual harassment in a variety of ways, most often by ignoring or appeasing the harasser and seeking social support.**
9. **The least common response for women is to formally report the sexually harassing experience.** For many, this is due to an accurate perception that they may experience retaliation or other negative outcomes associated with their personal and professional lives.
10. **Four aspects of the science, engineering, and medicine academic workplace tend to silence targets as well as limit career opportunities for both targets and bystanders:**
    a. **The dependence on advisors and mentors** for career advancement.
    b. **The system of meritocracy** that does not account for the declines in productivity and morale as a result of sexual harassment.
    c. **The "macho" culture** in some fields.

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d. **The informal communication network,** in which rumors and accusations are spread within and across specialized programs and fields.

11. **The cumulative effect of sexual harassment is significant damage to research integrity and a costly loss of talent in academic science, engineering, and medicine.** Women faculty in science, engineering, and medicine who experience sexual harassment report three common professional outcomes: stepping down from leadership opportunities to avoid the perpetrator, leaving their institution, and leaving their field altogether.

Chapter 5: Existing Legal and Policy Mechanisms for Addressing Sexual Harassment

1. **The legal system alone is not an adequate mechanism for reducing or preventing sexual harassment.** Adherence to legal requirements is necessary but not sufficient to drive the change needed to address sexual harassment.
   a. An overly legalistic approach to the problem of sexual harassment is likely to misjudge the true nature and scope of the problem. Sexual harassment law and policy development has focused narrowly on the sexualized and coercive forms of sexual harassment, not on the gender harassment type that research has identified as much more prevalent and at times equally harmful.
   b. Much of the sexual harassment that women experience and that damages women and their careers in science, engineering, and medicine does not meet the legal criteria of illegal discrimination under current law.
2. **Judicial interpretation of Title IX and Title VII has incentivized organizations to create policies, procedures, and training on sexual harassment that focus on symbolic compliance with current law and avoiding liability, and not on preventing sexual harassment.**
   a. Private entities, such as companies and private universities, are legally allowed to keep their internal policies and procedures—and their research on those policies and procedures—confidential, thereby limiting the research that can be done on effective policies for preventing and handling sexual harassment.
   b. Various legal policies, and the interpretation of such policies, enable academic institutions to maintain secrecy and/or confidentiality regarding outcomes of sexual harassment investigations, arbitration, and settlement agreements. Colleagues may also hesitate to warn one another about sexual harassment concerns in the hiring or promotion context out of fear of legal repercussions (i.e., being sued for defamation and/or discrimination). This lack of transparency in the adjudication process within organizations can cover up sexual harassment perpetrated by repeat or serial harassers. This creates additional barriers to researchers

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and others studying harassment claims and outcomes, and is also a barrier to determining the effectiveness of policies and procedures.

3. **Title IX, Title VII, and case law reflect the inaccurate assumption that a target of sexual harassment will promptly report the harassment without worrying about retaliation.** Effectively addressing sexual harassment through the law, institutional policies or procedures, or cultural change requires taking into account that targets of sexual harassment are unlikely to report harassment and often face retaliation for reporting (despite this being illegal).
4. **Fears of legal liability may prevent institutions from being willing to effectively evaluate training for its measurable impact on reducing harassment.** Educating employees via sexual harassment training is commonly implemented as a central component of demonstrating to courts that institutions have "exercised reasonable care to prevent and correct promptly any sexually harassing behavior." However, research has not demonstrated that such training prevents sexual harassment. Thus, if institutions evaluated their training programs, they would likely find them to be ineffective, which, in turn, could raise fears within institutions of their risk for liability because they would then knowingly not be exercising reasonable care.
5. **Holding individuals and institutions responsible for sexual harassment and demonstrating that sexual harassment is a serious issue requires U.S. federal funding agencies to be aware when principal investigators, co-principal investigators, and grant personnel have violated sexual harassment policies.** It is unclear whether and how federal agencies will take action beyond the requirements of Title IX and Title VII to ensure that federal grants, composed of taxpayers' dollars, are not supporting research, academic institutions, or programs in which sexual harassment is ongoing and not being addressed. Federal science agencies usually indicate (e.g., in requests for proposals or other announcements) that they have a "no-tolerance" policy for sexual harassment. In general, federal agencies rely on the grantee institutions to investigate and follow through on Title IX violations. By not assessing and addressing the role of institutions and professional organizations in enabling individual sexual harassers, federal agencies may be perpetuating the problem of sexual harassment.
6. **To address the effect sexual harassment has on the integrity of research, parts of the federal government and several professional societies are beginning to focus more broadly on policies about research integrity and on codes of ethics rather than on the narrow definition of research misconduct.** A powerful incentive for change may be missed if sexual harassment is not considered equally important as research misconduct, in terms of its effect on the integrity of research.

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Chapter 6: Changing the Culture and Climate in Higher Education

1. **A systemwide change to the culture and climate in higher education is required to prevent and effectively address all three forms of sexual harassment.** Despite significant attention in recent years, there is no evidence to suggest that current policies, procedures, and approaches have resulted in a significant reduction in sexual harassment. It is time to consider approaches that address the systems, cultures, and climates that enable sexual harassment to perpetuate.
2. **Strong and effective leaders at all levels in the organization are required to make the systemwide changes to climate and culture in higher education.** The leadership of the organization—at every level—plays a significant role in establishing and maintaining an organization's culture and norms. However, leaders in academic institutions rarely have leadership training to thoughtfully address culture and climate issues, and the leadership training that exists is often of poor quality.
3. **Environments with organizational systems and structures that value and support diversity, inclusion, and respect are environments where sexual harassment behaviors are less likely to occur.** Sexual harassment often takes place against a backdrop of incivility, or in other words, in an environment of generalized disrespect. A culture that values respect and civility is one that can support policies and procedures to prevent and punish sexual harassment, while a culture that does not will counteract efforts to address sexual harassment.
   a. Evidence-based, effective intervention strategies are available for enhancing gender diversity in hiring practices.
   b. Focusing evaluation and reward structures on cooperation and collegiality rather than solely on individual-level teaching and research performance metrics could have a significant impact on improving the environment in academia.
   c. Evidence-based, effective intervention strategies are available for raising levels of interpersonal civility and respect in workgroups and teams.
   d. An organization that is committed to improving organizational climate must address issues of bias in academia. Training to reduce personal bias can cause larger-scale changes in departmental behaviors in an academic setting.
   e. Skills-based training that centers on bystander intervention promotes a culture of support, not one of silence. By calling out negative behaviors on the spot, all members of an academic community are helping to create a culture where abusive behavior is seen as an aberration, not as the norm.
4. **Reducing hierarchical power structures and diffusing power more broadly among faculty and trainees can reduce the risk of sexual ha-**

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rassment. Departments and institutions could take the following approaches for diffusing power:

a. Make use of egalitarian leadership styles that recognize that people at all levels of experience and expertise have important insights to offer.
b. Adopt mentoring networks or committee-based advising that allows for a diversity of potential pathways for advice, funding, support, and informal reporting of harassment.
c. Develop ways the research funding can be provided to the trainee rather than just the principal investigator.
d. Take on the responsibility for preserving the potential work of the research team and trainees by redistributing the funding if a principal investigator cannot continue the work because he/she has created a climate that fosters sexual harassment and guaranteeing funding to trainees if the institution or a funder pulls funding from the principal investigator because of sexual harassment.

5. **Systems and policies that support targets of sexual harassment and provide options for informal and formal reporting can reduce the reluctance to report harassment as well as reduce the harm sexual harassment can cause the target.**
   a. Orienting students, trainees, faculty, and staff, at all levels, to the academic institution's culture and its policies and procedures for handling sexual harassment can be an important piece of establishing a climate that demonstrates sexual harassment is not tolerated and targets will be supported.
   b. Institutions could build systems of response that empower targets by providing alternative and less formal means of accessing support services, recording information, and reporting incidents without fear of retaliation.
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8. **While sexual harassment training can be useful in improving knowledge of policies and of behaviors that constitute sexual harassment, it has not been demonstrated to prevent sexual harassment or change people's behaviors or beliefs, and some training shows a *negative* effect (or impact).** Sexual harassment training efforts need to be evaluated and studied to determine their efficacy and indicate where they need to be changed or improved, particularly the types of training that show *negative* effects.
9. **To the extent that the training literature provides broad guidelines for creating impactful training that can change climate and behavior, they include the following:**
   a. **Cater training to specific populations;** in academia this would include students, postdoctoral fellows, staff, faculty, and those in leadership.
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   c. Requiring members to acknowledge, in writing, the professional society's rules and codes of conduct relating to sexual harassment during conference registration and during membership sign-up and renewal.
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14. **There are many promising approaches to changing the culture and climate in academia; however, further research assessing the effects and values of the following approaches is needed to identify best practices:**
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    b. Mechanisms for target-led resolution options and mechanisms by which the target has a role in deciding what happens to the perpetrator, including restorative justice practices.
    c. Mechanisms for protecting targets from retaliation.
    d. Rehabilitation-focused measures for disciplining perpetrators.
    e. Incentive systems for encouraging leaders in higher education to address the issues of sexual harassment on campus.

RECOMMENDATIONS

RECOMMENDATION 1: Create diverse, inclusive, and respectful environments.

a. Academic institutions and their leaders should take explicit steps to achieve greater gender and racial equity in hiring and promotions, and thus improve the representation of women at every level.
b. Academic institutions and their leaders should take steps to foster greater cooperation, respectful work behavior, and professionalism at the faculty, staff, and student/trainee levels, and should evaluate faculty and staff on these criteria in hiring and promotion.
c. Academic institutions should combine anti-harassment efforts with civility-promotion programs.
d. Academic institutions should cater their training to specific populations (in academia these should include students/trainees, staff, faculty, and those in leadership) and should follow best practices in designing training programs. Training should be viewed as the means of providing the skills needed by all members of the academic community, each of whom has a role to play in building a positive organizational climate focused on safety and respect, and not simply as a method of ensuring compliance with laws.
e. Academic institutions should utilize training approaches that develop skills among participants to interrupt and intervene when inappropriate behavior occurs. These training programs should be evaluated to deter-

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mine whether they are effective and what aspects of the training are most important to changing culture.

f. Anti–sexual harassment training programs should focus on changing behavior, not on changing beliefs. Programs should focus on clearly communicating behavioral expectations, specifying consequences for failing to meet these expectations, and identifying the mechanisms to be utilized when these expectations are not met. Training programs should not be based on the avoidance of legal liability.

RECOMMENDATION 2: Address the most common form of sexual harassment: gender harassment.

Leaders in academic institutions and research and training sites should pay increased attention to and enact policies that cover gender harassment as a means of addressing the most common form of sexual harassment and of preventing other types of sexually harassing behavior.

RECOMMENDATION 3: Move beyond legal compliance to address culture and climate.

Academic institutions, research and training sites, and federal agencies should move beyond interventions or policies that represent basic legal compliance and that rely solely on formal reports made by targets. Sexual harassment needs to be addressed as a significant culture and climate issue that requires institutional leaders to engage with and listen to students and other campus community members.

RECOMMENDATION 4: Improve transparency and accountability.

a. Academic institutions need to develop—and readily share—clear, accessible, and consistent policies on sexual harassment and standards of behavior. They should include a range of clearly stated, appropriate, and escalating disciplinary consequences for perpetrators found to have violated sexual harassment policy and/or law. The disciplinary actions taken should correspond to the severity and frequency of the harassment. The disciplinary actions should not be something that is often considered a benefit for faculty, such as a reduction in teaching load or time away from campus service responsibilities. Decisions regarding disciplinary actions, if indicated or required, should be made in a fair and timely way following an investigative process that is fair to all sides.[2]

b. Academic institutions should be as transparent as possible about how they are handling reports of sexual harassment. This requires balancing issues of confidentiality with issues of transparency. Annual reports,

[2] Further detail on processes and guidance for how to fairly and appropriately investigate and adjudicate these issues are not provided because they are complex issues that were beyond the scope of this study.

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that provide information on (1) how many and what type of policy violations have been reported (both informally and formally), (2) how many reports are currently under investigation, and (3) how many have been adjudicated, along with general descriptions of any disciplinary actions taken, should be shared with the entire academic community: students, trainees, faculty, administrators, staff, alumni, and funders. At the very least, the results of the investigation and any disciplinary action should be shared with the target(s) and/or the person(s) who reported the behavior.

c. Academic institutions should be accountable for the climate within their organization. In particular, they should utilize climate surveys to further investigate and address systemic sexual harassment, particularly when surveys indicate specific schools or facilities have high rates of harassment or chronically fail to reduce rates of sexual harassment.

d. Academic institutions should consider sexual harassment equally important as research misconduct in terms of its effect on the integrity of research. They should increase collaboration among offices that oversee the integrity of research (i.e., those that cover ethics, research misconduct, diversity, and harassment issues); centralize resources, information, and expertise; provide more resources for handling complaints and working with targets; and implement sanctions on researchers found guilty of sexual harassment.

RECOMMENDATION 5: Diffuse the hierarchical and dependent relationship between trainees and faculty.

Academic institutions should consider power-diffusion mechanisms (i.e., mentoring networks or committee-based advising and departmental funding rather than funding only from a principal investigator) to reduce the risk of sexual harassment.

RECOMMENDATION 6: Provide support for the target.

Academic institutions should convey that reporting sexual harassment is an honorable and courageous action. Regardless of a target filing a formal report, academic institutions should provide means of accessing support services (social services, health care, legal, career/professional). They should provide alternative and less formal means of recording information about the experience and reporting the experience if the target is not comfortable filing a formal report. Academic institutions should develop approaches to prevent the target from experiencing or fearing retaliation in academic settings.

RECOMMENDATION 7: Strive for strong and diverse leadership.

a. College and university presidents, provosts, deans, department chairs, and program directors must make the reduction and prevention of sexual

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harassment an explicit goal of their tenure. They should publicly state that the reduction and prevention of sexual harassment will be among their highest priorities, and they should engage students, faculty, and staff (and, where appropriate, the local community) in their efforts.

b. Academic institutions should support and facilitate leaders at every level (university, school/college, department, lab) in developing skills in leadership, conflict resolution, mediation, negotiation, and de-escalation, and should ensure a clear understanding of policies and procedures for handling sexual harassment issues. Additionally, these skills development programs should be customized to each level of leadership.

c. Leadership training programs for those in academia should include training on how to recognize and handle sexual harassment issues, and how to take explicit steps to create a culture and climate to reduce and prevent sexual harassment—and not just protect the institution against liability.

RECOMMENDATION 8: Measure progress.

Academic institutions should work with researchers to evaluate and assess their efforts to create a more diverse, inclusive, and respectful environment, and to create effective policies, procedures, and training programs. They should not rely on formal reports by targets for an understanding of sexual harassment on their campus.

a. When organizations study sexual harassment, they should follow the valid methodologies established by social science research on sexual harassment and should consult subject-matter experts. Surveys that attempt to ascertain the prevalence and types of harassment experienced by individuals should adopt the following practices: ensure confidentiality, use validated behavioral instruments such as the Sexual Experiences Questionnaire, and avoid specifically using the term "sexual harassment" in any survey or questionnaire.

b. Academic institutions should also conduct more wide-ranging assessments using measures in addition to campus climate surveys, for example, ethnography, focus groups, and exit interviews. These methods are especially important in smaller organizational units where surveys, which require more participants to yield meaningful data, might not be useful.

c. Organizations studying sexual harassment in their environments should take into consideration the particular experiences of people of color and sexual- and gender-minority people, and they should utilize methods that allow them to disaggregate their data by race, ethnicity, sexual orientation, and gender identity to reveal the different experiences across populations.

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d. The results of climate surveys should be shared publicly to encourage transparency and accountability and to demonstrate to the campus community that the institution takes the issue seriously. One option would be for academic institutions to collaborate in developing a central repository for reporting their climate data, which could also improve the ability for research to be conducted on the effectiveness of institutional approaches.
e. Federal agencies and foundations should commit resources to develop a tool similar to ARC3, the Administrator-Researcher Campus Climate Collaborative, to understand and track the climate for faculty, staff, and postdoctoral fellows.

RECOMMENDATION 9: Incentivize change.

a. Academic institutions should work to apply for awards from the emerging STEM Equity Achievement (SEA Change) program.[3] Federal agencies and private foundations should encourage and support academic institutions working to achieve SEA Change awards.
b. Accreditation bodies should consider efforts to create diverse, inclusive, and respectful environments when evaluating institutions or departments.
c. Federal agencies should incentivize efforts to reduce sexual harassment in academia by requiring evaluations of the research environment, funding research and evaluation of training for students and faculty (including bystander intervention), supporting the development and evaluation of leadership training for faculty, and funding research on effective policies and procedures.

RECOMMENDATION 10: Encourage involvement of professional societies and other organizations.

a. Professional societies should accelerate their efforts to be viewed as organizations that are helping to create culture changes that reduce or prevent the occurrence of sexual harassment. They should provide support and guidance for members who have been targets of sexual harassment. They should use their influence to address sexual harassment in the scientific, medical, and engineering communities they represent and promote a professional culture of civility and respect. The efforts of the American Geophysical Union are especially exemplary and should be considered as a model for other professional societies to follow.
b. Other organizations that facilitate the research and training of people in science, engineering, and medicine, such as collaborative field sites (i.e., national labs and observatories), should establish standards of behavior

[3] See https://www.aaas.org/news/sea-change-program-aims-transform-diversity-efforts-stem.

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and set policies, procedures, and practices similar to those recommended for academic institutions and following the examples of professional societies. They should hold people accountable for their behaviors while at their facility regardless of the person's institutional affiliation (just as some professional societies are doing).

RECOMMENDATION 11: Initiate legislative action.

State legislatures and Congress should consider new and additional legislation with the following goals:

a. Better protecting sexual harassment claimants from retaliation.
b. Prohibiting confidentiality in settlement agreements that currently enable harassers to move to another institution and conceal past adjudications.
c. Banning mandatory arbitration clauses for discrimination claims.
d. Allowing lawsuits to be filed against alleged harassers directly (instead of or in addition to their academic employers).
e. Requiring institutions receiving federal funds to publicly disclose results from campus climate surveys and/or the number of sexual harassment reports made to campuses.
f. Requesting the National Science Foundation and the National Institutes of Health devote research funds to doing a follow-up analysis on the topic of sexual harassment in science, engineering, and medicine in 3 to 5 years to determine (1) whether research has shown that the prevalence of sexual harassment has decreased, (2) whether progress has been made on implementing these recommendations, and (3) where to focus future efforts.

RECOMMENDATION 12: Address the failures to meaningfully enforce Title VII's prohibition on sex discrimination.

a. Judges, academic institutions (including faculty, staff, and leaders in academia), and administrative agencies should rely on scientific evidence about the behavior of targets and perpetrators of sexual harassment when assessing both institutional compliance with the law and the merits of individual claims.
b. Federal judges should take into account demonstrated *effectiveness* of anti-harassment policies and practices such as trainings, and not just their *existence*, for use of an affirmative defense against a sexual harassment claim under Title VII.

RECOMMENDATION 13: Increase federal agency action and collaboration.

Federal agencies should do the following:

a. Increase support for research and evaluation of the effectiveness of policies, procedures, and training on sexual harassment.

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b. Attend to sexual harassment with at least the same level of attention and resources as devoted to research misconduct. They should increase collaboration among offices that oversee the integrity of research (i.e., those that cover ethics, research misconduct, diversity, and harassment issues); centralize resources, information, and expertise; provide more resources for handling complaints and working with targets; and implement sanctions on researchers found guilty of sexual harassment.
c. Require institutions to report to federal agencies when individuals on grants have been found to have violated sexual harassment policies or have been put on administrative leave related to sexual harassment, as the National Science Foundation has proposed doing. Agencies should also hold accountable the perpetrator and the institution by using a range of disciplinary actions that limit the negative effects on other grant personnel who were either the target of the harassing behavior or innocent bystanders.
d. Reward and incentivize colleges and universities for implementing policies, programs, and strategies that research shows are most likely to and are succeeding in reducing and preventing sexual harassment.

RECOMMENDATION 14: Conduct necessary research.

Funders should support the following research:

a. The sexual harassment experiences of women in underrepresented and/or vulnerable groups, including women of color, disabled women, immigrant women, sexual- and gender-minority women, postdoctoral trainees, and others.
b. Policies, procedures, trainings, and interventions, specifically their ability to prevent and stop sexually harassing behavior, to alter perception of organizational tolerance for sexually harassing behavior, and to reduce the negative consequences from reporting the incidents. This should include research on informal and formal reporting mechanisms, bystander intervention training, academic leadership training, sexual harassment and diversity training, interventions to improve civility, mandatory reporting requirements, and approaches to supporting and improving communication with the target.
c. Mechanisms for target-led resolution options and mechanisms by which the target has a role in deciding what happens to the perpetrator, including restorative justice practices.
d. Mechanisms for protecting targets from retaliation.
e. Approaches for mitigating the negative impacts and outcomes that targets experience.
f. Incentive systems for encouraging leaders in higher education to address the issues of sexual harassment on campus.
g. The prevalence and nature of sexual harassment within specific fields in

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science, engineering, and medicine and that follows good practices for sexual harassment surveys.

h. The prevalence and nature of sexual harassment perpetrated by students on faculty.
i. The amount of sexual harassment that serial harassers are responsible for.
j. The prevalence and effect of ambient harassment in the academic setting.
k. The connections between consensual relationships and sexual harassment.
l. Psychological characteristics that increase the risk of perpetrating different forms of sexually harassing behaviors.

RECOMMENDATION 15: Make the entire academic community responsible for reducing and preventing sexual harassment.

All members of our nation's college campuses—students, trainees, faculty, staff, and administrators—as well as members of research and training sites should assume responsibility for promoting civil and respectful education, training, and work environments, and stepping up and confronting those whose behaviors and actions create sexually harassing environments.

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Appendix A

Committee Biographical Information

CO-CHAIRS

Paula A. Johnson (NAM) is the 14th president of Wellesley College. Before joining Wellesley, Johnson founded and served as the inaugural executive director of the Connors Center for Women's Health and Gender Biology, as well as chief of the Division of Women's Health at Brigham and Women's Hospital—a Harvard teaching hospital. A cardiologist, Johnson was the Grace A. Young Family Professor of Medicine in the Field of Women's Health at Harvard Medical School. She was also professor of epidemiology at the Harvard T.H. Chan School of Public Health. Her research has influenced health care and health policy reforms and has impacted women across the United States. Johnson led the development of a unique case-based curriculum to educate emerging leaders in the field of global women's health. She is a member of the American Academy of Arts and Sciences and the National Academy of Medicine, and has been recognized as a national leader in medicine by the National Library of Medicine. She has served on the Advisory Committee to the NIH Office of Research on Women's Health and has received several honorary doctorates and numerous awards for her contributions to science, medicine, and public health. Johnson attended Harvard and Radcliffe Colleges, received her M.D. and M.P.H. degrees from Harvard, and trained in internal medicine and cardiovascular medicine at Brigham and Women's Hospital.

Sheila Evans Widnall (NAE) is an aerospace researcher and institute professor at the Massachusetts Institute of Technology. She served as secretary of the Air Force between 1993 and 1997, making her the first female secretary of the Air Force and the first woman to lead an entire branch of the U.S. military in the Department of Defense. Widnall graduated from the Massachusetts Institute

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of Technology (MIT) with an S.B. in 1960, S.M. in 1961, and Sc.D. in 1964, all in aeronautics. She was appointed as the Abby Rockefeller Mauzé Professor of Aeronautics and Astronautics in 1986 and joined the Engineering Systems Division, was chair of the faculty in 1979–1981, and served as MIT's associate provost from 1992 to 1993. In 1988 she was the president of the American Association for the Advancement of Science. In 1993, in the wake of the Tailhook scandal, she became secretary of the Air Force. During her tenure she handled the Kelly Flinn scandal. She was elected to the National Academy of Engineering in 1985, serving as vice president from 1998 to 2005 and winning the Arthur M. Bueche Award in 2009. Widnall was a member of the board of investigation into the Space Shuttle Columbia disaster.

MEMBERS

Alice M. Agogino (NAE) is the Roscoe and Elizabeth Hughes Professor of Mechanical Engineering and is affiliated faculty in the Haas School of Business, Energy Resources Group, Science and Math Education Graduate Group, and Gender and Women's Studies at the University of California (UC), Berkeley. She directs the BEST Lab: Berkeley Energy and Sustainable Technologies | Berkeley Expert Systems Technology | Berkeley Emergent Space Tensegrities. She currently serves as chair of the Development Engineering Graduate Group and education director of the Blum Center for Emerging Economies. Agogino served as chair of the Berkeley Division of the Academic Senate in 2005–2006, having served as vice chair during the 2004–2005 academic year. She has served in a number of other administrative positions at the University of California, Berkeley, including associate dean of engineering and faculty assistant to the executive vice chancellor and provost in educational development and technology. Prior to joining the faculty at UC Berkeley, Agogino worked in industry for Dow Chemical, General Electric, and SRI International. She is serving or has served on a number of university advisory boards: Carnegie Mellon University, King Abdullah University of Science and Technology, Harvard/Radcliffe, the Massachusetts Institute of Technology, and the Singapore University of Technology and Design. Agogino received a B.S. in mechanical engineering from the University of New Mexico (1975), M.S. in mechanical engineering from UC, Berkeley (1978), and Ph.D. from the Department of Engineering-Economic Systems at Stanford University (1984).

Nicholas Arnold is professor of engineering at the Santa Barbara City College (SBCC). He is the 2010 recipient of the Stanback-Stroud Diversity Award from the Academic Senate for the California Community Colleges, which recognizes one California community college faculty member each year who has shown outstanding commitment to diversity. He is a one-person Department of Engineering at Santa Barbara City College, where he has taught for 16 years. He was

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previously with Alan Hancock College (AHC) for 6 years. Arnold established the MESA (Mathematics, Science, Engineering Achievement) program, at both SBCC and AHC, which provides help to approximately 100 underrepresented, first-generation students in the STEM (science, technology, engineering, mathematics) fields each year at each college. Arnold earned his Ph.D. in electrical engineering from the University of California, Santa Barbara, in 1990. He earned his B.A. in physics and applied math from the University of California, San Diego, in 1984. He was conferred the A.S. in engineering at Sierra College in 1981.

Gilda A. Barabino is the Daniel and Frances Berg Professor and Dean of the Grove School of Engineering at the City College of New York. She holds appointments in the Departments of Biomedical and Chemical Engineering and in the City University of New York School of Medicine. Prior to joining the City College of New York, she served as associate chair for graduate studies and professor in the Department of Biomedical Engineering at the Georgia Institute of Technology and Emory University. At Georgia Tech she also served as the inaugural vice provost for academic diversity. Prior to her appointments at Georgia Tech and Emory, she rose to the rank of full professor of chemical engineering and served as vice provost for undergraduate education at Northeastern University. Barabino's research is broadly focused on the role of biomechanics in health and disease in the context of sickle cell disease and orthopedic tissue engineering. She also investigates the influence of gender, race, and ethnicity in science, technology, engineering, and mathematics (STEM) and is a recognized innovator and consultant on STEM education and research, policy, workforce development, and diversity in higher education. Barabino is past president of the American Institute for Medical and Biological Engineering and past president of the Biomedical Engineering Society. She is a fellow of the American Association for the Advancement of Science, the American Institute of Chemical Engineers, the American Institute for Medical and Biological Engineering, and the Biomedical Engineering Society. Barabino received her B.S. degree in chemistry from Xavier University of Louisiana and her Ph.D. in chemical engineering from Rice University.

Kathryn Clancy is an associate professor of anthropology at the University of Illinois, with affiliations in the Program for Evolution, Ecology, and Conservation, and the Beckman Institute for Advanced Science and Technology. Clancy's laboratory investigates the ways women's reproductive physiology varies, and how that variation is informed by genes, environment, and gene-environment interactions. Clancy's critical research on the culture of science has also received widespread attention. She and her colleagues empirically demonstrated the continued problem of sexual harassment and assault in the field sciences, astronomy, and the planetary sciences across several publications. She received

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her doctorate in anthropology from Yale University in 2007, and a joint honors bachelor degree in biological anthropology and women's studies from Harvard University in 2001.

Lilia Cortina is professor of psychology, women's studies, and management and organizations at the University of Michigan. An organizational psychologist, she has specialized in the scientific study of workplace victimization for more than two decades. One line of Cortina's research addresses sexual harassment on the job—focusing on the contours and consequences of harassment in the lives of both women and men. In another stream of scholarship, she investigates workplace incivility. To date, she has published nearly 80 research articles and chapters on these topics. In addition, Cortina has served as an expert witness in a range of venues, translating findings from social science to inform policy and legal decision making. For example, in 2015 she provided expert testimony to the Department of Defense Judicial Proceedings Panel. Commissioned by Congress, this panel conducted an independent review of military judicial procedures surrounding sexual assault. She also testified in 2015 to the U.S. Equal Employment Opportunity Commission's Select Task Force on the Study of Harassment in the Workplace. In recognition of unusual and outstanding contributions to the field, she has been named fellow of the American Psychological Association and the Society for Industrial/Organizational Psychology. Cortina earned her A.M. and Ph.D. in psychology from the University of Illinois at Urbana-Champaign.

Amy Dodrill is vice president and general manager of Trumpf Medical USA. She has more than 20 years of industry experience in the medical device market and has gained significant exposure to several aspects of business in her dynamic career. Both nationally and globally, she has excelled in commercial operations, sales management, and executive leadership positions from companies such as GE Healthcare, DynaVox-Mayer Johnson, Hill-Rom, and Trumpf Medical, where she is presently the general manager and vice president of the U.S. division. She is a member of the Professional Women's Network leadership team, which focuses on creating an environment that fosters a diversified workforce. Dodrill graduated with a B.S. in biomedical and chemical engineering from Johns Hopkins University.

Lisa García Bedolla is a professor in the Graduate School of Education and director of the Institute of Governmental Studies at the University of California, Berkeley. She uses the tools of social science to reveal the causes of political and economic inequalities in the United States, considering differences at the intersection of race, gender, class, and place. She has used a variety of social science methods—participant observation, in-depth interviewing, survey research, field experiments, and geographic information systems—to shed light on this question. She has published four books and dozens of research articles, earning five

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national book awards and numerous other awards. She currently serves on the External Advisory Board of the University of New Mexico's National Science Foundation (NSF) ADVANCE grant and participated in the NSF ADVANCE project when she was a faculty member at the University of California, Irvine. She received her Ph.D. in political science from Yale University and her B.A. in Latin American studies and comparative literature from the University of California, Berkeley.

Liza H. Gold is a board certified clinical and forensic psychiatrist. She is a clinical professor of psychiatry at Georgetown University School of Medicine and has maintained a private practice since 1990. Gold teaches nationally on a variety of topics in forensic psychiatry, including evaluating psychiatric aspects of workplace sexual harassment. Gold has twice won the American Psychiatric Association and American Academy of Psychiatry and the Law's Manfred Guttmacher Award, first in 2006 for her book *Sexual Harassment: Psychiatric Assessment in Employment Litigation* (2004) and again in 2011 for *Evaluating Mental Health Disability in the Workplace* (2009). She has twice served as vice president of the American Academy of Psychiatry and the Law and has been awarded this organization's Seymour Pollack Distinguished Achievement Award for her contributions to teaching and education in forensic psychiatry. Gold is currently serving as a physician consultant on the District of Columbia Superior Court Commission of Mental Health. She received her M.D. degree from New York University School of Medicine. She received a master of philosophy degree from the University of Cambridge and earned her B.A. from Harvard/Radcliffe College.

Melvin Greer is chief data scientist, Americas, at Intel Corporation. Greer's systems and software engineering experience has resulted in patented inventions in cloud computing, synthetic biology, and internet of things biosensors for edge analytics. He is also a professor in the Master of Science for Data Science program at Southern Methodist University and a distinguished lecturer at George Mason University, International Cyber Center. Greer serves on the board of trustees for Capitol Technology University in Laurel, Maryland, and on the board of directors for the Northern Virginia Children's Science Center. Greer is the award-winning author of the bestselling book *21st Century Leadership* and the managing director of the Greer Institute for Leadership and Innovation, focused on the maturing of new leaders and the growth of future innovators. He received his B.S. in computer information systems and technology and his M.S. in information systems from American University. He also completed the Executive Leadership Program at the Cornell University, Johnson Graduate School, and the Entrepreneurial Finance Post Graduate Program at the Massachusetts Institute of Technology, Sloan School of Management. He is a vocal advocate

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and supporter of increasing the representation of women and underrepresented minorities in science.

Linda C. Gundersen is a scientist emeritus at the U.S. Geological Survey (USGS), having spent 34 years there as a research scientist, program manager, and senior executive. From 2001 to 2010 she was chief scientist for geology overseeing the Earthquakes, Volcanoes, Landslides, Coastal and Marine Geology, Geologic Mapping, Energy and Mineral Resources, and Climate Change Programs. In 2011 she established the USGS Office of Science Quality and Integrity, directing scientific integrity, ethics, education, postdoctoral fellowships, publication quality, research excellence, and other programs across the USGS. She received a B.S. in geology from Stony Brook University and conducted doctoral studies in geochemistry at University of Colorado. Awards include the Department of Interior Superior, Meritorious, and Distinguished Service Awards. She is a fellow of the Geological Society of America and has published numerous papers on geology, geoinformatics, science management, scientific integrity, and ethics. She has co-authored or led the development of scientific integrity policies for USGS (2007), Department of Interior (2011), American Geosciences Institute (2015), and the American Geophysical Union (2012 and 2017). She is editor of the recently published (2017) book *Scientific Integrity and Ethics in the Geosciences*.

Elizabeth L. Hillman is the 14th president of Mills College. Hillman brings to Mills extensive experience in higher education administration and instruction and a distinguished background working on key gender and women's issues. She is the former provost and academic dean at the University of California, Hastings College of the Law, where she also served as the chief academic officer. Prior to her position at Hastings, Hillman served as professor of law and director of faculty development at Rutgers University School of Law and taught at Yale University and the U.S. Air Force Academy. She also was an officer in the U.S. Air Force, where she served as a space operations officer and orbital analyst. Hillman's expertise in sexual violence and gender issues in military organizations and culture has brought her national and international recognition. She has been an expert witness testifying before Congress on numerous occasions, including at the Congressional Women's Caucus hearing to address nonconsensual pornography in the U.S. military (Marines United). She is a sought-after educator and speaker on the topics of sexual assault and harassment, and women's leadership and rights. In 2013–2014 she served on the Response Systems to the Adult Sexual Assault Crimes Panel (RSP), an independent panel chartered by the U.S. Congress to study and make recommendations about sexual assault in the U.S. military. She also chaired the RSP's Comparative Systems Subcommittee, leading the preparation and drafting of a comprehensive report recommending

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significant changes to improve military responses to sexual assault. She is a founding member of the President's Alliance on Higher Education and Immigration, and currently serves on the board of the Women's College Coalition and as a member of the NCAA Division III Chancellors and Presidents Advisory Group. She received her B.S. in electrical engineering from Duke University in 1989 and an M.A. in history from the University of Pennsylvania in 1994, and went on to receive a J.D. from Yale Law School in 2000 and a Ph.D. in history with a focus on women's history from Yale University in 2001.

Timothy R.B. Johnson (NAM) is Arthur F. Thurnau Professor, professor of obstetrics and gynecology, professor of women's studies, and research professor in the Center for Human Growth and Development at the University of Michigan. He is an academic maternal-fetal medicine specialist and has served on the faculties of the Uniformed Services University of the Health Sciences, Johns Hopkins University and the University of Michigan. He has extensive experience in medical education both domestic and international, and in academic faculty development and capacity building. Johnson was awarded the Distinguished Service Award, the highest honor of the American College of Obstetricians and Gynecologists, and the Distinguished Merit award of the International Federation of Gynecology and Obstetrics. He is past president of the Association of Professors of Gynecology and Obstetrics, fellow ad eundem of the Royal College of Obstetricians and Gynaecologists (London), honorary fellow of the West African College of Surgeons, and honorary fellow of the Ghana College of Physicians and Surgeons.

Anna Kirkland is Arthur F. Thurnau Professor of Women's Studies, director of the Institute for Research on Women and Gender, and director of the Science, Technology, and Society Program of the University of Michigan (2017–2018). Her research has focused on the interactions between identity categories, discrimination, and health. She holds a courtesy appointment in political science. Primarily situated in the law and society tradition, Kirkland also works within science studies, disability studies, and gender studies using theoretical and interpretive methods. Kirkland's second book, *Vaccine Court: The Law and Politics of Injury*, is available from New York University Press (2016). Her first book, *Fat Rights: Dilemmas of Difference and Personhood*, was published in 2008 by New York University Press. She is the co-editor with Jonathan Metzl of *Against Health: How Health Became the New Morality* (New York University Press, 2010). Her published articles analyze topics such as the politics of vaccines in state legislatures, scientific credibility and vaccine criticism, rights consciousness in the fat acceptance movement, the environmental approach to anti-obesity policy, and transgender discrimination as sex discrimination.

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Ed Lazowska (NAE) is the Bill & Melinda Gates Chair in the Paul G. Allen School of Computer Science & Engineering at the University of Washington. Lazowska is a member of the National Academy of Engineering, a fellow of the American Academy of Arts and Sciences, and a fellow of the Association for Computing Machinery, the Institute of Electrical and Electronics Engineers, and the American Association for the Advancement of Science. Lazowska's national leadership activities include serving as co-chair of the President's Information Technology Advisory Committee from 2003 to 2005, and as co-chair of the Networking and Information Technology Research and Development Working Group of the President's Council of Advisors on Science and Technology in 2010. A long-time advocate for increasing women's participation in the field, Lazowska serves on the Executive Advisory Council of the National Center for Women & Information Technology, and on the National Academies Committee on Women in Science, Engineering, and Medicine. He received his A.B. in computer science from Brown University in 1972 and his Ph.D. in computer science from the University of Toronto in 1977, when he joined the University of Washington faculty.

Vicki J. Magley is a professor in the Department of Psychological Sciences at the University of Connecticut in Storrs, Connecticut. The main focus of her research lies within the domain of occupational health psychology and combines both organizational and feminist perspectives in the study of workplace sexual harassment and incivility. Specifically, she is interested in understanding how individuals cope with and organizations manage such mistreatment. Much of her research has derived from consulting with organizations in understanding their climate of mistreatment and in evaluating interventions designed to alter that climate. Magley is a past president of the Society for Occupational Health Psychology, chairs the Industrial/Organizational Division at UConn, and is principal investigator on a National Institute for Occupational Safety and Health–funded training grant in Occupational Health Psychology. She earned her Ph.D. in 1999 from the University of Illinois at Urbana-Champaign in social/organizational psychology.

Roberta Marinelli is the dean of the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University. She was executive director of the Wrigley Institute for Environmental Studies at the University of Southern California. Marinelli was at the University of Southern California from 2011 to 2016. Prior to that, she was program director for Antarctic Organisms and Ecosystems for the National Science Foundation's (NSF) Antarctic Sciences Division and earlier had been associate program director for NSF's Antarctic Biology and Medicine program. She also has been a researcher and faculty member at the University of Maryland Center for Environmental Science and the Skidaway Institute of Oceanography at the University System of Georgia. Marinelli has a bachelor's

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degree in environmental studies from Brown University, and a master's degree and doctorate in marine science from the University of South Carolina.

Constance A. Morella represented Maryland's 8th congressional district in the U.S. House of Representatives from 1987 to 2003. She also served as permanent representative to the Organisation for Economic Co-operation and Development from 2003 to 2007. She currently serves on American University's faculty as an ambassador in residence for the Women & Politics Institute. She was appointed to the American Battle Monuments Commission in 2010. While representing Maryland's 8th congressional district, Morella developed a national reputation as a leading advocate for women, children, and families. Previously, she served in the Maryland House of Delegates and is the only woman member of the Maryland General Assembly to be elected to the U.S. Congress. During her 16 years in the House of Representatives, Morella was a leader in efforts to promote economic growth through science and technology, serving as a member of the House Committee on Science and chairing the Subcommittee on Technology. Prior to her service in the U.S. Congress and the Maryland House of Delegates, Ambassador Morella was a professor of English at Montgomery College in Rockville, Maryland, from 1970 to 1985. In 2008 she was a resident fellow at Harvard University's Kennedy School Institute of Politics. She was appointed ambassador in residence at American University School of Public Affairs, where she teaches "Women, Politics, and Public Policy." Morella holds a B.A. from Boston University, an M.A. from American University, and 12 honorary degrees.

John B. Pryor is distinguished professor emeritus of psychology at Illinois State University. Pryor received his Ph.D. in psychology from Princeton University in 1977 and began teaching at Illinois State University in 1985. He was the director of the College of Arts and Sciences Research Office from 1995 to 1998 and was acting chair of the Department of Psychology in 1998–1999. He is a fellow at the Association for Psychological Science and at the American Psychological Association and is a member of the Midwestern Psychological Association and the Society for Experimental Social Psychology. He is also past president of the Midwestern Psychological Association. Pryor has been a contributor to the sexual harassment research literature for more than 30 years, and his research on sexual harassment has established his credentials as a consultant retained by the U.S. Equal Employment Opportunity Commission and the Department of Justice, as well as law firms from Rhode Island to Hawaii.

Billy M. Williams serves as vice president for ethics, diversity, and inclusion at the American Geophysical Union (AGU), where he has responsibility as the senior staff partner for leading all aspects of AGU's ethics- and equity-related programs. Immediately prior, he served as director of science at AGU. Williams was the principal investigator (PI) and lead organizer for the September 2016

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National Science Foundation (NSF)–funded workshop *Sexual Harassment in the Sciences: A Call to Respond*, and serves as a co-PI on the 2017 NSF Grant, *ADVANCE Partnership: From the Classroom to the Field: Improving the Workplace in the Geosciences*. Prior to joining AGU, he served as a senior program officer at the National Academies of Sciences, as a global research and development director at the Dow Chemical Company, and as the director of Dow's External Science and Technology Programs. Williams earned his B.S. in chemistry from the University of North Carolina at Chapel Hill and an M.S. in organic chemistry from Central Michigan University.

STAFF

Frazier Benya is a program officer with the Committee on Women in Science, Engineering, and Medicine (CWSEM) at the National Academies of Sciences, Engineering, and Medicine. Benya's work focuses on ensuring that science, engineering, and medicine are ethical and socially responsible, both in their practice and in who gets to participate in the work. Before joining the CWSEM staff, Benya worked with the National Academy of Engineering from 2011 to 2017, during which time she managed projects for its Center for Engineering Ethics and Society and co-lead the effort to expand and enhance the NAE Online Ethics Center (OEC) for Engineering and Science website. Her work with the NAE focused on improving and enhancing engineering ethics education and on analyzing the pathways engineers take from education to the workforce. Benya holds a B.A with honors in Science, Technology and Society from the University of Puget Sound, and a M.A. in Bioethics and Ph.D. in History of Science, Technology, and Medicine from the University of Minnesota. Her Ph.D. focused on the history of bioethics and scientific social responsibility during the 1960s and 1970s that led to the creation of the first federal bioethics commission in 1974. Her M.A. examined different types of institutional methodologies for considering the social implications of science with a focus on those that integrate scientific research with ethics research in the United States and Canada. Benya was elected a Fellow of the American Association for the Advancement of Sciences in 2017.

Ashley Bear is a program officer with the Board on Higher Education and Workforce at the National Academies of Sciences at the National Academies of Sciences, Engineering, and Medicine. Before joining the National Academies, Bear was a presidential management fellow with the National Science Foundation's (NSF) Division of Biological Sciences, where she managed a portfolio of mid-scale investment in scientific infrastructure and led analyses of the impacts of NSF funding on the career trajectories of postdoctoral researchers. During her fellowship years, Bear also worked as a science policy officer of the State Department's Office of the Science and Technology Adviser to the Secretary of State, where she worked to promote science diplomacy and track emerging scientific

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trends with implications for foreign policy, managed programs to increase the scientific capacity of the State Department, and acted as the liaison to the bureau of Western Hemisphere Affairs and the bureau of East Asian and Pacific Affairs. Bear holds a SC.B. in neuroscience from Brown University and a Ph.D. in ecology and evolutionary biology from Yale University.

Irene Ngun is a research associate with the Board on Higher Education and Workforce (BHEW) at the National Academies of Sciences, Engineering, and Medicine. She also serves as research associate for the Committee on Women in Science, Engineering, and Medicine (CWSEM), a standing committee of the National Academies. Before joining the National Academies she was a congressional intern for the U.S. House Committee on Science, Space, and Technology (Democratic Office) and served briefly in the office of Congresswoman Eddie Bernice Johnson of Texas (D-33). Ngun received her M.A. from Yonsei Graduate School of International Studies (Seoul, South Korea), where she developed her interest in science policy. She received her B.A. from Goshen College in Biochemistry/Molecular Biology and Global Economics.

Kellyann Jones-Jamtgaard, is the career academy liaison at the Partnership for Regional Educational Preparation-Kansas City (PREP-KC), an education nonprofit that focuses on college and career preparation for urban school districts. Jones-Jamtgaard was a 2017 Christine Mirzayan Science and Technology Policy Fellow assigned to the Committee on Women in Science, Engineering, and Medicine at the National Academies of Sciences, Engineering, and Medicine. Appointed by Mayor Sly James, Jones-Jamtgaard currently serves as a commissioner on the Kansas City Health Commission, a group tasked with improving public health in Kansas City, Missouri, and co-chairs the Commission's Birth Outcomes subcommittee. Jones-Jamtgaard holds a B.S. in biology and Spanish from Duke University and a Ph.D. in microbiology from the University of Kansas Medical Center (KUMC). Her doctoral research focused on alterations in cellular trafficking during Hepatitis C virus infection. During graduate school, Jones-Jamtgaard was a member of the Committee for Postdocs and Students through the American Society for Cell Biology co-chairing its career development subcommittee and serving as a liaison to the Public Policy and Minority Affairs committees. Jones-Jamtgaard is committed to improving science education and being an advocate for women in science and medicine. She was recently recognized with the naming of the Kellyann Jones-Jamtgaard Student Diversity Award at KUMC in her honor.

Alex Helman was a 2018 Christine Mirzayan Science and Technology Fellow for the Committee on Women in Science, Engineering, and Medicine. She is a Ph.D. candidate in biochemistry at the University of Kentucky and holds a B.S. in biochemistry from Elon University. Her dissertation research examines cere-

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brovascular contributions to cognitive impairment and dementia, particularly in individuals with Down syndrome. Helman currently serves as the Congressional Ambassador for the Alzheimer's Association, where she serves as the main point of in-district contact between the association and the representative for KY-6. As an advocate for science policy issues, she served on the organizing committee for the Lexington March for Science and has held numerous positions focused on science outreach for various campus organizations. She is passionate about retention of underrepresented minorities in Science, Technology, Engineering and Medicine, improving campus climates, and creating sound health policies for our aging population.

Tom Rudin is the director of the Board on Higher Education and Workforce at the National Academies of Sciences, Engineering, and Medicine—a position he assumed in mid-August 2014. Prior to joining the National Academies. Rudin served as senior vice president for career readiness and senior vice president for advocacy, government relations and development at the College Board from 2006-2014. He was also vice president for government relations from 2004-2006 and executive director of grants planning and management from 1996-2004 at the College Board. Before joining the College Board, Rudin was a policy analyst at the National Institutes of Health in Bethesda, Maryland. In 1991, he taught courses in U.S. public policy, human rights, and organizational management as a visiting instructor at the Middle East Technical University in Ankara, Turkey. In the early 1980s, he directed the work of the Governor's Task Force on Science and Technology for North Carolina Governor James B. Hunt, Jr., where he was involved in several new state initiatives, such as the North Carolina Biotechnology Center and the North Carolina School of Science and Mathematics. He received a B.A. degree from Purdue University, and he holds master's degrees in public administration and in social work from the University of North Carolina at Chapel Hill.

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Appendix B

Committee Meeting and Workshop Agendas

Agenda for the First Committee Meeting
February 10, 2017
Using WebEx Virtual Meeting

Friday, February 10, 2017

10:00 am – 10:45 am	***Closed Sessions*** Committee Welcome and Introductions
10:45 am – 11:00 am	***Break for Guests to Join the Meeting***
11:00 am – 3:00 pm	***Open Sessions***
11:00 am – 12:00 pm	***Committee Reviews the Goals of the Study***. • Co-Chairs introduce the project and the statement of task • Co-Chairs and staff address any questions regarding the statement of task and scope of work
12:00 pm – 12:30 pm	***Lunch Break***
12:30 pm – 2:00 pm	***Introduction and Conversation with Sponsors*** • Joan Frye, NSF • Hannah Valantine, NIH • Carlotta Arthur, Luce Foundation • Judy Glaven, Howard Hughes Medical Institute

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- David R. Chambers, NASA
- Rear Admiral Anita Lopez, NOAA

2:00 pm – 3:00 pm ***Discussion with Anita Hill***

- Anita Hill, University Professor of Social Policy, Law, and Women's, Gender and Sexuality Studies at Brandeis University

3:00 pm – 3:15 pm ***Break for Guests to Depart***

3:15 pm – 4:15 pm ***Closed Session***
Committee discusses the goals of the study in response to comments from Sponsors and Anita Hill

4:15 pm ***Meeting Adjourns***

Agenda for the Second Committee Meeting
March 28–29, 2017
Washington, DC

Tuesday, March 28, 2017

United States Institute of Peace
2301 Constitution Avenue NW

8:30 am – 9:00 am ***Closed Session***
8:30 am – 5:30 pm Committee discussions/Information Gathering Plans
8:30 am – 9:00 am ***Registration and Breakfast Available***
9:00 am – 9:15 am ***Welcome and Opening Remarks***
Paula Johnson, Committee Co-Chair, Wellesley College
Sheila Widnall, Committee Co-Chair, Massachusetts Institute of Technology

9:15 am – 10:45 pm ***Session 1: Strategies for Addressing Sexual Harassment at Professional and Scientific Society Meetings***
Moderator: Billy Williams, American Geophysical Union

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Panelists:
Sherry Marts, Smarts Consulting
Dara Norman, Chair of the Ethics Task Force, American Astronomical Society
Chris McEntee, American Geophysical Union
Diana Lautenberger, Association of American Medical Colleges

10:45 am – 11:00 am ***Coffee Break***

11:00 am – 12:30 pm ***Session 2: Promising Practices for Training***
Moderator: Vicki Magley, University of Connecticut
Panelists:
Eden King, George Mason University
Sharyn Potter, University of New Hampshire
Susan Divers, LRN (Tentative)
Justine Tinkler, University of Georgia

12:30 pm – 1:15 pm ***Lunch Break***

1:15 pm – 2:45 pm ***Session 3: Challenges, Opportunities, and Approaches for Addressing Sexual Harassment in Academic Institutions***
Moderator: Ed Lazowska, University of Washington
Panelists:
Myra Hindus, Creative Diversity Solutions
David Mogk, Montana State University
Shereen Bingham, University of Nebraska
Fran Sepler, Sepler & Associates

2:45 pm – 3:00 pm ***Coffee Break***

3:00 pm – 4:30 pm ***Session 4: Policy Interventions to Address Sexual Harassment in Academia***
Moderator: Connie Morella, Former Congresswoman for Maryland
Panelists:
Miriam Goldstein, Legislative Director for Representative Jackie Speier's Office
Sharon Masling, U.S. Equal Employment Opportunity Commission
Janet Koster, Association for Women in Science

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4:30 pm – 5:30 pm ***Public Comment***

5:30 pm ***Workshop Adjourns***

5:30 pm – 6:30 pm ***Closed Session***
Committee Discussion to Reflect on Workshop Presentations

Wednesday, March 29, 2017
National Academies Keck Building, Room 105
500 Fifth St. NW

9:00 am – 4:00 pm ***Closed Session***
Review of National Academies Process and Conflict of Interest and Bias and Committee Discussion on Next Steps

Agenda for the Third Committee Meeting
June 20–21, 2017
Arnold and Mabel Beckman Center
100 Academy Drive
Irvine, CA

Tuesday, June 20, 2017

8:30 am – 9:00 am ***Closed Session***
Committee Breakfast and Discussion of Key Stakeholders for the Report

8:30 am – 9:00 am ***Registration and Breakfast Available***

9:00 am – 9:15 am ***Welcome Remarks and Background on the Study***
Paula Johnson, Committee Co-Chair, Wellesley College
Sheila Widnall, Committee Co-Chair, Massachusetts Institute of Technology
Tom Rudin, Acting Director of the Committee on Women in Science, Engineering, and Medicine

9:15 am – 9:45 am ***Remarks and Discussion with NAS President***
Marcia McNutt, President of the National Academy of Sciences

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9:45 am – 10:30 am	***Gender Salience and Racial Frames, Potential Potholes for Women in Science: Understanding the Context Before and the Potential Consequences of Sexual Harassment*** Enobong (Anna) Branch, University of Massachusetts at Amherst
10:30 am – 10:45 am	***Coffee Break***
10:45 am – 11:45 am	***Sexual Harassment: Moving from Institutional Betrayal to Institutional Courage*** Jennifer Freyd, University of Oregon
11:45 am – 1:00 pm	***Lunch***
1:00 pm – 2:15 pm	***Handling Sexual Harassment at the Institutional Level*** *Moderator: Alice Agogino, Committee Member, University of California, Berkeley* *Panelists:* Kirsten Quanbeck and Diane O'Dowd, University of California, Irvine Enobong (Anna) Branch, University of Massachusetts at Amherst
2:15 pm – 2:45 pm	***Public Comment Session***
2:45 pm – 3:00 pm	***Coffee Break***
3:00 pm – 4:30 pm	***Preventing and Handling Sexual Harassment*** *Moderator:* Beth Hillman, Committee Member, Mills College *Panelists:* Heather Flewelling and Katherine Alatalo, Astronomy Allies Jackson Katz, Mentors in Violence Prevention (MVP) program Saira Jesrai, LRN
4:30 pm	***Workshop Adjourns***

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4:45 pm – 5:30 pm ***Closed Session***
Committee Discussion to Reflect on Workshop Presentations

Wednesday, June 21, 2017

8:30 am – 5:00 pm ***Closed Session***
Committee member presentations and subcommittee discussions

Fourth Committee Meeting
For the Committee on the Impacts of Sexual Harassment in Academia
October 4–5, 2017
Hyatt Regency Cambridge
575 Memorial Dr.
Cambridge, MA 02139

Wednesday, October 4, 2017

8:15 am – 10:30 am ***Closed Session***
Discussion of Report Outline and Key Findings

10:30 am – 11:30 am ***Academic Institutions Addressing Sexual Harassment: Legal and Sociological Perspectives***
Moderator: Anna Kirkland, University of Michigan
Presenters:
Joanna Grossman, Southern Methodist University
Frank Dobbin, Harvard University

11:30 am – 12:15 pm ***Lunch***

12:15 pm – 1:30 pm ***Student and Postdoc Perspectives on University Policies and Strategies for Addressing Sexual Harassment***
Moderator: Lilia Cortina, University of Michigan
Panelists:
Kate M. Sleeth, National Postdoctoral Association
Jessica Polka, Future of Research and Whitehead Institute
Claire Mackay Dickey, Graduate and Professional Student Title IX Advisory Board, Yale University
Priya Moni, Graduate Community Fellow in Violence Prevention and Response, Massachusetts Institute of Technology

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1:30 pm – 1:45 pm	***Break***
1:45 pm – 3:00 pm	**Sexual Harassment Among Students in Science, Engineering, and Medicine** *Moderator: Kevin Swartout, Georgia State University* *Presenter:* Rose Marie Ward, Miami University Adam Christensen, Pennsylvania State University System
3:00 pm	***Concluding* Remarks and Public Meeting Adjourns**
3:15 pm – 6:30 pm	***Closed Session*** Consultants presentation and committee discussion

Thursday, October 5, 2017

8:00 am – 5:15 pm	***Closed Session*** Committee discussion on research results, report outline, and findings, conclusions, and recommendations.

Agenda for Fifth Committee Meeting
October 25, 2017
Virtual Meeting via WebEx

3:00 pm – 4:30 pm	**Panel Discussion on Federal Research Misconduct Policies and Processes and Sexual Harassment: Lessons Learned and Possible Connections** *Moderator: Tom Arrison, National Academies, study director for the report on Fostering Integrity in Research* *Panelists*: • Susan J. Garfinkel, Director, Division of Investigative Oversight, Office of Research Integrity, Department of Health and Human Services • Robert Cosgrove, NSF Equal Opportunity Program Manager (Compliance)

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- Ann M. Arvin, Vice Provost and Dean of Research at Stanford and committee member for the National Academies study on Fostering Integrity in Research.
- C. K. Gunsalus, Director of the National Center for Professional & Research Ethics and committee member for the National Academies study on Fostering Integrity in Research.

Agenda for Final Committee Meeting
January 11–12, 2018
National Academy of Sciences Building, Room 125
2101 Constitution Ave. NW
Washington, DC

Thursday, January 11, 2018

8:30 am – 12:00 pm	***Closed Session*** Discussion of meeting goals and discussion on conclusions and recommendations
12:00 pm – 1:30 pm	***Open Session*** Lunch with congressional staff to hear thoughts on this issue in academia and how it relates to the work of their representative
1:30 pm – 6:00 pm	***Closed Session*** Small groups revise conclusions, recommendations, and supporting text in response to committee discussion

Friday, January 12, 2018

8:15 am – 4:00 pm	***Closed Session*** Committee discussion of small group revisions and sign-off on planned revisions, conclusions, and recommendations.

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Appendix C

Qualitative Study of Sexual Harassment in Sciences, Engineering, and Medicine

Prepared for

National Academies of Sciences, Engineering, and Medicine
Committee on the Impacts of Sexual Harassment in Academia
500 Fifth St. NW
Washington, DC 20001

Prepared by

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RTI Project Number 0215835.000.00

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1. STUDY PURPOSE AND AIMS

The Committee on the Impacts of Sexual Harassment in Academia of the National Academies of Sciences, Engineering, and Medicine (NASEM) commissioned this study to understand the influence of sexual harassment on the career advancement of women in sciences, engineering, and medicine (SEM), particularly in the higher education and medical settings. The National Academies contracted with a research team at the Center for Justice, Safety, and Resilience at RTI International, a not-for-profit research institute, to investigate the following research questions:

1. How do women who are targeted for sexual harassment in sciences, engineering, and medicine characterize and understand those experiences?
2. How do women who are targeted for sexual harassment respond to their experiences in the short term (including immediate psychological and coping responses; reporting and other help seeking; and immediate changes in work habits, research focus or professional specialty, and collaborative or mentoring relationships)?
3. How do women who are targeted for sexual harassment understand their experiences to have shaped their career trajectories (including long-term ramifications for work habits, research focus or professional specialty, collaborative or mentoring relationships, job opportunities, job advancement and tenure, research funding, and publications)?
4. What barriers or challenges do respondents believe prevent sexual harassment in sciences, engineering, and medicine from being addressed (in terms of both prevention and response)?
5. What strategies for preventing and responding to sexual harassment in sciences, engineering, and medicine do respondents perceive as promising?

2. METHODS

NASEM opted for the methodology best suited to understanding these complex, sensitive, and subjective experiences and their impacts: a qualitative study consisting of individual, semi-structured interviews with women who have been targets of sexual harassment. Qualitative inquiry is widely recognized as the method of choice for generating insight into complex phenomena, the contexts in which they occur, and their consequences.[1] Such methods are understood to be particularly well suited to foregrounding and illuminating the experiences and perceptions of those considered to be victims and others whose perspectives

[1] Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage.

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have been little voiced, or whose expected experiences have few precedents in prior research.[2]

2.2 Data Collection Approach

RTI collaborated with NASEM membership to recruit participants for 40 individual interviews. A secure, web-based eligibility form was developed to screen prospective respondents for the following criteria: self-identified women faculty working in SEM disciplines at research institutions who had experienced one or more behaviors meeting the definition of sexual harassment (defined in behaviorally specific terms in the form, not just listed as "sexual harassment") in the last 5 years. An invitation to complete this form was sent to a list of national and regional scientific society and professional association listservs by RTI and NASEM membership. RTI and NASEM focused resources on identifying and connecting with member listservs and similar communication tools that were centered on scholars of color or those who identified as lesbian, gay, bisexual, transgender, or queer (LGBTQ+). RTI used data from the web form to purposefully select from among eligible individuals to ensure representation of women of color and LGBTQ+ women; women across fields, subfields, and career stages; women from diverse geographic regions (with the aim of representing those in more conservative as well as more liberal areas of the country); and individuals who did and did not report their experiences and who did and did not stay at the institution where those experiences occurred. Of the 340 women who completed the screening tool, 65 were determined to be eligible, 48 were contacted for interviews, and 40 completed interviews.

Individuals selected for interviews were contacted using their preferred names or pseudonyms and preferred modes of contact (e-mail or phone) and scheduled for a telephone interview with an experienced qualitative interviewer with expertise in victimization research. Appointments were made for a time when the respondent expected to be in a private location where she could speak comfortably about her experiences. Individuals who completed the screening form but were not selected to participate in an interview were thanked and notified at the end of the recruitment period, using their preferred mode of contact, that they had not been selected. Prospective interviewees who provided informed consent via telephone proceeded to participate in an audio-recorded, semi-structured interview lasting approximately 1 hour that covered the following topics:

- Understanding of sexual harassment (e.g., experiences considered to constitute sexual harassment).

[2] Sofaer, S. (1999). Qualitative methods: What are they and why use them? *Health Services Research, 34*(5 Pt 2), 1101.

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- History of sexual harassment experiences in the workplace in the last 5 years.
- Responses to those experiences (e.g., disclosure, internal response, changes in work life, formal procedures for reporting).
- Perceived impact of sexual harassment on work and career path.
- Ideas of what could be done to prevent or better respond to such incidents.

Following the interview, respondents were sent a thank-you e-mail with a list of resources, a small token of appreciation ($15 Amazon gift code), information about the expected release of study findings, and contact information for the study team and Institutional Review Board.

2.3 Analytic Approach

Recordings of all interviews were professionally transcribed, and basic identifiers (such as respondents' names and locations and the institutions where they worked) were removed during transcript preparation. De-identified transcripts were then loaded into ATLAS.ti, a qualitative data analysis software package. A codebook was developed jointly by the analysis team, incorporating deductive codes based on the study research questions, and inductive codes to capture themes that emerged during the coding and data review process. Queries of coded data were run in ATLAS.ti to capture segments of text that focused on each research question. Analysts read the code reports for these queries, identified salient themes, and met to discuss how these themes addressed each research question. Analytic memos were used to develop and expand themes, and key themes and the exemplary quotations associated with them were tracked in an Excel spreadsheet.

2.4 Sample Characteristics

Respondents came from an array of backgrounds representing various demographics. The largest proportion of respondents (42.5 percent) came from institutions in the South; a fifth came from the Midwest and another fifth came from the West.[3] The remaining respondents (17.5 percent) were located in the Northeast. An overwhelming proportion of respondents identified as non-Hispanic or Latino (92.5 percent). Most respondents were white (82.5 percent). Nonwhite respondents were either Asian (12.5 percent) or black or African American (5 percent). All respondents identified as cisgender. Most of the sample (85 percent) identified as heterosexual, and the remaining 15 percent identified as bisexual or pansexual.

Study respondents had a wide range of professional experience. Just over

[3] The geographic composition of the study sample reflected the priority given to recruiting participants from more conservative as well as more liberal areas of the United States.

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half of the respondents (55 percent) were junior faculty or professionals; that is, 10 years or fewer had elapsed from the time they earned their professional degree. The remaining respondents reported either being senior faculty or professionals, defined as those for whom more than 10 years had elapsed since their professional degree (42.5 percent), or chose not to answer this item (2.5 percent). Respondents worked across the SEM fields, with half of the sample in the sciences (50 percent), and roughly one-quarter each in engineering (27.5 percent) and medicine (22.5 percent).

Before discussing the respondents' most impactful incidents, interviewers asked each respondent a series of yes-or-no questions about the types of experiences they had had over the past 5 years. Respondents most commonly reported having experienced sexist remarks or jokes about women or transgender persons (92.5 percent), followed by inappropriate comments about someone else's body, appearance, or attractiveness (72.5 percent). Just over half of respondents (52.5 percent) indicated they had experienced unwanted, offensive sexual jokes, stories, or pictures shared in person or electronically. Half (50 percent) experienced unwanted touching. Unwanted sexual advances and pressure to agree to sex or a romantic relationship were less common, but each practice was still separately reported by over a quarter of participants (27.5 percent). Fewer than one in three respondents (30 percent) made formal reports with their institutions about the incident(s) they experienced. Institutional retention followed a similar pattern: 37.5 percent of respondents remained at the institution where they experienced their most impactful incident.

3. RESULTS

Findings for Research Question 1: How do women who are targeted for sexual harassment in sciences, engineering, and medicine characterize and understand those experiences?

3.1 Sexual Harassment and Gender-related Climate

Range of Behaviors and Recognizing Them as Sexual Harassment. On the basis of the screening procedure used for the study, all interviewees had experienced at least one behavior in the last 5 years that was understood by researchers to constitute sexual harassment, and many had experienced several (see Section 2.3). During the interview, they were also asked to identify which of the experiences they disclosed from the last 5 years had been most impactful. These responses varied, and included sexual advances, lewd jokes or comments, disparaging or critical comments related to competency, unwanted sexual touching, stalking, and sexual assault by a colleague. One respondent observed that most persons understood sexual harassment primarily in terms of unwanted sexual advances,

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but that gender-based harassment in academic settings was both widespread and impactful:

> Most of them are demeaning the woman, shutting her up in the workplace, demeaning her in front of other colleagues, telling her that she's not as capable as others are, or telling others that she's not [as] sincere as you people are . . . I think more stress should be on that. It's not just, you know, touching or making sexual advances, but it's more of at the intellectual level. They try to mentally play those mind games, basically so that you wouldn't be able to perform physically. (*Assistant professor of engineering*)

At the time of their interviews, most respondents characterized their experiences as sexual harassment. However, some respondents noted that they had not immediately recognized those experiences as such.

Institutional Climate of Gender Discrimination. Delayed awareness of sexual harassment was heavily influenced by the pervasive acceptance of gender-discriminatory behavior within the academic context. Many respondents reported that they were the only woman or one of a few women within their departments. Gender discrimination was often normalized in the male-dominated settings in which they worked, which interviewees felt had fueled sexually harassing behavior, fostered tolerance of it, and made differentiating it as such difficult.

3.2 Additional Contextual Influences on Sexual Harassment

Respondents noted several issues that tied into the general climate of accepting sexual harassment. Unique settings such as medical residencies were described as breeding grounds for abusive behavior by superiors, largely because at this stage of the medical career, expectation of this behavior was widely accepted. The expectations of abusive, grueling conditions in training settings caused several respondents to view sexual harassment as a part of the continuum of what they were expected to endure.

> But, the thing is about residency training is everyone is having human rights violations. So, it's just like tolerable sexual harassment. (*Nontenure-track faculty member in medicine*)

Similarly, expectations around behavior were often noted as an "excuse" for older generations of faculty, primarily men, to perpetrate sexually harassing behavior. Many noted that the "old guard," in perpetrating this type of behavior, was doing what they have always done and was not likely to change, because of a general acceptance within academic settings.

> This is kind of a new thing that—and the mindset is so ingrained, like the people that say these things, they don't even realize that they are—so their intent is not

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> to sexually harass people, but they do it automatically, and they don't even think about it. (*Professor in geosciences*)

The normalization of sexual harassment and gender bias was also noted as fueling this behavior in new cohorts of sciences, engineering, and medicine faculty. Respondents discussed the disheartening experiences of colleagues who entered training settings with nonbiased views and respectful behavior, but who concluded those experiences endorsing or dismissing sexually harassing and gender-biased behavior among themselves and others.

> I still don't think that the prospect of being sexually assaulted was as bad as watching the next generation of sexual harassers being formed. I think that was the worst part for me. (*Nontenure-track faculty member in medicine*)

This was further heightened when peers and colleagues had privilege because of "star power" or simply because of their status as men. The behavior of male colleagues whom higher-ranking faculty or administrators perceived as "superstars" in their particular substantive area was often minimized or ignored. Even men who did not have the superstar label were often described as receiving preferential treatment and excused for gender-biased and sexually harassing behavior.

> I think also sometimes people are blinded by good signs and shiny personalities. Because those things tend to go hand in hand. You don't want to think that this person who's doing incredible work in getting all of these grants, is also someone who has created a negative environment for others. I've seen this over and over again. (*Nontenure-track faculty member in psychology*)

Recurring Patterns of Sexually Harassing Behavior. One theme that emerged in the data was that respondents and other colleagues often clearly knew which individuals had a history of sexually harassing behavior. The warnings were provided by both male and female colleagues, and were often accompanied by advice that trying to take actions against these perpetrators was fruitless and that the best options for dealing with the behavior were to avoid or ignore it. Many respondents described the dialogue among women faculty to warn about or disclose sexually harassing behaviors as an unfortunate shared bond that was far too often the norm.

> It's more calling them to discuss the tribal experience and just hear the yeah, I've dealt with it too, and it sucks and no, I don't have any ideas for how to fix it, but this isn't only happening to you, which is kind of the bonding moment. (*Assistant professor of engineering*)

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Intersectionality and Sexually Harassing Behavior. Sexual harassment is a complex issue; however, it becomes even more complicated when it intersects with racism, transphobia, homophobia, and other discriminatory views. Women of color and LGBTQ+ respondents, although scarce among our interviewees, indicated that sexual harassment and other gender-biased behavior was a common experience for them. They noted, however, that the issues of sexual and gender-based harassment are often overpowered by how other issues, such as their race and sexual orientation, intersect with their lived experience as women. These women noted an inability to disentangle discrimination and biases as stemming either from gender or their intersecting identities.

> And then there's a lot of fairly overt transphobia in my institution, I think. And I don't really know what to make of it. But there's sort of . . . traditional old Southern set of gendered expectations and norms that if you don't fit them, it's pretty clear what people think, and they don't have to say a lot about it for you to know, you know what I mean? (*Nontenure-track faculty member in nursing*)

> . . . what I've concluded is that [much] of my push towards and tenacity around equality and equity actually lands on race. I think part of that is because I've been more affronted by my race than my gender, at least more overtly. Meaning, I've had people say to my face I don't want to be taking care of that black person, oh, you speak articulate for a black person. These micro-aggressions that go out there and statements and these innuendos. (*Nontenure-track faculty member in medicine*)

Findings for Research Question 2: How do women who are targeted for sexual harassment respond to those experiences in the short term?

3.3 Psychological and Coping Responses

Emotional Responses. Respondents' immediate reactions to their experiences with sexual harassment varied substantially along a spectrum from mild irritation to complete devastation. Not surprisingly, some of the variation in responses was related to the severity of the incident. However, verbal harassment that took place in front of others (most commonly, colleagues) was also particularly upsetting for several respondents, who recalled how difficult it was to retain their composure while experiencing severe inner turmoil, and how alone or isolated they felt when others present did not appear to be bothered by the incident. Also, incidents that caught respondents completely off guard—which was fairly common—also caused substantial distress, with many respondents indicating that they felt "frozen" or "paralyzed" in the immediate aftermath of an incident.

> At first it knocked the wind out of me and it took a while to come to grips with it. . . . Even after all these years it was a sucker punch. . . . It's just a tough one

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> when people surprise you with a comment that's out of nowhere, it's inappropriate and it just kind of hangs in the room. (*Professor of engineering*)

Other common reactions were feeling angry, uncomfortable, hurt, fearful, anxious, violated, and powerless.

> It's mostly anger, because this wouldn't happen to a man. And it's always—it marginalizes you in ways that you just can't deal with. But I mostly get angry at the system also because the power structure is built such that you feel helpless in doing anything. (*Associate professor of chemistry*)

Many respondents also reported experiencing consequences such as stress responses, depression, posttraumatic stress disorder, and even physical health effects in the aftermath. Some respondents reacted so strongly that they were embarrassed by how much the incident(s) bothered them.

> I try to think of myself as being a strong person, you know? But it definitely had an impact on me, and I was embarrassed that it had such an impact on me, too. I was mortified that I[had] broken down in tears, 'cause it was kind of difficult for me. . . . I was mortified and embarrassed that I let that have such a big impact on me. (*Associate professor of engineering*)

Several respondents began to question their self-worth after the incident and became less confident. Some noted adverse effects in their personal lives because of the agitation and stress experienced. Further, although the focus of the interviews was on short-term psychological responses, some respondents—particularly those who experienced severe incidents—noted that it has taken them considerable time to recover, and several stated that they often relive the experience when this topic comes up. The diminished confidence appeared difficult for some respondents to overcome. Last, several women experienced long-term shame or self-blame for the harassment they experienced or for their decision to not report it.

Coping Strategies. Internal coping responses in the aftermath of sexual harassment included minimizing or normalizing the incidents (e.g., trying to ignore or laugh it off, not taking it personally); strategizing about how to be better prepared to respond to future incidents (or to redirect the person); engaging in mindfulness, spiritual, and self-healing activities; exercise or physical activity; trying to get tougher; and staying focused on their careers. External coping strategies (e.g., peer support, therapy) are discussed later in this section, and increased involvement in gender equity efforts is discussed in the findings for Research Question 3.

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3.4 Immediate Changes in Interpersonal Interactions and Work Habits

Interpersonal Interactions. The most common interpersonal response by far was avoiding the perpetrator. Some respondents avoided all interaction (with some even relocating their offices), whereas others took steps to simply avoid being alone with the perpetrator. Along with the obvious impact on the relationship with the perpetrator, some women noted changes in their relationships with colleagues and administrators, depending on how they reacted to knowledge of the incident (if disclosed). Some relationships were damaged by negative reactions, but others were strengthened by strong support and helpfulness.

Work Habits. Respondents identified a number of changes to their work habits or immediate consequences to their work situation as a result of the incident(s), including a short-term inability to work, immediately considering quitting, avoiding working late in the office, avoiding being alone with any colleagues (not just the perpetrator), and feeling constantly "on guard" at work. Several respondents also identified appearance-related changes made as a result of their experiences, such as avoiding any form-fitting clothing and generally becoming more strategic about how they dressed (which respondents operationalized quite differently, depending on the nature of their harassment). One respondent who was criticized for not meeting heteronormative standards of dress in her field purchased several jackets to wear.

3.5 Choosing to Disclose or Confront Harassment

Choosing to Disclose. Faced with the experience of sexual harassment in their workplaces, many respondents felt as if they had limited choices in how to address it so it would not adversely affect their career.

> Well, literally I considered just letting him sexually assault me. I really did consider how difficult that would be to just you know, like deal with. And with that I think that my career would have been much better off. (*Nontenure-track faculty member in medicine*)

Stark power differentials between the target and perpetrator of the sexual harassment exacerbated the sense of limited options and the general fear of disclosure. Although the targets of sexual harassment ranged in status within the academic hierarchy, those respondents who felt the least empowered in disclosing or addressing the sexually harassing behavior were often newer faculty, residents, and postdocs, whereas their perpetrators were often higher-ranking faculty, professional mentors, or widely recognized experts. As one faculty member explained:

> I didn't feel like I had an option in that situation. I think ordinarily, I might have done something and I think one of the things about being on the tenure track

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> that's been a little bit upsetting is that you end up feeling somewhat powerless in certain situations where you normally might not have. (*Assistant professor of engineering*)

Perceived threats to tenure prospects; ability to freely pursue research and scientific stature opportunities; and threats to physical, emotional, and mental health were paramount as women who experienced harassment weighed the options available to them.

3.6 Confronting Perpetrators

Some women chose to directly confront the individuals who were harassing them. Specific strategies varied and included one-on-one conversations and meetings with an accompanying ally. One study participant, who was concerned that she would face negative consequences if she reported the sexual harassment formally, initiated a two-stage communication in which she laid out explicit behavioral expectations for her harasser and secured his agreement to those terms—first in private conversation, and later (when he violated that verbal agreement) in writing. Other women noted that they had considered confronting their perpetrators, but decided against it.

> Say it was just a friend or something like that, there's more of an equal relationship with the person . . . you could just say, "Can you just stop hugging me?" or "I'm just not comfortable with that." But the issue with this situation is that he's got power over me that could destroy my career. (*Assistant professor of mathematics*)

Although women who initiated direct confrontation with their perpetrators typically reported positive or neutral results, it was not seen as a viable strategy for those navigating a steep power differential.

3.7 Formal Reporting

Motivations for Reporting. Whether interviewees had reported their experiences to direct managers or used the university-level process or not, they described three primary motivations for reporting. First, some women reported in hopes of bringing an end to the harassment, particularly to limit or mitigate its damaging effects on their work. Second, others were inspired by the hope of protecting other women from experiencing what they had experienced.

> She was like, "Can you live with yourself if he does this to someone else?" And, that was like the thing I couldn't live with. The next thing I think of are the students at our university and undergrads. And so that convinced me to go forward. (*Nontenure-track faculty member in chemistry*)

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For these women, reporting was the right thing to do, and they pursued it regardless of expected outcome. As one respondent (a nontenure-track faculty member in mathematics) noted: "I have to be brave enough to report this, because this is not okay." Third, some women were driven to report by urgent concern for their own immediate, physical safety in the workplace.

University-level Reporting. Outcomes from university-level reporting were diverse and sometimes complex. Many women who had pursued this route expressed dissatisfaction and frustration with how long it took, what was required of them, the treatment they received from those to whom they reported, their perceived lack of agency and confidentiality, and the outcomes for themselves and their harassers. One woman noted how her reporting experiences (similar to those shared by other respondents) felt revictimizing and had a chilling effect on future reporting intentions:

> I hated it . . . you are feeling bullied into revealing things, then you have no choice but to go through this process. It makes you feel even more powerless. For me, I felt worse every time I went to H.R. . . . I was bullied into getting coworkers' names that I may have even talked about the situation and if I don't then I would be in violation of the rules and therefore my job could be in jeopardy. It was a horrible experience and it made me, you know, if something else happened, I didn't want to do anything about it. (*Assistant professor of engineering*)

A few shared mixed outcomes; they felt positively about some aspects of the reporting process (or some individuals with whom they had dealt in the course of it) and negatively about others.

> I find the actions of the associate dean to be unbelievably unsympathetic, and somebody who just doesn't understand. . . . I find the actions of my provost to be exemplary, and the actions of the dean of students to be exemplary. (*Professor in geosciences*)

Others felt a sense of intrinsic satisfaction or pride in reporting as a matter of principle, regardless of how they felt about the process or its outcomes for them personally. Last, some women who had participated in university-level reporting noted that they were unsure of the outcomes of their reports, or noted that investigation or adjudication of their complaints was ongoing.

Reporting to Direct Management. Reporting to direct managers or proximal leadership was more common in our study sample than university-level reporting. However, those who did share their experiences with their supervisors, deans, or chairs rarely experienced positive outcomes. A few expressed profound gratitude for having managers who believed them about their experiences and supported

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them in pursuing university-level reporting. More often, however, managers expressed mild sympathy but neither took any action nor encouraged the victim to do so.

> People like my chair were saying that this is really bad, they're on my side, they have my back, it sucks. But [they] never did anything or said anything to the guy in question. So, the people around me find this behavior normal. This is harassment. (*Professor in geosciences*)

Even more commonly, however, these proximal authority figures minimized or normalized the experience, discouraged further reporting, or recommended that the victim "work it out" with her harasser (or some combination thereof). A woman who was harassed by her chair recounted:

> I thought I'd talk to the ombudsman person, but then I talked to the dean and he insisted that he has talked to the vice president of the university and she had said that it's just a bad start. You should have a three-way meeting with some external person where you come and talk and we'll try to help you resolve the differences. I was too scared to do that because he was already trying to put subtle pressure on me, the chair I mean, by assigning me another course and all those kind of things. (*Assistant professor of engineering*)

Still others experienced direct retaliation from those to whom they reported harassment.

> I reported to my program director, the chief resident, who I had already talked to about it, but this was more formal, and then the site director,. . . my program director pretty much left it up to the site director, who told me that maybe if I stopped whining so much I would have more friends. So, they basically blew off the report then. And then he—the one I reported it to—started giving me failing grades, directly after me telling him about what was happening, then his reporting of my grades just all went downhill from there. (*Nontenure-track faculty member in medicine*)

These accounts of actual retaliation experiences on the part of study respondents and their colleagues bore out women's widespread concern and apprehension regarding the possibility of retaliation as a consequence of reporting (see the findings for Research Question 4).

3.8 Peer Support and Other Coping Strategies

Peer Support from Family and Friends. Sharing the experience with family and friends was one of the response strategies for which outcomes were most universally positive. With the exception of a few who had spoken to no one at all about their experiences, most study participants relied heavily on this form of support

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to cope with their harassment. Still, interviewees often characterized support from family and friends as a last resort, sought because they had few other options.

> (How did you cope?) Well, I cried about it. So that. I have some pretty good friends . . . talking about it, and crying, and more crying on my end. Which is super ineffective. That's ineffectual, but I still don't really—even reflecting on it, I don't know what recourse I could've had otherwise. (*Nontenure-track faculty member in nursing*)

Peer Support from Colleagues. In contrast with the fairly consistent support they received from family and friends, women had mixed outcomes when they sought peer support from colleagues.

> I would tell [friends] outside this profession who would be like, "Are you kidding me, what?" But the people who work for this institution were like, "Can't you just suck it up? This is not going to go well for you if you report. You don't want to make a fuss." I knew they were right, but at the same time, I really was like, "This is just too much. I shouldn't have to be preparing to get raped when I go into work." (*Nontenure-track faculty member in medicine*)

Interviewees placed obvious trust in the opinions and guidance of their colleagues, and valued their advice. Several noted that such counsel was sometimes conflicting or silencing.

> I would talk to friends and it was always conflicting advice or it was don't do anything and I didn't really want to adhere to that . . . Yeah, even in one of my friends who is tenure track here and she's a woman and she legit told me that. She was like, "This isn't worth making a fuss over it." I was like "I feel like it is." (*Nontenure-track faculty member in engineering*)

Yet for some women, colleagues had an important vantage point that could not be replaced by the support or opinions of those outside academia. As one respondent (an assistant professor of engineering) observed, "Sometimes you tell these stories and they just sound unbelievable. Yet no one who's been here has a hard time believing it at all." Others explained how connections with women colleagues in their department not only supported their coping with harassment, but also bolstered the overall quality of their work lives.

> I happen to be in a department that is well above the national average for women faculty in [predominantly male field]. Because of that, we have a really strong network of women who—I mean, we go out to coffee once a month just to talk about being female faculty from the full professor level all the way down to first-year assistant professors or instructors. Because of that, it's easier to face some of these issues when you kind of have a team behind you. I know I'm lucky in having that kind of network here; most women faculty don't. (*Assistant professor of engineering*)

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For some, connections with women peers in their departments and institutions made the difference between remaining in their fields after one or more sexual harassment experiences, or choosing to leave. A few women who did not have this kind of support and camaraderie with other women at their home institutions were glad to find it through gatherings of their scientific societies, or by raising harassment issues in relevant conference sessions or other professional forums.

Professional Support. Some women sought professional support in coping with their sexual harassment experiences. A few noted consulting lawyers or alternative health practitioners, but the most common form of professional support was counseling. Although counseling support was not sought by most women in our study, it did tend to be of value for those who undertook it:

> So, when I would start to work on my PhD, then how the university treated me would be triggered at the same time and so I would cry and cry and cry. I had to figure out—I had to get those two separated. And so I worked with a really great therapist. I had to get those two separated in order to continue to produce and to do my research . . . but that kind of stuff is really tiring. It takes a lot of energy. Like processing that stuff is exhausting. (*Nontenure-track faculty member in computing science*)

Findings for Research Question 3: How do women who are targeted for sexual harassment understand their experiences to have shaped their career trajectories?

3.9 Collaborative or Mentoring Relationships

The most consistent effect of gender-based and sexual harassment experiences on respondents' subsequent professional relationships was greater caution. A number of women indicated that their experiences had made them far less trusting and more careful in decisions about collaborations. Some specifically avoided collaborating with particular individuals known to treat women poorly, but the general tendency was to treat all potential collaborators with caution. Several respondents spoke about their heightened sensitivity, second-guessing, and even paranoia with male colleagues with whom they had existing relationships.

> I'm much less trusting of people; I'm less willing to take people at their word for the kind of person that they are. I'm much less trusting of myself in terms of judge of character. Now, I kind of will reserve judgement until I see how a person operates before I will decide whether or not I think that they're the kind of person I want to have a beer with or not, or even the kind of person I want to work with in any way, and I really try very hard to see what type of actions people make and take at work and judge them based on that rather than my personal or emotional, or conversational interactions with them. (*Nontenure-track faculty member in biology*)

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Many respondents also reported an increased reserve in their demeanor toward colleagues. Avoiding physical contact (hugs), jokes, personal topics of conversation, and generally being less warm were consequences attributed to having experienced gender-based and sexual harassment. Relatedly, a number of women began to avoid social situations (e.g., candidate dinners), particularly those that involved alcohol. Several were extremely reluctant to attend social events at professional conferences (where numerous respondents had experienced sexual harassment) or even avoided conferences altogether. Some respondents made dramatic changes in their degree of social interaction with colleagues, noting that they used to be very open and sociable and now almost never go out. Yet respondents recognized that they were missing out on important networking or professional opportunities that could help their careers.

> That's impacted my career because I know that social networking is a big part of research activities, the work environment. So, it has been very detrimental. (*Nontenure-track faculty member in geosciences*)

Another major theme regarding women's professional relationships was that respondents became more vocal and less tolerant about gender-based and sexual harassment after their experience(s). Several noted that they were now blunter, less polite, and far more likely to call out inappropriate behavior than previously. This particular change was reported more often by respondents with greater seniority, and several noted that they felt obligated to speak up now that they had more job security, especially when incidents happened in the presence of students. Some respondents also felt that the current political environment made it particularly vital to speak up in the face of sexism.

> Well yeah, I think now I'm—I'll call it out instantly when I see it rather than be quiet. I've become much more vocal, and I've never been exactly shy. I've always been pretty outspoken, which is another reason why looking back on this all, I just cringe because I don't think of myself as the kind of person who puts up with this. Now I've made a real conscious effort that when I see—and some of this also has to do with our current national environment. I think that in the Trump era, it's really important to speak up when you're facing sexism, even when it's not directed towards you, even if it's not textbook "sleep with me or I'm going to fire you" kind sexual harassment. I think it's really important to put a stop to these things that are like oh yeah, it's normal. Well, you know, he's old school, just all of these things to excuse this sort of behavior. It's not excusable and it shouldn't be. I am happy to make up for lost time now. (*Nontenure-track faculty member in biology*)

Importantly, however, even women who had become more vocal noted the emotional turmoil they experienced when deliberating whether to let something go or to address it, knowing that the former approach would "make it go away

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immediately" and the latter would be much more difficult for them and guarantee that they would have to deal with the issue for a while.

Last, women's mentoring relationships were affected by their experiences, in terms of the mentors (some avoided male mentors; others attempted to reach out to female mentors) and mentees (with some seeking out other women or underrepresented minorities) with whom they worked. Several respondents who mentored other women felt a responsibility to raise their awareness of gender-based harassment and how to deal with it.

3.10 Research Focus or Professional Specialty

It was fairly uncommon for women to make changes to their research focus or professional specialty as a result of gender-based and sexual harassment. However, a few respondents avoided research opportunities that involved interacting with certain individuals, and some did switch or consider switching fields. This was more common with extremely traumatic incidents where the respondent wanted to avoid the perpetrator, but one respondent made this decision to help improve her field generally (she left medicine to attend law school so that she could be in a professional position to help address the hostile environment in residency programs). A few respondents made career choices to avoid certain specialties (e.g., surgery) and types of institutions because of earlier experiences with an uncomfortable gender environment. One changed research directions to be able to work more independently and have more autonomy, as a result of working in a research area where much of the credit was inappropriately attributed to a male colleague, and another gave up some research projects because male colleagues would not work with her. Last, one respondent gave up a research career altogether to focus on teaching because, owing to the trauma and work habit changes from having been raped, she did not have the focus and energy to come up with new research ideas, submit grants, and start attending conferences again.

Although few respondents changed their research focus or professional specialties outright, one near-universal theme that arose was increased attention and service focused on gender equity issues in the context of their field and academic positions. Several women began doing more research on gender or diversity and inclusion issues within their fields (e.g., gender in medicine, women and multicultural issues in science subdisciplines), conducting research and publishing papers on these topics. Others became heavily involved in awareness-raising activities or efforts to change policies at their institutions (e.g., leading seminars on sexual harassment, serving on diversity committees) or within their professional associations (e.g., establishing codes of conduct at professional conferences). One took a position as an associate dean to help improve the environment for women and underrepresented minorities, but most such efforts took place within the context of women's regular jobs. Although respondents clearly found these efforts rewarding and meaningful, several noted that they could be emotionally

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taxing and time consuming, adding to their workload and taking time away from their primary job responsibilities and scientific accomplishments.

> That means I spend a whole lot of time doing those things, which is probably like, if that's, if that's what science means for me. . . . If that's what I need to do so that my students have a better field, then that is what it is, and I know that I'll have a bigger impact on science doing those things than one more paper. (*Assistant professor in geosciences*)

This was particularly true for one woman of color in emergency medicine, who struggled with prioritizing her time when engaging in gender equity or racial diversity and inclusion issues.

3.11 Job Opportunities, Advancement, and Tenure

When asked about the manner in which respondents felt their experiences with gender-based and sexual harassment had affected their career progressions, the predominant theme that emerged was one of negative trajectories. Several respondents identified specific major negative career transitions they made (or were forced to make) as a result of their experiences, including the following:

- **Stepping down from leadership opportunities to avoid the perpetrator.** One woman whose experience was reported to human resources was instructed to resign from an important committee position to avoid interaction with the perpetrator, who was the chair of the committee. Another dropped out of a major research project that was part of an early-career mentoring organization because her mentor raped her. In both situations, others perceived the women negatively because colleagues didn't know the reason for their decision; they saw this as particularly harmful because both women were at early stages in their careers.

  > So, there's been a negative kind of chain of events where supervisors at the institution have seen that I dropped out of the research project and may not understand, because they were never told what happened. So, it seems [. . .] I have had a black, I have been blacklisted in some ways and not invited to join other research projects and perhaps seen as a failure. (*Nontenure-track faculty member in geosciences*)

  A third woman stepped down from an assistant dean position that she was very passionate about to avoid having to interact with the dean, who had harassed her.

- **Leaving their institutions.** Several women ended up leaving their institutions either because the climate was negative toward women or to avoid

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a specific perpetrator there who continued to harass them. Others were actively looking for opportunities that would enable them to leave for a better environment, but some questioned whether the environment would be any better at other institutions or not.

> That is why I made this decision of leaving that university, even though I liked the department, I liked the students, I liked the place. I had to leave it, just because I didn't want this bitterness to continue and affect me personally or professionally. (*Assistant professor of engineering*)

- **Leaving their fields altogether.** One woman felt that she was forced out of her field because of retaliation for reporting sexual harassment, and another left her field to avoid interacting with the perpetrator.

Several respondents also gave up good prospective job opportunities or settled for less prestigious positions because of their experiences. Although a few respondents made these choices to avoid a specific perpetrator in their field, others found themselves avoiding certain environments because of their negative experiences. One respondent gave up a job offer at Google to avoid being in a male-dominated environment after her experience, and another ruled out large research institutions because of her concerns about collaboration with others. Some felt that their experiences made them hesitant to change institutions (knowing that such experiences could happen anywhere) or led them to avoid taking risks with their careers and settle for nontenure positions.

> Prior to the event I had hoped to be a number one scientist and go for a tenure professor position, or main research scientist, whereas now that is not in my scope. . . . So, I feel like I have refocused to more menial roles, perhaps staying as assistant research scientist as I have been doing, and now not stretching for anything greater. (*Nontenure-track faculty member in geosciences*)

Along with respondents' own career decisions, a few felt that their advancement (and reputation) had been hampered because they spoke out about their experiences or were too vocal about the issue. For example, one respondent felt that she was denied promotion because she was not perceived as a "team player." In recognition of this potential for retaliation, a few respondents specifically stated that when the incident happened, they did not "create a stir" to avoid harming their prospects for job advancement.

Last, note that for several respondents, some of the changes to their interpersonal relationships and collaborations as a response to the incident (discussed earlier in this section) were felt to have had adverse consequences for their career trajectories and those of their mentees.

> You cannot cut off people or stop going to conferences. This is the way in which you get your research out and make your work known and you need it for your

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> promotion anyway. . . . If you don't go out, you don't get talks, you don't present your work in conferences. You are hurting yourself. (*Associate professor of engineering*)

3.12 Research Funding and Publications

When asked about ways respondents perceived experiences with sexual harassment to have affected their specific professional contributions (e.g., funding, publications, and other accomplishments), they identified several forms of harm. Diminished accomplishments were typically an indirect consequence of the incident(s), through avoiding working with the perpetrator (who would have been a coauthor on publications), avoiding networking opportunities (which meant less likelihood of reviewers or funders knowing the applicant or author), disrupted concentration and anxiety (which created difficulty in focusing on writing), emotional distress when triggered (which hurt productivity), and lack of motivation or increased negativity toward their career because of the incident.

> I mean I don't think I've been quite as productive as I could have been with these experiences in terms of getting papers out or getting grant proposals out and things like that. I mean especially this year I have had zero interest or desire in writing up any papers . . . because I don't want to work with the person that I was working with anymore. (*Nontenure-track faculty member in engineering*)

Some respondents also felt that their experiences had adversely affected their work quality, particularly those who had to recover from extremely traumatic incidents or who experienced decreased confidence as a result of the incident. Further, respondents who reported the incident noted how much time, energy, and emotion they had had to expend to deal with it, which took time away from professional achievements. And women who left their positions as a result of sexual harassment said they certainly experienced setbacks in their careers as a result (with a number of works in progress left uncompleted).

Along with the manner in which sexual harassment experiences harmed women's subsequent professional accomplishments, some respondents also identified ways in which gender discrimination directly limited their accomplishments. These included getting less start-up funding and fewer resources, having projects "hijacked," getting assigned more teaching credits, being expected to fulfill support-staff roles, having students' funding cut or positions not renewed, and encountering gender bias in reviewing articles. Sadly, some women commented on the manner in which their *mentees'* careers were adversely affected by the gender discrimination they, as mentors, faced.

> You just as an advisor want to make sure that your students always get every possible opportunity and I just know there are certain things that they're not gonna get that they would have if they had a male advisor instead and it just kills me. (*Assistant professor in geosciences*)

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However, a few respondents identified positive effects they attributed to gender. One felt that she was invited to be on more grant proposals as a woman because the other investigators felt it would increase their chances of getting funded and that she was generally given more opportunities because of her gender. However, this experience was not entirely positive.

> I get asked to do a lot more—anything that is publicized—than . . . my other colleagues, which again, gives me a lot of exposure, but at the same time, I know the reason why I'm getting pulled into those photos—or to the front of a photo—is because I'm female. Or the reason I'm giving a plenary much earlier than I should be probably in my career is because I'm female and they need—they don't have any other female speakers. I mean, in some ways, it benefits me career-wise because I get exposure, I get more opportunities but at the same time, it almost cheapens it. (*Assistant professor of engineering*)

Last, some women noted that gender discrimination in their fields made them work harder, which increased their productivity.

> I think this is common for women in engineering or probably in STEM but I feel like it actually makes me more of a "Well, I'll show them" type. . . . Instead of making me shy away from it, it makes me more like "I'll prove that I deserve to be here," . . . which is not necessarily a good thing, but I do think that it's probably how it turns into motivating me instead. (*Nontenure-track faculty member in engineering*)

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The findings for Research Question 3 illustrate a breadth of adverse career consequences attributed by our respondents to their sexual harassment experiences. To provide a clearer understanding of the pathways to such consequences, we summarize three sample members' experiences below.

One tenured associate professor had experienced gender-based harassment while serving as an assistant dean, including being verbally berated by the dean to whom she reported. She described being "completely devastated" by the experience, which caused physical illness and fear, and ultimately stepped down from the position due to the hostile work environment. The experience affected the respondent's career in a number of ways. She experienced diminished confidence, which adversely impacted her teaching, and became less trusting of colleagues and more negative in her outlook. The respondent felt that, ultimately, the experience derailed her ability to become full professor.

> I think honestly, the biggest impact is that going into the assistant dean's role, I think it did derail my ability to become a full professor. 'Cause I gave up a lot of research to take that position, and then there was so much of a time—my confidence level after that was pretty low. And I don't know, I was looking for other jobs, and so I don't know that I will ever achieve becoming a full professor, which bothers me, not for my own professional growth but for the role model that I'd like to set for the others coming behind me. Just to try to encourage them to go for full professor. We don't have any female full professors in the school of engineering. So I would've liked to change that trajectory and, you know. And I don't know that that will happen or not, so.

Another respondent—currently an instructor in a nontenure-track position—was raped by a colleague at her previous institution, where she was a tenure-track assistant professor. She took medical leave due to the trauma of the incident and found it increasingly hard to focus on her work (particularly research) when she returned. She also struggled with lack of confidentiality about her experience (which was reported and investigated by the institution) and had extreme difficulty trusting colleagues and potential collaborators after that point. She left the university and gave up her research portfolio, going to a smaller institution where she could teach.

> …I just felt if I could focus on the teaching and not the research aspect of it—that's what drew me to a smaller institution. It was almost like I could do what I knew and

Findings for Research Question 4: What barriers or challenges do respondents believe prevent sexual harassment in sciences, engineering, and medicine from being addressed?

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> didn't have to go out and reinvent and rethink. Like I said, I am not trying to make teaching light, but it's almost something I can do on autopilot. Versus I knew if I had to like get grants and money, you know, you are schmoozing people. You have to go conferences. Once again it starts to involve crowds. It starts to involve people you don't know so well. And so, once again there's that hindrance versus teaching you go in front of a classroom…For the most part, nothing is going to happen to you that is going to be embarrassing, traumatizing. If you think about it in terms of research or a larger institution or an institution where—I've looked at institutions where I have written my job applications, but I never like go through with it, like submitting it or getting it done because it's like that whole research. It's that whole I have to think, and when I start thinking it starts bringing me back and I'm not necessarily thinking about the research like I'm supposed to be. I think about a conference, I think I am going to have to start interacting with individuals. When you are at conferences you are going out, you are socializing after the postsession or the talks. So, that means there is a chance of alcohol, so now that comes into play. Can I have one drink and be okay, do I have to walk, do I have to take a bus. You start going through all of those scenarios. Will I be in a hotel? Will I be in a dorm room? Will I be sharing that dorm room with someone? So, I start thinking about the bigger picture things, and I just put the brakes on it. I won't apply for that position.

A third respondent was hired as a faculty developer at a small institution, where she soon experienced inappropriate comments of a sexual nature from her boss. Although the sexual comments stopped, he continued to make derogatory comments about women in her presence and their working relationship has become extremely tense and stressful. She would like to leave her institution for a better environment—and feels that this is inevitable—but feels somewhat trapped due to limited job opportunities in the geographic area and her need for the benefits offered by her job.

> There have been a couple big confrontations between my boss and I. I think probably because of his inappropriateness, I've had less respect, challenged his ideas, but I would have challenged anyway, but I probably would've challenged them in a more respectful way. And so like the energy between he and I is really poor. And I suspect it means I'm gonna have to leave. So I'm currently working on what that leave strategy is going to be. And it's really unfortunate because the rest of the—the way that my boss sees me and the way that the rest of the university sees me is night and day. I have been nominated and selected and appointed to so many campuswide committees…

3.13 Barriers to Incident Response

Respondents encountered an array of barriers that inhibited or constrained responses to sexual harassment incidents. They identified internal, cultural barriers that prevented them from recognizing and addressing the problem; barriers that deterred department- and university-level reporting and responses; and barriers to accessing other forms of help.

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Internal Barriers. As described under Research Question 1, women who experienced sexual harassment sometimes struggled with identifying their experiences as such. Distinguishing a particular experience as sexual harassment was difficult in a culture that normalized misogyny, and this difficulty had a generalized inhibiting effect on victims' responses.

> In retrospect, I had been changing my behavior for a long time to try to avoid him or avoid being alone with him, which is like a hallmark of sexual harassment. But I didn't—I was younger then, you know? I was more naïve and just didn't—you know, I think I just didn't understand. And also just didn't really believe myself. (*Assistant professor in geosciences*)

> There's probably been more than one thing that I should have reported to someone. But it's also, I've got to work with these people the rest of my career. It's got to be really bad before I am going to report it. . . . I think if it would have happened again, I would have said something, and if someone like actually physically touched me inappropriately in a sexual way, I would report that. . . . I don't know if that's what I would do. Or just try to say it's easier to just forget about it and not do anything. Because that's sometimes the easiest way to deal with it. (*Associate professor in geosciences*)

Some women who experienced harassment also blamed themselves. As one respondent (an assistant professor of biology) described, "I guess I thought it could have been my fault. I don't know. I mean, I was there when maybe I shouldn't have been, and I didn't do enough to prevent it." Each of these internal responses prevented women from pursuing any remedy or support.

Deterrents to Reporting. Respondents from a range of institutions described a lack of clarity or a lack of training regarding their department-, school-, or university-level reporting options. In the words of one woman (a nontenure-track faculty member in geosciences), "I am a straight-A student and valedictorian, and I of course never received training. I had no idea how to report it or what to do." Yet some women noted that this lack of clear information on reporting processes was a surmountable barrier; they were confident that if they had been persistent, they could have located the information. One respondent (an associate professor in geosciences) explained, "I don't know exactly what the formal process is, but I could have very easily found out; I just chose not to."

As this respondent and many others went on to explain, the expectation of retaliation or punishment was a formidable deterrent to any form of reporting, whether at the university level or to supervisors, chairs, or deans. With striking consistency across fields and career stages, respondents said they expected that they would be punished in some way if they reported their harassment experiences in any way. As one respondent (a nontenure-track faculty member in chemistry) explained, "I think it is underreported because you are afraid. You are afraid that whoever is going to sign off on your PhD, isn't going to sign off. Or if

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you are doing a postdoc, you are not going to get that letter of recommendation. Authorship will be changed. And it keeps continuing as you go on as a faculty member." Such expectations were typically grounded in observation and personal experience. Explaining why she chose not to report a recent sexual harassment incident, a faculty member described the retaliation she had faced when reporting a prior one:

> I was dropped as a courtesy appointment for another department, simply because I went to talk to the dean and did not ever make a formal accusation. The chair for the other department tried to hinder my critical review and later my tenure. (*Associate professor of engineering*)

Another respondent (an assistant professor in geosciences) summed it up tersely: "I've seen what happens to people when they report, and it's not good."

Concerns about direct retaliation were accompanied by concerns about subtler forms of consequence. They felt that being labeled as victims, complainers, or overly sensitive would reinforce the feminized or "outsider" status against which many had already spent their careers battling.

> To [report] makes me a difficult person, kind of an outsider. (*Assistant professor of medicine*)

> I felt I would be labeled as a troublemaker. (*Assistant professor of medicine*)

> I was afraid of losing credibility and losing whatever departmental support I had. Having a reputation for being someone who doesn't put her head down and get work done, [with] my whole career sort of being in the balance. (*Professor of biology*)

> You're looking for a job or collaborations or funding, and who wants to work with the person who is always making a big deal out of this stuff? For me, it was always just easier and quicker to just get myself out of the situation, just to diminish the seriousness of it. (*Assistant professor of engineering*)

These expectations of being directly or indirectly punished for reporting through departmental or university channels were pervasive and strongly held. The sense of vulnerability to retaliation prompted many targets of sexual harassment to make a careful assessment regarding the identifiability of sexual harassment complaints.

> I looked to see if there was some type of ombudsman on campus or some type of confidential safe space to discuss this, and at my new university, it was difficult to find anything readily online. I eventually tracked down a group that was not an appointed office of ombudsperson, but actually a committee of faculty that people appointed to [a] 4-year term. And when I read how that was constructed, to me, it just set off all sorts of alarms. I was like, this does not sound safe to me at all. These are people who could actually fill out my tenure decision. This will not truly be anonymous. This is not their job to keep this anonymous. It's

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> just another service thing that they may or may not truly understand what their obligations are. So that was immediately unsafe in my mind. (*Assistant professor of biology*)

This lack of an anonymous or otherwise protected channel in which to raise sexual harassment complaints, whether about a colleague or a superior, had a chilling effect on all forms of disclosure.

Reporting through formal or semiformal channels was further discouraged by the observation that these forms of recourse were of limited benefit to victims. Targets of sexual harassment described weighing the perceived risks and benefits of reporting their experiences, and determining that the risk of retaliation or punishment was not merited by what they saw as limited prospects for a protective, helpful response or fair consequences for a perpetrator. Many made statements like these:

> I feel like any institutional attempts to fix this, or to contact him and say, "Please stop behaving like this" would have been traced back to me, or would have hurt my career more than it would have hurt his. I mean, he's got a big lab, he brings in lots of grants, you know. It was going to make me look bad and not him…I just felt like there was not going to be any benefit for me in reporting this and making a scene about it. I felt like it would only damage my career. It wouldn't do anything to his. (*Assistant professor of biology*)

Although these perceptions were common across forms of reporting, respondents had especially low expectations for the outcomes of formal, university-level reporting. Respondents set their expectations of university-level reporting on their past reporting experiences, observation of colleagues' reporting experiences, or knowledge that a known harassment perpetrator already had been reported.

> I didn't hear anything back [regarding a past complaint]. I wrote again. I didn't hear anything back. I called. They still haven't done anything. So the message that I took, which may or may not be correct, is that it's just not that important. (*Professor of engineering*)

> I really strongly encouraged [a postdoctoral colleague] to make a formal complaint, so she did, and there was a full investigation . . . it seemed quite serious and there was a lot of evidence, and there were multiple witnesses . . . but then the report wound up completely exonerating the guy and whitewashing what happened . . . It's really changed how I feel about these things . . . I just really recommend that [victims] avoid any kind of formal going through the system, because I just really think it's about the institution, and to protect the institution. (*Professor of physics*)

> I saw that not much came out of that process, that I didn't really have much confidence that me saying anything would lead to change. Also, given that I was dealing with this from a junior status, I worried about my own career prospects

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> . . . this person knew who reported them before. (*Nontenure-track faculty member in psychology*)

Many other interviewees echoed the perception that university-level reporting mechanisms focused heavily on protecting the institution, rather than supporting the target of harassment. In the words of one respondent (an associate professor of engineering), who was asked about her awareness of reporting options: "I know that you get referred to HR, and HR is on the side of the institution. They try to protect themselves." Another respondent (a nontenure-track faculty member in geosciences) commented, "The function of that office is to protect the university from bad publicity. So, I would never bother to go tell them anything."

Other barriers to university-level reporting included suppression by departmental leadership, a lack of clarity or training regarding the available process, and the burden university reporting processes placed on victims. Women who brought their experiences first to their department chairs, deans, or other immediate supervisors were often discouraged from further pursuing a complaint.

> I did meet [the chair] and the associate dean and talked to them at length about what's happening. I did bring it up, but the way they reacted to it, I didn't have the heart to go and talk to the vice president or meet anyone senior to them about it. (*Assistant professor of engineering*)

The expected burden and lack of victim-centeredness of formal reporting processes were also seen by many as a serious hurdle.

> We don't focus on the victim. Everything is [about] what is going to happen to the person who was accused. . . . That's another major reason why people don't want to report, because it is a long, tedious, exhausting process. (*Assistant professor of engineering*)

This lack of perceived victim-centeredness also meant that victims who were considering reporting were deterred by a perceived mismatch between what they would have considered appropriate consequences for the perpetrator and what the university might mete out. One explained:

> I think a lot of times that the consequence of [a formal report] is something in someone's record that's negative and is perceived incredibly negatively, and the whole intent of the situation gets lost in the administrative punishment or administrative correction. . . . I just think that a lot of times, the process for correction is more harmful than if there was an actual face-to-face conversation and something that was less punitive or permanent. (*Assistant professor of medicine*)

Last, some women noted that there was no formal reporting channel at all for certain roles or situations, such as when the victim or perpetrator was a postdoctoral student, or when the victim and perpetrator were at different institutions.

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Barriers to Accessing Other Professional Support. Women who faced sexual harassment also experienced difficulty in accessing other forms of professional support. Several felt that therapy or counseling might have been helpful in coping with their victimization experiences, but could not envision making room for that healing process. Doing so would have been incompatible with these scholars' demanding work lives, their focus on productivity, and their self-images as strong and resilient.

> I believe in counseling and everything, but it's also when your environment is that much of a pressure cooker. . . . I knew that I couldn't bear to hear how bad this was. I had to keep going. There was no choice. Kind of like getting therapy in the middle of a war zone, like I can't be feeling these feelings right now. If I actually feel what's going on here, I will not be able to function. (*Nontenure-track faculty member in medicine*)

Others noted, with regard to considering professional help, that they simply did not want to devote more time or energy to the situation. One woman (a professor of engineering) explained, "Sometimes you're in a situation and you just want to move on rather than deal with it." Another respondent (a professor of biology) explained, "I was trying to get everything done. I had a lot on my mind, a lot on my plate. I didn't want to put energy into . . . stirring up a hornet's nest." Respondents had also sometimes considered seeking help from their scientific societies or professional organizations, but were either unaware of any formal recourse within their organizations or did not yet trust newer processes that had been established.

3.14 Barriers to Broader Prevention and Response

Respondents also identified constraints on broader prevention and response (beyond individual incidents or victims). They highlighted a general lack of awareness regarding sexual harassment among colleagues and leadership, individual resistance to change among those perpetrating or condoning harassment, poor enforcement of existing policies, and the slowness of cultural change as key barriers.

Lack of Awareness. Among the strongest themes in these data was women's observation that their male colleagues were unaware of the pervasiveness and severity of sexual harassment experiences in their workplaces. Women described how their colleagues' gender protected them from experiencing sexual harassment themselves, which made it appear to them as though such harassment did not exist.

> It became really clear to me that, especially talking to male colleagues, they don't see these things happening, they don't hear these things happening, and then they hear about oh, we have to go through sexual harassment training again,

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> [but sexual harassment] doesn't really happen. They're blind to the experiences. (*Assistant professor of engineering*)

In many of the science, engineering, and medical departments from which study respondents hailed, positions of authority were dominated by men unable to relate to the need to address harassment:

> The leadership, and certainly the senior leadership, is majority male and has never been affected. . . . If you've never been discriminated against, you don't understand discrimination. It takes a lot more work to appreciate that something is happening to other people. (*Assistant professor of medicine*)

The combination of men's overrepresentation in leadership positions and their lack of awareness of sexual harassment had a powerful stymieing effect on prevention or response at many institutions.

Individual Resistance to Change. Respondents were often less than optimistic about the prospect of changing the behavior of sexual harassment perpetrators. Several noted that harassers created "a culture of fear," and likened intransigent sexual harassment perpetration to bullying:

> People who engage in this behavior [are] bullies, and I think their bullying behavior intimidates the good people. So, you get somebody who engages in this behavior and they get themselves into a position of power, like a department chair or even up in the dean's office or something. I honestly do not know how they intimidate other men into accepting this behavior, but they do. (*Nontenure-track faculty member in geosciences*)

Others had more benign explanations. One respondent (an assistant professor of biology), observed simply, "People think it doesn't apply to them." This sentiment was echoed by many other respondents. Women often rooted their skepticism in direct experience. As one respondent (a nontenure-track faculty member in engineering) summarized: "Rarely, in my case, have I had much success changing these people's minds, or changing the way they look at the world, or anything." Others saw the entrenchment of an individual's harassing behavior as a generational issue. One interviewee (an assistant professor of mathematics) described being at a sexual harassment training with a harasser who "was making snide remarks about the training . . . he doesn't respect the process in any way, he doesn't respect their office, he doesn't respect these administrators, because in his opinion, the explosion of administration of higher ed is a horrible thing." About another harasser, a respondent (who was a nontenure-track faculty member in biology) explained: "He's from a generation of male scientists where they—you know, you can't teach an old dog new tricks." Interviewees observed

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individual resistance to change not only among perpetrators of sexual harassment, but among (male) colleagues who created a tolerant environment for it.

> My postdoc advisor liked to talk about how much he had done for women, how he had hired all these women to work in his lab, or how he had been on hiring committees that had hired women faculty. And, in fact, he said this often enough that once I turned to him and I said, "Do you want a cookie for that?" Because I don't think he realized the fact that he had been on hiring committees that had hired women, that's not a great thing . . . like, you don't get a prize for hiring a girl. That's not an unusual thing to do. So, I think he didn't think he was sexist in any way and he was one of the most sexist people I've met, because he had these ideas about women and they were sexist and they were very limiting. (*Assistant professor of biology*)

To these interviewees, male colleagues' difficulty understanding that they were part of the problem was, itself, a tremendous part of the problem.

Poor Enforcement of Existing Policies. Many interviewees also felt that the underapplication of anti-harassment policies at the department or university levels built a culture of permissiveness in which harassing behavior flourished.

> There are laws which punish the people who do these kinds of things, and if those laws are not implemented, then these things will keep on happening . . . that was exactly what was happening in our department. The previous [faculty member] actually, he had done something to a female faculty all year. There was no action taken against him, so this guy [referring to her harasser] followed suit. (*Assistant professor of engineering*)

Lack of enforcement, they felt, sent a message to victims and perpetrators alike that sexual harassment was normal and tolerated.

Slowness of Cultural Change. In considering what stood in the way of effective sexual harassment prevention and response efforts, interviewees almost always noted that these efforts went against the cultural grain in their departments, institutions, and beyond.

> To change it going forward would've been, like I said, a whole cultural change within the department, within the institution. I mean, my chair was not particularly blameless in the sexual harassment field, and neither was the dean. (*Professor of biology*)

Although many were adamant that such broad, cultural changes were critical, they were cautious about expecting too much. One respondent (an assistant professor of biology) explained, "I think it's a cultural change that's going to take a lot of time."

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Findings for Research Question 5: What strategies for preventing and responding to sexual harassment in sciences, engineering, and medicine do respondents perceive as promising?

3.15 Promising Prevention Approaches: Universities

Respondents overwhelmingly felt that universities needed to take a stronger, more proactive approach to sexual harassment prevention. Many saw sexual harassment prevention as being inseparable from effective sexual harassment responses.

> Really having zero tolerance. Actual real repercussions. I think what worked with my colleague was that there was a real repercussion for him, and universities tolerate a lot. The people who are perpetual predators tend to be folks who feel like they're protected by the system. They are big names, they bring in big grants. Everyone knows that they're inappropriate and people laugh it off and they push it to the side. But if you just say, regardless of who it is that is perpetrating, if you do this, the repercussions are real, you are no longer allowed to have graduate students. Your office will be removed from the main part of this building and you'll be over in Timbuktu. You will have to go to certain trainings. You will not be allowed to have unsupervised meetings with junior faculty. Real consequences. That is not tidy and not something that can be done behind closed doors. People see the actions being taken. That is painful and hard. We need to do it. (*Assistant professor of biology*)

Role of Senior Faculty and Department Leadership. Respondents, regardless of tenure in academic settings, noted the critical need for those in leadership positions, such as more senior faculty, department chairs, and deans, to actively work to change norms and behaviors that are conducive to sexual harassment within the academic setting. Given the hierarchical nature of these settings, those at the top set the climate for what is deemed acceptable and unacceptable behavior and a norm of responsibility across all faculty and staff to address unacceptable behavior.

Respondents also stressed the importance of leadership's actions in modeling the desired behavior through their own interactions with faculty, staff, and students, from their interpersonal behavior to responses when sexual harassment issues arise among others. Those in academic leadership roles often serve as a gateway to steps that will be taken when harassment occurs. Their reactions and responses and the follow-through on reported incidents, will indicate to those in academic settings whether this behavior will be addressed or not, and how sincere assurances of will prove to be.

> I think what senior faculty can do is make sure they talk to junior people and make sure that junior people feel safe. I think the responsibility of senior faculty [is] to make sure that the institutional environment is safe, and that was the problem with the other institution, it did not feel safe. (*Professor of biology*)

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> The other thing is that we need to remove the leverage points that make this equation for whether or not you speak out or you just tolerate it . . . create ways out that doesn't cost them their career, their project. Tenure. If they need to have the option to stop their tenure clock, because of this, then let them. If you as a university can't figure out right away what to do with this person, stop their tenure clock while you're creating the process that's gonna keep them safe and allow them to do their work. (*Assistant professor of biology*)

Data-Driven Responses. Respondents recognized the importance and need for data that illustrates the pervasiveness of sexual harassment and gender-based discrimination within academia. Climate surveys and other data can yield information on prevalence and the types of support that may be needed and most effective for those affected by sexual harassment. Respondents saw this type of data as a way to shut down those who deny the need to address this issue and make structural changes.

> What ended up happening is my Senior Associate Dean . . . she went up against the old guard and she said, "This is what the data is showing." And because we had black-and-white data, she was able to actually fight and it went from the college to the Provost to the President, and now what was created is a reporting structure. (*Nontenure-track faculty member in medicine*)

Improving Policies/Procedures and Enforcement. Respondents indicated that the existence of clear policies and procedures for addressing sexual harassment are essential, and stressed the importance of all faculty and staff having a clear understanding of this information. Often, however, respondents were not aware of or did not fully understand the resources that were available to them at the time of their incidents—this was particularly of note with postdoctoral staff. Further, some who took actions to address sexual harassment were faced with dismissive attitudes or no actionable steps from their department leadership.

> What often happens in academia is there are rules and stuff, but everyone is "yeah, but no one does that." This is how it really works. Or people expect you to behave in a certain way following unwritten rules that are not necessarily obvious to everybody, but they're also different for different types of people, men and women. And so I feel there needs to be more enforcement of being ethical and following standards that have been set. (*Professor in geosciences*)

Some respondents indicated that existing policies and procedures did not always have the flexibility that facilitated reporting, for both the target and perpetrator of sexual harassment. For example, respondents noted the need for more victim-centered reporting alternatives, which might allow for anonymous reporting or systems that can track patterns of behavior of a perpetrator. Although respondents often wanted perpetrators to change their behavior and experience some form of consequences, they also noted a desire for more of a range of

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options for addressing the harassing behavior, such as standardized subjudicial punishments (e.g., pay cuts). Many noted that making options for reporting harassment more anonymous might overcome the deterrent effect of such complaints being traceable.

> I think that if there was a way of anonymous reporting, and maybe HR or the chair wouldn't necessarily act on the first report. If it accumulates as a pattern across many female faculty, you know, even if it's anonymous I feel like something needs to be done. (*Associate professor of psychology*)

Improving Training Delivery and Uptake. Many respondents viewed the implementation of faculty and staff trainings as an important prevention mechanism. However, they reported that existing trainings often perpetuated a limited definition of sexual harassment that only involves sexual contact and did not provide the necessary focus on the continuum of behaviors that can be perpetrated. Respondents stressed the importance of improved trainings that reflect this range of behaviors, some of which may have become normalized within academic settings, and the ways in which these influence the overall climate in the department and university. Respondents also stressed the need for all roles in the academic setting to have access to the trainings.

> I think some kind of training, and I think chairs and directors are key at a university to get them. And I think the chair of [my department] is a wonderful person. He has never done anything at all to suggest that I am less important because I am a female, or treated me any differently. But I also don't think he gets the fact that the women in his department are treated different than the men are by other faculty members. (*Associate professor in geosciences)*

Screening New Hires. Several respondents relayed experiences of faculty being hired who had a known history of sexual harassment and gender-discriminatory behavior.

> But they hired a lot of what I'm calling the old guard . . . who we know because of public record that they were dismissed from said universities, Ivy League universities because of sexual harassment—and we have hired them. . . . (*Non-tenure-track faculty member in medicine*)

This was often in the context of hires of faculty who were well known for their professional accomplishments. The strategy of more purposeful vetting was recommended as a means of preventing hiring of faculty who may pose a risk to others.

3.16 Promising Prevention Approaches: Peers and Bystanders

Call Out Poor Behavior of Peers. Respondents indicated that their peers and other bystanders can play a strong role in preventing sexual harassment and

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gender discrimination by acknowledging the inappropriate behavior and indicating disapproval of it. Because this type of behavior can be dismissed or ignored, simply pointing it out can be empowering and lend support to the target.

> I think they [bystanders] could have a very important role. In fact, I think it's essential that everybody call out these behaviors. Particularly senior faculty, but it has to be in the context of a supportive environment. (*Professor of biology*)

Safeguard Those Who Report. Several respondents also noted that putting safeguards in place to protect those reporting sexual harassment from harm could not only facilitate intervention efforts for those who experience sexual harassment, but also deter potential perpetrators and empower others to be strong advocates against this type of behavior. Although safeguards for preventing emotional and physical harm were deemed important, respondents also stressed the importance of preventing professional repercussions for targets of sexual harassment. Given that perpetrators often played powerful roles (including influencers of tenure decisions, leads for scientific collaboration, and officers in national organizations), any measures that could help to protect targets of sexual harassment from the career impacts of disclosure might free them to pursue all available forms of recourse.

3.17 Promising Prevention Approaches: Professional Societies and National Organizations

Ramifications for Sexual Harassment Infractions. Respondents viewed professional societies and national organizations as important untapped resources for sexual harassment prevention efforts. Several noted that these organizations are in a position to tie this issue into the accreditation process, such as requiring information on departmental climate survey data or availability and implementation of sexual harassment and gender discrimination–focused trainings. Respondents also thought that membership and leadership roles within organizations should be limited for those who perpetrated this type of behavior, to show a no-tolerance stance for members and the organization as a whole.

> I really do like the idea if I have a group of students in my lab and I am treating them inappropriately, that hey, my research doesn't get published and I don't get grants. And I think if you did that, people might change their behavior a lot quicker than any other way. And, I think professional societies, and the National Science Foundation, things like that can take an active role on this. (*Associate professor in geosciences*)

> They should not reward people that exhibit these kinds of harassment behavior or even discriminatory behavior. Who make stupid comments like that and that intrinsic disrespect for women. They should never ever put those kinds of people on committees and have them run for office. (*Professor in geosciences*)

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Information Dissemination on the Issue. National organizations and professional societies are also in a position to widely disseminate information to a large swath of academicians and even drive the development of information and resources to magnify the significance and impact of sexual harassment. Respondents noted strategies such as commissioned white papers and providing seminars and other resources through these organizations.

> I think they can model good behavior. . . . They can run articles in their newsletters and in their journals with data on underrepresentation. And data on strategies to improve representation. I think they can do a lot. (*Nontenure-track faculty member in geosciences*)

Safe Space for Women to Share and Support. Respondents described their own use of professional meetings as a venue to share and find support from other women faculty in science, technology, and medical fields. They noted the importance of these meetings being a safe space for seeking out that type of support, and the role that societies and national organizations could play in actively creating these opportunities for women in science, technology, and medical fields. These organizations also may be able to address challenges that several respondents noted in having a safe space and mechanism for interacting with male mentors and colleagues, with emphasis on establishing norms around expected behavior in these mentoring relationships.

> There aren't a lot of women my age in my field, but talking to some of them, occasionally, is very helpful. . . . And I meet these people because I go to conferences of professional organizations. . . . (*Professor in geosciences*)

3.18 What Is the Single Most Important Strategy for Prevention?

Shifts in Cultural Norms. Respondents widely noted the most important sexual harassment prevention strategy would be a broad shift in both the norms and the general climate of academic settings, both of which perpetuate gender discrimination and fuel the perpetration and acceptance of sexual harassment.

> Global cultural change. . . . I think the harassment you can address, but the underlying gender discrimination that supports it, that allows it to happen, needs to change. (*Professor of biology*)

Transform the "Old Guard." A key issue respondents noted regarding norms that are accepting of sexual harassment is faculty who have long tenures within departments and hold traditional, discriminatory beliefs that respondents experience through their attitudes and behaviors. Respondents described how the power these longstanding faculty hold within the academic context frustrates newer or even established faculty and staff who address the sexual harassment and gender-discriminatory beliefs and behaviors that are so ingrained in that context. Some respondents suggested that the most important strategy for preventing sexual

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harassment would be for these individuals to die out or be replaced with more diverse leadership that would have high-level influence to change the culture.

> I think there's gonna have to be a generational change in leadership at various institutions. I'm not sure that the deep-seated behaviors, longstanding behaviors in certain individuals will ever be punished away. I think those people just have to move on and the new generation have to take over. (*Professor of biology*)

Revamp Training Focus and Timing and Access to Resources. Respondents also viewed continued focus on training as one of the most important sexual harassment prevention strategies. Respondents commented on the importance of making training and other resources that explain steps in addressing sexual harassment transparent and accessible. The importance of these trainings happening much earlier than college and across the life span was noted, along with a need for age-appropriate information on sexual harassment and gender discrimination that focuses on the continuum of harmful behaviors.

> It's [training] so much focused on actual touching, actual assault rather than harassment that—and even when harassment is included it's, you know, a tiny piece. . . . Either you really focus on the most serious offense or you focus on the most frequently occurring offense. I think most of the training programs focus on the most serious. (*Associate professor of psychology*)

> For me I never received any training anywhere and was totally unaware of what sexual harassment is, how to avoid it. So training in high school, colleges, to have professors receive mandatory training and practice awareness of teachers' assistants, anyone in a superior role to students, and even early-career folks to really have this mandatory training and awareness [and to] distribute resources on what to do so if something is experienced. (*Nontenure-track faculty member in geosciences*)

Limitations of the Research

Sexual harassment has been a longstanding issue inside and outside of academia, with recent high-profile cases placing a renewed spotlight on the pervasive nature of these issues. This study provides a snapshot into the sexual harassment experiences of women in sciences, engineering, and medicine, particularly in the higher education and medical settings, and the effects on their career trajectory. Some limitations on the findings of this study should be considered:

- This study was limited to interviews with 40 women in sciences, engineering, and medicine fields. This sample allowed us to capture and explore rich qualitative data from respondents' experiences. We attempted to establish geographic, academic discipline, stage of career, and demographic diversity among this population; however, we recognize that this

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limited sample may not be fully representative of the range of sexual harassment experiences of women in these fields.

- Efforts were made to prioritize recruitment of racial and ethnic minority and LGBTQ+ respondents, given the possibility that these populations may experience increased vulnerability to harassment and encounter added challenges with intersecting identities. Although our sample was reasonable in terms of percentage of racial and ethnic representation given the size of the sample (17.5 percent), this representation was limited to Asian and African American respondents. Also, all respondents identified as cisgender, which does not allow for insights into those identifying with other gender identities.
- Although we had good representation from sciences, medicine, and engineering, we could not cover every subdiscipline within these fields. Experiences of women faculty in subfields not represented in this sample may vary.
- This study focused exclusively on women academicians now in sciences, engineering, and medicine who had experienced sexual harassment in the past 5 years. Although many women, particularly those with longer academic careers, brought perspectives from both more recent and earlier sexual harassment experiences, women who only may have had earlier experiences were excluded. This study also did not include women who may have left academia and not returned, possibly because of their sexual harassment experiences. This is an important direction for future work on the effects of sexual harassment on career trajectories.

4. SUMMARY

4.1 Study Purpose and Methods

The Committee on the Impacts of Sexual Harassment in Academia of the National Academies of Sciences, Engineering, and Medicine commissioned this study to understand the influence of sexual harassment on the career advancement of women faculty in sciences, engineering, and medicine.

To best understand these complex and sensitive experiences and their impacts, the research team conducted semi-structured, qualitative interviews with women faculty in sciences, engineering, and medicine who had experienced one or more events that conformed to the research definition of sexual harassment in the past 5 years. (Women did not have to label their experiences as "sexual harassment" to participate.)

Participants were recruited through professional organization networks and selected for diversity of characteristics, experiences, and contexts. Each participant completed a 1-hour, confidential interview about her understanding of sexual

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harassment, history of workplace sexual harassment experiences in the last 5 years, responses to those experiences, any perceived impact of sexual harassment on her work and career path, and ideas for prevention and response. Interview recordings were professionally transcribed, identifiers (such as respondents' names and locations and the institutions where they worked) were removed, and the research team analyzed the transcript data in a qualitative data analysis software package.

4.2 Findings

The analytic process generated rich data on each of the study research questions.

1. **How do women who are targeted for sexual harassment in sciences, engineering, and medicine characterize and understand those experiences?**

Most sexual harassment targets recognized what they experienced as sexual harassment. Respondents who were delayed in identifying their experience as sexual harassment often perceived them as normal within contexts that normalized gender bias and in which abusive, grueling conditions were widely tolerated (as in medical residency or other training settings). Often, perpetrators' sexual harassment behavior patterns were well known within their institutions (with colleagues warning one another away from known perpetrators), but these behaviors were not always explicitly labeled as sexual harassment.

2. **How do women who are targeted for sexual harassment respond to their experiences in the short term?**

Psychological and emotional responses ranged from "uncomfortable" to "devastated." The most common responses were anger, frustration, fear, stress, and anxiety. Many respondents experienced some form of long-term emotional response, such as self-blame, decreased confidence, or heightened emotional reactivity.

Women's work habits often changed in the wake of sexual harassment experiences. Some respondents immediately considered quitting their employment or training, and several could not get any work done in the aftermath of the incident. Changes to work habits included no longer meeting with others in closed offices, avoiding being alone with anyone, changing office hours, and changing professional dress to avoid harassment. Women's other coping responses included minimizing the incident, strategizing about how to respond to similar incidents in the future, and becoming more active in addressing gender inequality.

Women took several distinct approaches to addressing or reporting their experiences. A few confronted their perpetrators directly, communicating that the harassing behavior was unacceptable. Many women reported sexual harassment

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incidents to their supervisors instead of or before pursuing formal reporting at the university level. Such reports met with sympathy or dismissiveness, but rarely action; as a result, many complaints stopped there. Still, some women initiated formal, institutional reporting. Those who did said they were motivated to try to mitigate the consequences of perpetrators' behavior for their own careers, address safety issues, and support a sense of justice and self-respect. Women who did formally report sometimes reported that it damaged relationships with their immediate management. Finally, some women perceived that they had no viable option for reporting.

In addition to (or instead of) reporting to supervisors or university officials, many women talked with family and friends or female colleagues about their sexual harassment experiences. A few, however, told no one at all. Some women sought some form of professional support, such as legal advice or counseling. Those who did often found that outside professionals' validation and helpfulness contrasted starkly with the responses they received inside their departments or programs. A few women sought support from scientific societies, accreditation bodies, police, or healing providers.

3. How do women who are targeted for sexual harassment understand their experiences to have shaped their career trajectories?

Women's collaborative or mentoring relationships often suffered in the wake of sexual harassment experiences. Over the longer term, it was common for women to become less trusting and more cautious in developing professional relationships and dealing with potential academic collaborators. Some women came to avoid male mentors. Some altered their interpersonal interactions with colleagues in other permanent or long-term ways, such as avoiding social events, avoiding personal topics, being more vocal in calling out inappropriate comments, or being more direct. These changes were often seen to harm their professional relationships.

Few respondents shifted the overall focus of their scholarly work, however. A few switched fields or avoided certain research areas of interest to avoid their perpetrators. Many respondents reported putting increased energy into professional leadership and advocacy around gender inequality or diversity issues because of their experiences. Most experienced such involvement as very gratifying, but noted that it took significant energy away from their scholarly work.

Women who had chosen to formally report or otherwise speak out about their experiences often recounted negative, long-term impacts on their careers. Several respondents made negative career transitions that they attributed to their sexual harassment experiences, such as stepping down from an assistant dean position, taking a position at a lower-ranked university, being fired as a retaliatory action, or dropping out of a major research project. Others stayed in their positions, but suffered from lack of advancement, such as not receiving tenure or not becoming

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a full professor. A few passed up job opportunities to avoid their perpetrators or to avoid situations that they feared could expose them to future sexual harassment.

4. What barriers or challenges do respondents believe prevent sexual harassment in sciences, engineering, and medicine from being addressed?

Women faculty described formidable barriers to formal reporting, including lack of acceptable or clear reporting options and the inaction of immediate supervisors. Department-level supervisors who received initial reports of sexual harassment often discouraged women from reporting through university-level mechanisms (either explicitly, or through their inaction or minimization of the experience).

The most common and significant barrier was the widespread perception that reporting sexual harassment (whether through university-level processes or within departments) would likely be more harmful to the woman reporting it than it would be productive or protective. Respondents based this perception on the observed outcomes of their own past reporting experiences or those of their colleagues. They noted that any form of sexual harassment complaint or action could weaken (or feminize) them in the eyes of their colleagues, provoke retaliation, and/or harm their chances of achieving tenure or other career objectives.

Respondents also observed cultural and institutional barriers that they believed shaped individual and institutional responses to sexual harassment. They cited a national political environment that was seen as condoning sexual harassment; cultures of persistent denial in university communities; women's resignation regarding their older, male colleagues' ability to change; and the difficulty of differentiating sexual harassment events within workplace cultures that normalized misogyny.

At an institutional level, perceived barriers to effective sexual harassment response included the under-representation of women in many sciences, engineering, and medical specialties, especially in leadership positions; a lack of clear, ethical guidance from institutions on expectations for behavior related to gender issues; and perceived tolerance of sexual harassment from institutions. In some cases, women noted that the departmental or university administrators whose leadership was needed for preventing or addressing sexual harassment were instead perpetrating it.

5. What strategies for preventing and responding to sexual harassment in sciences, engineering, and medicine do respondents perceive as promising?

Respondents offered many ideas and strategies for improving sexual harassment prevention and response. They urged greater attention to the ways that senior faculty and department leadership shape university climates regarding sexual harassment, and called for work to change departmental and university norms.

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Suggestions included improving the delivery and uptake of faculty and staff training (offering trainings for various career stages that reflect the full continuum of sexual harassment behaviors, including gender-based harassment); implementing stronger sexual harassment policies, and better enforcing existing policies; ensuring appropriate consequences for sexual harassment behavior, such as effects on accreditation, licensing, and society and organizational roles and awards; thoroughly screening job candidates for prior sexual harassment perpetration; calling out the sexual harassment behaviors of colleagues when they occur; and using university climate surveys and other data to assess sexual harassment prevalence and strategies for addressing it.

In addition to overall work to improve university climates regarding sexual harassment, interview participants emphasized that sexual harassment targets needed safer environments within which to report. They suggested offering confidential reporting options, developing role-specific reporting resources (e.g., for postdoctoral fellows), and taking action to safeguard those who report.

Women also called on their professional societies and organizations to play a leading role in ending sexual harassment. Their suggestions included commissioning white papers, providing resources to members, and providing safe spaces for women to share their experiences (such as at national meetings).

Finally, respondents shared the perception that ending sexual harassment represented an enormous challenge. They described a need to transform an "old guard" that perpetuated acceptance of sexual harassment and gender discrimination, an effort that many felt would take time. Respondents emphasized the imperative of concerted and sustained work on multiple fronts to effect broad shifts in cultural norms around sexual harassment, and support women's full contributions to sciences, engineering, and medicine.

4.3 Implications for Larger Areas of NASEM Inquiry

Despite the limitations of this study, its findings have several implications for understanding the nature of sexual harassment, its impact on SEM faculty career trajectories, and the preventive and intervening efforts that might be taken to address it.

4.3.1 Implications Regarding the Nature of Sexual Harassment

The range of sexual harassment experiences with this limited sample and the small percentage of those who reported their incident speak to the ongoing need for research efforts that assess the prevalence, nature, and consequences of incidents. These interviews support prior findings that sexual harassment, as with other related violations, remains a silent issue for many. Data and broad dissemination of findings from it serve as vital potential mechanisms for supporting prevention efforts, as evidenced in one respondent's (a nontenure-track

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faculty member in geosciences) comment: "It seems that superior[s], at least in my experience, are mostly male and mostly laugh off this sort of topic and don't take it seriously, so perhaps journal publications or these studies that could be put in front of senior leadership might help to have them take the topic seriously."

Respondents described how sexual harassment experiences are often compounded and fueled by a broader context of gender discrimination, particularly among male-dominated leadership structures. Their experiences support ongoing needs for strategies and policies addressing campus climate and diversity of leadership. Many noted that the single most important step in addressing sexual harassment and broader gender discrimination would be a change in the composition of leadership within departments and at higher academic administration levels. This includes gender, sexual orientation, and racial or ethnic diversification to help challenge the status quo regarding these issues.

> I think what senior faculty can do is make sure they talk to junior people and make sure that junior people feel safe. I think the responsibility of senior faculty is to make sure that the institutional environment is safe, and that was the problem with the other institution, it did not feel safe. (*Professor of biology*)

Respondents experienced both psychological and physical impacts from sexual harassment, and these repercussions had tremendous impact on their work productivity. Consideration is needed to develop and publicize additional strategies and resources to address aftereffects of sexual harassment that can be accessed confidentially at all career levels.

In terms of career trajectory, the cumulative effects of recovering from traumatic incidents, reliving their experiences every time they hear about it happening to someone else, and continued discrimination made many women less productive in their careers. This included effects on grant and research activities, teaching performance, and quality of relationships with their colleagues. Protective mechanisms that respondents pursued (including avoiding other men as peers, collaborators, or mentors for fear of further sexual harassment exposure) often limited their opportunities for scientific collaboration and social engagement. Such deprivation can profoundly hinder professional development and overall career trajectory.

4.3.2 Implications for Sexual Harassment–Related Training

Respondents noted clear needs for trainings that account for all behaviors considered sexual harassment, specifying that this should include the full range of forms of sexual harassment and not just the more extreme forms. Training was seen as critically important across all roles (ranging from postdocs to tenured faculty and administrators), because many do not recognize certain behaviors as sexual harassment because of setting-specific norms or lack of awareness. Trainings and supporting resources should be tailored to varying contexts and roles

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within university settings. These resources should also be widely publicized, accessible, and mandated.

Respondents were clear, however, that true awareness and prevention must start early. As one respondent noted:

> I would encourage high schools to have educational materials, seminars, or classes, something that is required to educate folks, even these straight-A student kind of groups, these nerdy folks—sorry for that—on sexual harassment. For me I never received any training anywhere and was totally unaware of what sexual harassment is, how to avoid it. So training in high school, colleges, to have professors receive mandatory training and practice awareness of teachers' assistants, anyone in a superior role to students, and even early-career folks. (*Nontenure-track faculty member in geosciences*)

4.3.3 Implications for Institutional Policy

The barriers for women reporting sexual harassment reveal perceived and actual threats to career trajectory, and the need not only for clearly defined and enforced policies, but also steps to safeguard those reporting from repercussions within and outside of the academic setting.

> There was a formal one [reporting process]. I didn't feel safe using it, and subsequently, I would say that other instances at that institution confirmed my mistrust . . . I was afraid of losing credibility and losing whatever departmental support I had. Having a reputation for being someone who doesn't put her head down and get work done, and my whole career sort of being in the balance. (*Professor of biology*)

Several respondents, however, were unaware of any existing policies or steps that could have been taken to address their sexual harassment experiences, especially among postdoc and newer faculty. University and departmental leadership should prioritize ensuring that all staff understand existing policies and available resources.

For many, the reporting process is complicated. Some respondents did not report because they were afraid that the perpetrator would experience severe consequences. Consideration may need to be given to intermediate consequences as an option for some situations.

4.3.4 National and Societal Implications

Women who had experienced sexual harassment noted the immense scientific losses to their fields that they felt resulted from the energies of so many scholars, physicians, and engineers being diverted into coping with the impact of sexual harassment. As one respondent (a nontenure-track faculty member in engineer-

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ing) commented about her field, sexual harassment "is stunting everything about the discipline—creativity-wise, progress-wise, technology." Another explained:

> Even the women who are staying in the field, I feel like aren't able to do science to the best of their ability, because they have this processor that isn't being used, 'cause it's doing other stuff, it's busy. (*Assistant professor in geosciences*)

Given their crucial role in accreditation, licensure, and research dissemination, societies and national organizations have the potential to greatly reduce sexual harassment. These organizations may serve as conduits for information dissemination and establish firm stances and policies regarding sexual harassment—which could in turn facilitate shifts in norms around the acceptance of this behavior.

As respondents to this study impressed on their interviewers over and over again, better sexual harassment prevention and responses are urgently needed in science, engineering, and medical fields. Without such efforts, they argued, investments in bringing more women into these fields would be wasted:

> We have all these K–12 STEM efforts. Let's get the girls excited about science. And at this point, a lot of us feel like, why? Why would you do that to them? They're gonna go to school and they're gonna fall in love with science and then they're gonna be 30 and they're gonna be fending off advances from some 55-year-old man and questioning every decision that they made in their lives. Why would you encourage them to do that? So, I focus most of my efforts now on women who are already in the field. I would love to spend lots of time with kids and get them excited about science, but I'm not that excited about science anymore. (*Assistant professor in geosciences*)

For many women who experienced sexual harassment themselves, trying to protect others from it or working to end sexual harassment in their fields more broadly had become a mission as close to their hearts as their own scientific contributions:

> This is my way of coping with it: trying to not let it happen to others. (*Associate professor of chemistry*)

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Appendix D

Consultant Report on the University of Texas System Campus Climate Survey

Prepared for

National Academies of Sciences, Engineering, and Medicine
The Committee on the Impacts of Sexual Harassment in Academia
500 Fifth St. NW
Washington, DC 20001

Prepared by

Dr. Kevin M. Swartout, Georgia State University
Chair, Administrator-Researcher Campus Climate Collaborative

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INTRODUCTION TO THE PROJECT

Per the consultant agreement, Dr. Swartout obtained data related to sexual harassment from the University of Texas System (UT), which collected student data using the ARC3 Campus Climate Survey. He then conducted a series of analyzes focused on understanding the effects of sexual harassment experienced by students majoring in areas related to science, engineering, and medicine. Results from an additional ARC3 survey implantation across the Pennsylvania State System of Higher Education (Penn State)—presented at the October 2017 Working Group meeting—are included in the report at key points for comparison purposes. Dr. Swartout did not have access to the raw Penn State data; therefore, all statistical analyses described in this report were conducted using only the UT climate data.

Dr. Swartout was well positioned to carry out these proposed tasks. He currently chairs the ARC3 group, which is a collaborative of sexual violence researchers and student affairs professionals who came together to respond to calls issued by the White House Task Force to Protect Students from Sexual Assault, particularly the need to identify the scope of sexual misconduct on college campuses. As chair, Dr. Swartout had led efforts to develop, test, and disseminate the no-cost campus climate survey of sexual misconduct used to collect the data that he proposes to analyze. Representatives of approximately 400 institutions of higher education have requested the ARC3 survey since September 2015, and more than 150 U.S. institutions have used the survey to collected campus climate data from their student populations.

The UT and Penn State campus climate data are well suited to help address the working group's research questions. The UT climate survey included 13 state institutions of higher education across Texas. More information on the UT System campus climate survey and results can be found at https://www.utsystem.edu/sites/clase. The Penn State climate survey data includes data from the University Park Campus and the College of Medicine at the Hershey campus. More information on the Penn State System campus climate survey and results is at https://studentaffairs.psu.edu/assessment/smcs/.

STEM Definitions

The National Science Foundation's definition of STEM fields was used for the purposes of this project. This definition includes fields of medicine, engineering, and the natural, computational and social sciences (e.g., psychology and anthropology). Additionally, the Working Group elected to include the field of public health as a STEM science. STEM students were further broken down into students of the sciences (e.g., biology, computer science, psychology), engineering (e.g., electrical, mechanical, petroleum), and medicine (i.e., M.D. students) for more fine-grained analysis.

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RESULTS

Faculty/Staff Sexual Harassment

Overall, 3,831 students (20.0 percent) reported experiencing sexual harassment perpetrated by a faculty or staff member; 3,343 (17.4 percent) reported experiencing sexist hostility, 1,411 (7.7 percent) reported crude behavior, 595 (3.1 percent) reported unwanted sexual attention, and 240 (1.3 percent) reported sexual coercion. Table D-1 depicts the overall faculty/staff sexual harassment rates by student gender identity. Of note, *incidence of sexual harassment by faculty or staff significantly differed as a function of gender, with high incidence rates among women and those who endorsed a gender other than male or female relative to the overall sample*. This pattern held for three of the four subtypes of faculty/staff harassment: sexist hostility (*chi-square* = 248.29, $p < .001$), crude behavior (*chi-square* = 126.95, $p < .001$), and unwanted sexual attention (*chi-square* = 21.41, $p < .001$), but not sexual coercion.

Table D-2 depicts the overall faculty/staff sexual harassment incidence by student status (i.e., undergraduate student, graduate student, or medical student). *Incidence of sexual harassment by faculty or staff significantly differed as a func-*

TABLE D-1 Overall Faculty/Staff Sexual Harassment Incidence by Gender Identity (% of row total)

	Faculty/Staff Sexual Harassment	
Student Gender	No	Yes
Female	9,548 (78.0%)	2,697 (22.0%)*
Male	5,685 (84.7%)*	1,025 (15.3%)
Another Gender	124 (53.7%)	107 (46.3%)*

(chi-square = 225.35, p < .001; *standardized residual > 2.0)

TABLE D-2 Overall Faculty/Staff Sexual Harassment Incidence by Student Status (% of row total)

	Faculty/Staff Sexual Harassment	
Student Status	No	Yes
Undergraduate	10,520 (80.6%)	2,537 (19.4%)
Graduate (Non-Med.)	4,347 (80.0%)	1,088 (20.0%)
Medical Student	351 (63.2%)	204 (36.8%)*

(chi-square = 80.16, p < .001; *standardized residual > 2.0)

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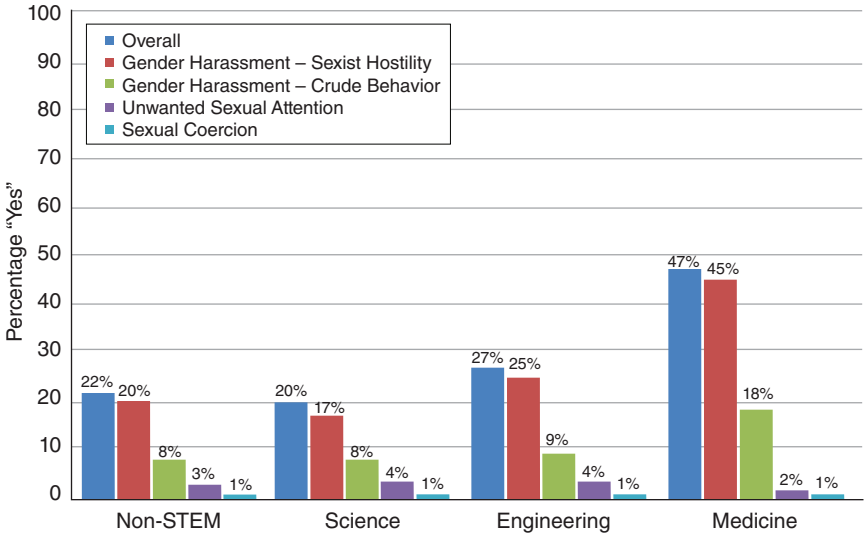

FIGURE D-1 Faculty/staff sexual harassment incidence for female students by student major (UT Data).

tion of student status, with high incidence rates among medical students relative to the overall sample. This pattern held for sexist hostility (*chi-square* = 98.21, $p < .001$) and crude behavior (*chi-square* = 33.32, $p < .001$), but not unwanted sexual attention or sexual coercion.

Taken together, these findings indicate that gender identity and student status are both relevant factors in faculty/staff perpetrated sexual harassment incidence. Because female students were at greater risk for experiencing harassment, additional analyses focused on the female subsample to generate more specific implications for those students at greatest risk. Corresponding figures depicting rates of sexual harassment reported by the male subsample are presented for comparison purposes. Although the subsample that endorsed a gender other than male or female were also at increased risk for experiencing faculty/staff harassment, that subsample was too small for more fine-grained analysis.

Figure D-1 depicts the percentages of female students of each major who experienced different forms of sexual harassment by faculty or staff in the UT sample. Results of a binary logistic regression suggest that *female medical students were 220 percent more likely than non-STEM majors to experience sexual harassment by faculty or staff* (*OR* = 3.20, $p < .001$), and *female engineering students were 34 percent more likely than non-STEM majors to experience sexual harassment by faculty or staff* (*OR* = 1.34, $p = .002$).

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This trend held for sexist hostility by faculty and staff: Female medical students were 235 percent more likely than non-STEM majors to experience sexist hostility by faculty or staff (*OR* = 3.35, $p < .001$). *Female engineering students were 36 percent more likely than non-STEM majors to experience sexist hostility by faculty or staff* (*OR* = 1.36, $p = .002$).

This trend partially held for crude behavior: *female medical students were 149 percent more likely than non-STEM majors to experience crude harassment by faculty or staff* (*OR* = 2.49, $p < .001$), but female engineering students were not significantly more likely to experience crude behavior.

Finally, there were no statistically significant differences in female students' likelihood of experiencing unwanted sexual attention or sexual coercion as a function of their academic major. Figure D-2 depicts similar rates reported by women in the Penn State sample, and Figures 3 and 4 depict sexual harassment rates reported by men in the respective samples.

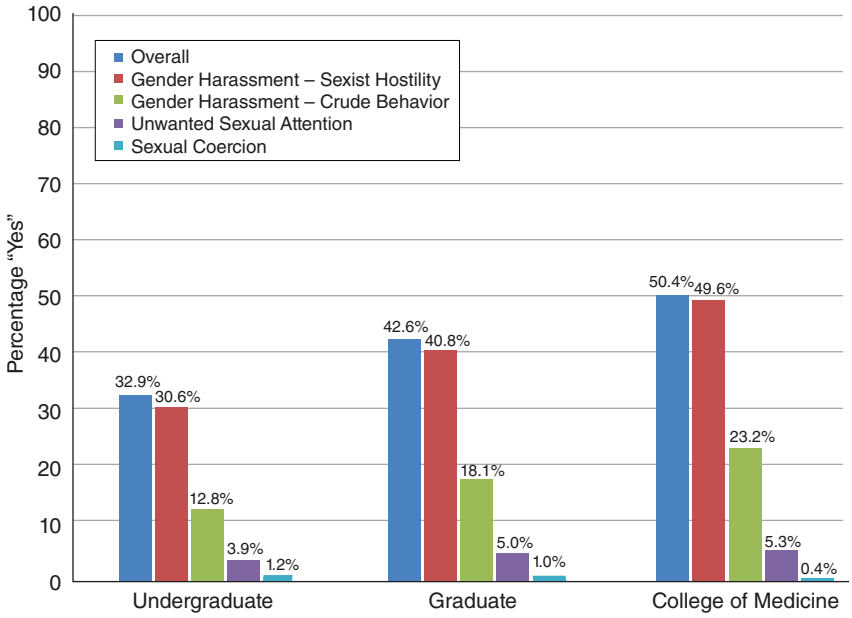

FIGURE D-2 Faculty/staff sexual harassment incidence for female students by type/level of student (Penn State Data).

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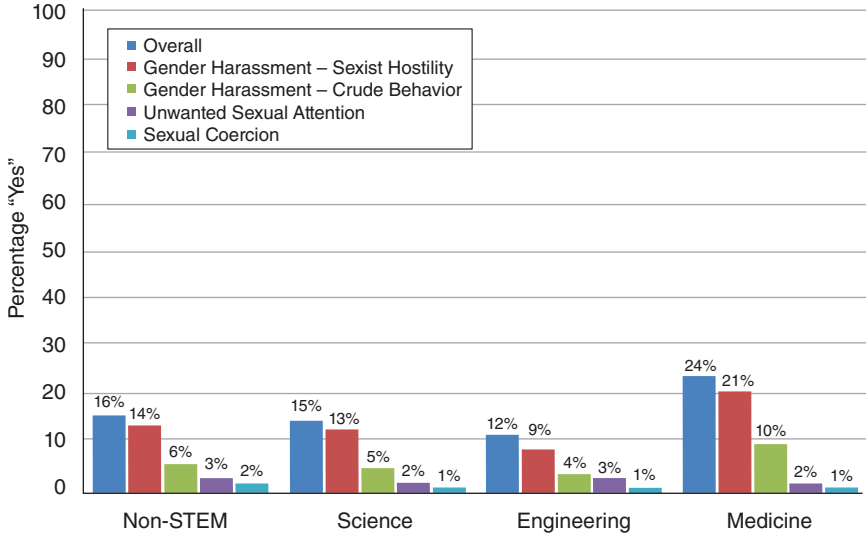

FIGURE D-3 Faculty/staff sexual harassment incidence for male students by student major (UT Data).

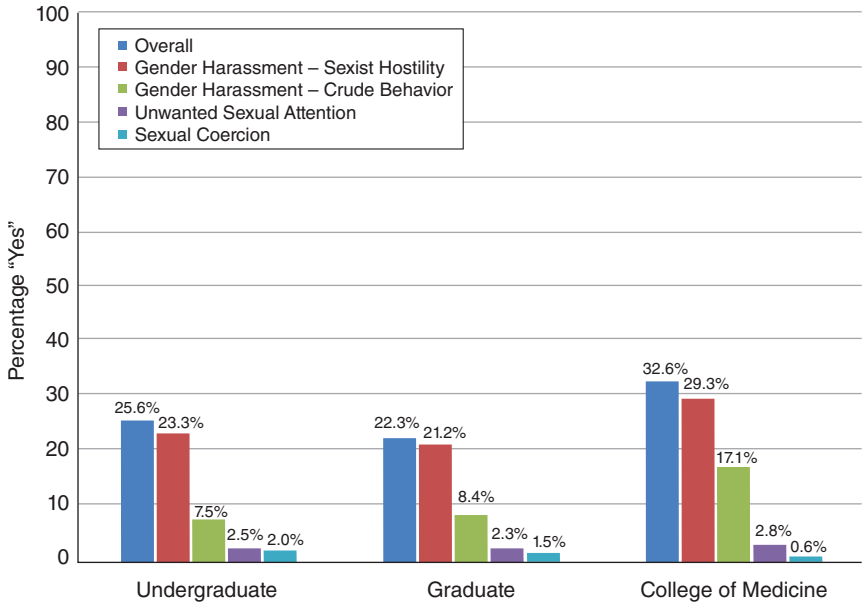

FIGURE D-4 Faculty/staff sexual harassment incidence for male students by type/level of student (Penn State Data).

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Outcomes of Faculty/Staff Harassment

Health and Safety. Female medical students who experienced any sexual harassment by faculty or staff, compared with those who had not, reported significantly worse physical ($t[289] = 2.88$, $p = .004$) and mental health outcomes ($t[289] = 3.22$, $p = .001$), and they reported feeling less safe on campus ($t[289] = 2.35$, $p = .020$).

Female engineering students who experienced any sexual harassment by faculty or staff, compared with those who had not, reported significantly worse physical ($t[602] = 2.92$, $p = .004$) and mental health outcomes ($t[602] = 2.83$, $p = .005$), but there was not a significant difference in their feelings of safety on campus.

Female science majors who experienced any sexual harassment by faculty or staff, compared with those who had not, reported significantly worse physical ($t[5302] = 2.92$, $p < .001$) and mental health outcomes ($t[5304] = 10.77$, $p < .001$), and they reported feeling less safe on campus ($t[5299] = 3.25$, $p = .001$).

Female non-STEM majors who experienced any sexual harassment by faculty or staff, compared with those who had not, reported significantly worse physical ($t[5711] = 10.14$, $p<.001$) and mental health outcomes ($t[5713] = 11.96$, $p < .001$), and they reported feeling less safe on campus ($t[5716] = 4.97$, $p < .001$).

A series of 4(major) × 2(SH status) analysis of variances supported significant differences in physical health, mental health, and feelings of safety on campus as functions of both academic major status (non-STEM, Science/Technology, Engineering, and Medicine) and faculty/staff sexual harassment experience (Yes vs. No); however, the interactive effect of the two factors was nonsignificant for all outcomes. Figures D-5 through D-7 present means on each outcome for each group.

Academic Disengagement. Female engineering majors who experienced any sexual harassment by faculty or staff missed significantly more classes ($t[603] = 2.99$, $p = .003$) and made more excuses to get out of classes ($t[600] = 3.78$, $p < .001$) compared with female engineering majors who had not experienced sexual harassment by faculty or staff. These two groups did not significantly differ in how often they reported being late for class or doing poor work. The contrasts are depicted in Figure D-8.

Female medical students who experienced any sexual harassment by faculty or staff reported doing poor work significantly more often than female medical students who had not experienced sexual harassment by faculty or staff ($t[287] = 2.34$, $p = .02$). These two groups did not significantly differ in how often they reported missing class, being late for class, or making excuses to get out of class. The contrasts are depicted in Figure D-9.

Female science majors who experienced any sexual harassment by faculty or staff reported missing class ($t[5304] = 7.26$, $p < .001$), being late for class ($t[5296] = 9.03$, $p < .001$), making excuses to get out of class ($t[5291] = 6.20$, $p < .001$),

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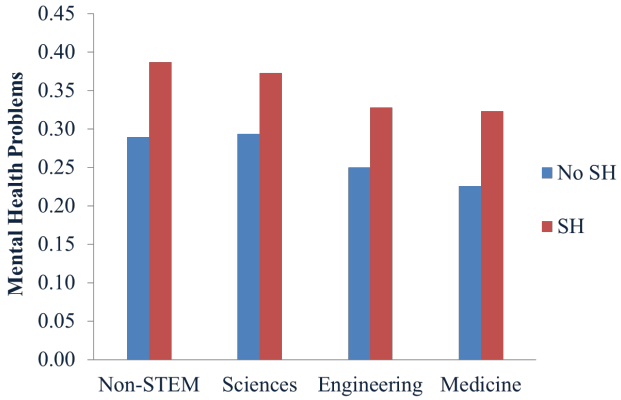

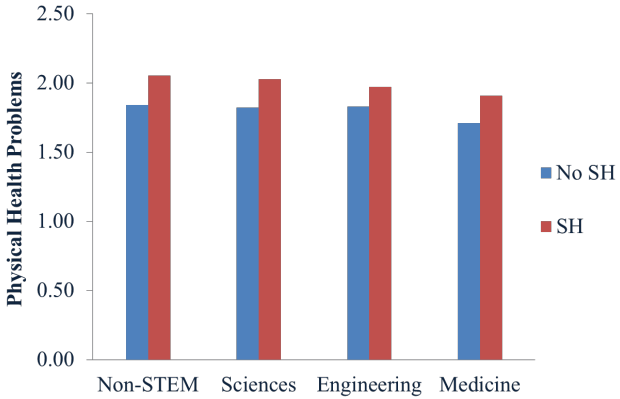

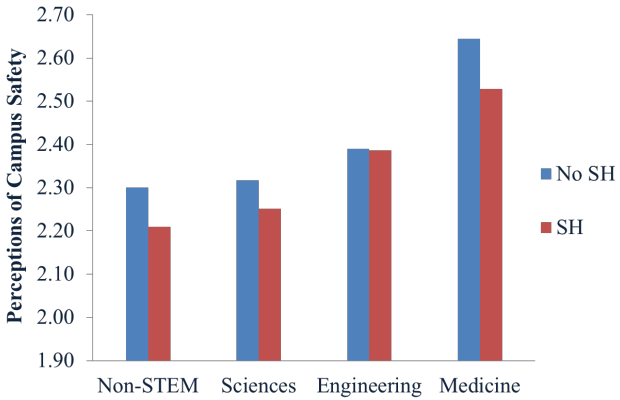

FIGURES D-5 through D-7 Health and safety outcomes by student major and faculty/staff sexual harassment status.

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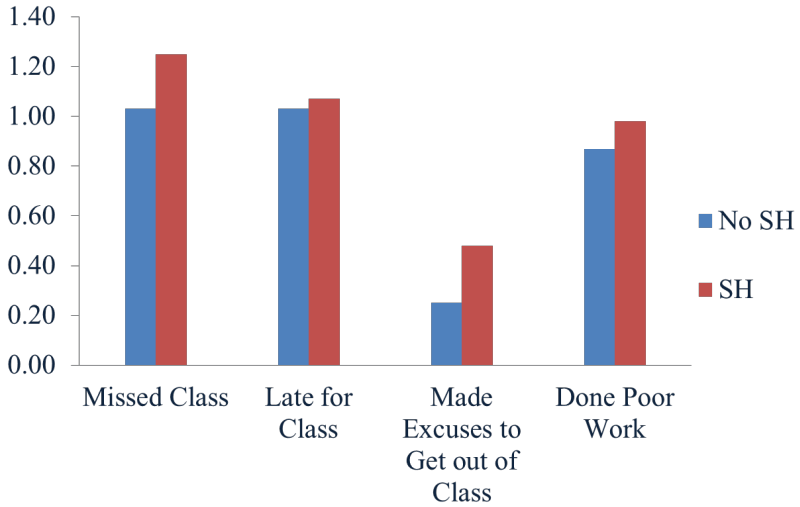

FIGURE D-8 Academic engagement for female engineering majors as a function of faculty/staff sexual harassment experience.
Note: SH = Sexual Harassment. Y-axis scale is 0 (almost never) – 4 (almost always).

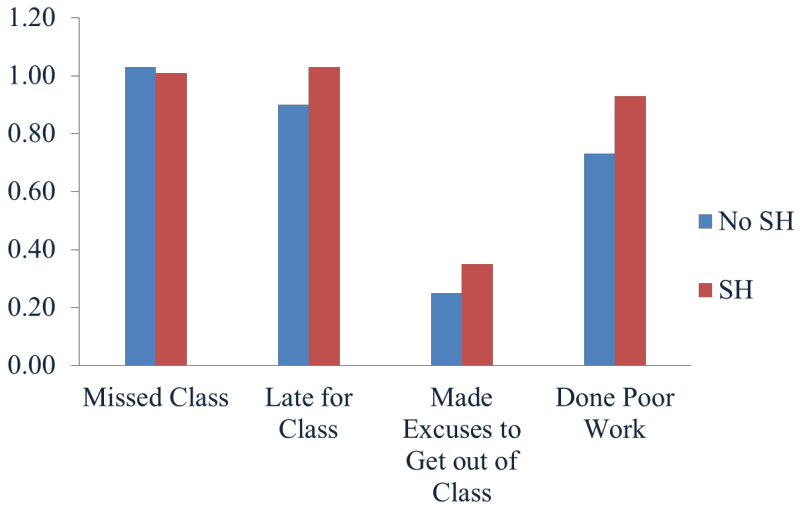

FIGURE D-9 Academic engagement for female medical students as a function of faculty/staff sexual harassment experience.
Note: SH = Sexual Harassment. Y-axis scale is 0 (almost never) – 4 (almost always).

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and doing poor work ($t[5290] = 7.30$, $p < .001$), significantly more often than female science majors who had not experienced sexual harassment by faculty or staff. The contrasts are depicted in Figure D-10.

Female non-STEM majors who experienced any sexual harassment by faculty or staff reported missing class ($t[5715] = 8.43$, $p < .001$), being late for class ($t[5708] = 10.07$, $p < .001$), making excuses to get out of class ($t[5701] = 8.69$, $p < .001$), and doing poor work ($t[5712] = 6.29$, $p < .001$), significantly more often than female non-STEM majors who had not experienced sexual harassment by faculty or staff. The contrasts are depicted in Figure D-11.

A series of 4(major) × 2(SH status) analysis of variances support significant differences in reports of missing class, being late for class, making excuses to get out of class, and doing poor work as functions of both academic major status (non-STEM, Science/Technology, Engineering, and Medicine) and faculty/staff sexual harassment experience (Yes vs. No). In addition, the two factors interacted significantly to affect being late for class ($F[3] = 3.08$, $p = .01$), but not the other outcomes. The contrasts and graphs presented above suggest the negative effect of faculty/staff sexual harassment on being late to class was larger for science and non-STEM majors than it was for engineering and medical students.

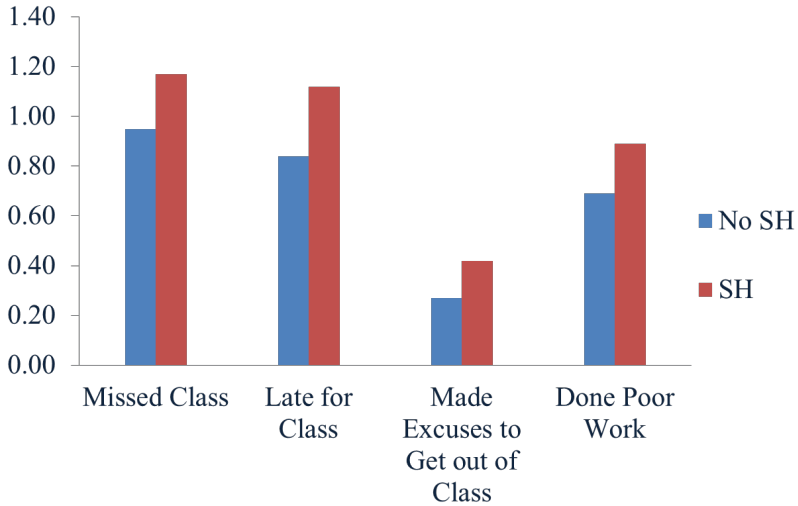

FIGURE D-10 Academic engagement for female science majors as a function of faculty/staff sexual harassment experience.
Note: SH = Sexual Harassment. Y-axis scale is 0 (almost never) – 4 (almost always).

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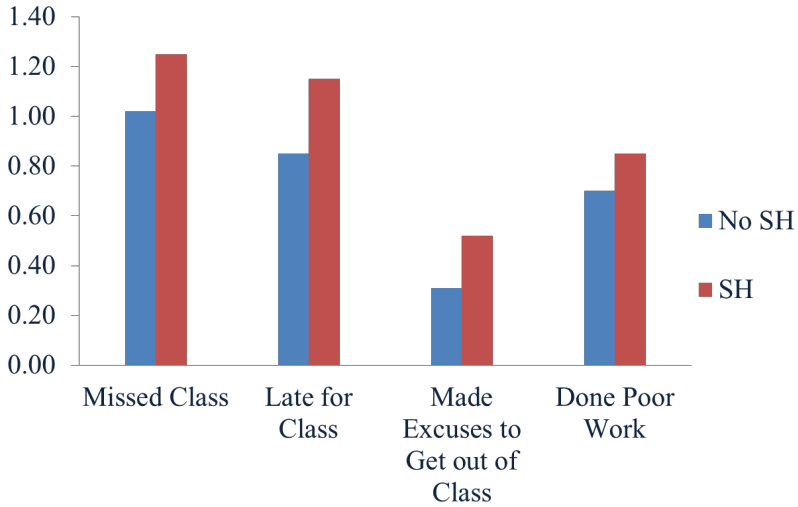

FIGURE D-11 Academic engagement for female non-STEM majors as a function of faculty/staff sexual harassment experience.
Note: SH = Sexual Harassment. Y-axis scale is 0 (almost never) – 4 (almost always).

Intersectionality

Among female STEM students, white (non-Hispanic) students collectively reported significantly higher incidence of sexual harassment by faculty/staff (*chi-square*[1] = 24.68, $p < .001$) than students of another race or ethnicity (Figure D-13).

Among these students, however, there was a significant interaction between experiencing sexual harassment by faculty/staff and race/ethnicity on student perceptions of campus safety ($F[1] = 4.42, p < .001$). As depicted in Figure D-14, students who experienced sexual harassment by faculty/staff and endorsed a race or ethnicity other than white (non-Hispanic) perceived their campus as less safe than the other female STEM students. There were no other significant interactions between race and sexual harassment experiences on health and safety outcomes.

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TABLE D-3 Cell Sizes for Each Racial/Ethnic Categorization by Academic Major (only female students)

	White	African American	AIAN	Asian	Biracial	Hispanic	Multiracial	Pacific Islander	Total
Non-STEM	3163	562	88	983	199	3512	80	36	8623
Science	2463	538	75	1231	148	3035	57	36	7583
Engineering	310	41	7	325	16	223	4	11	937
Medicine	137	21	5	69	8	58	3	3	304
Total	6073	1162	175	2608	371	6828	144	86	17447

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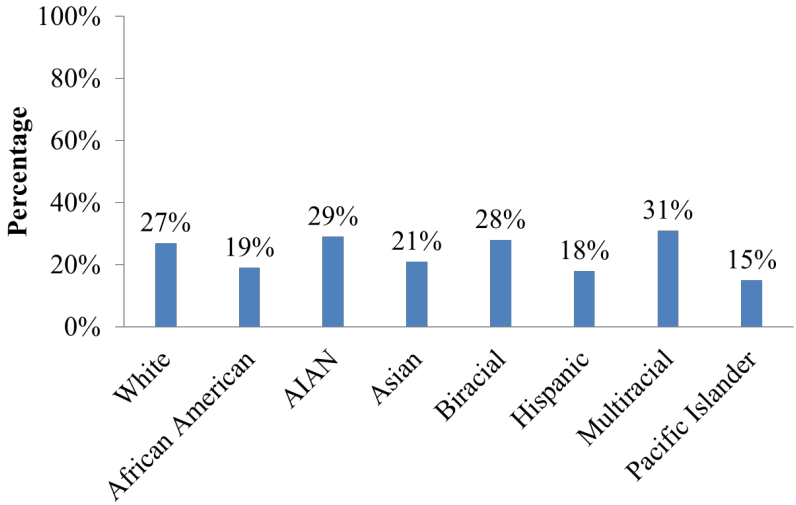

FIGURE D-12 Rates of faculty/staff sexual harassment across all academic majors (only female students).

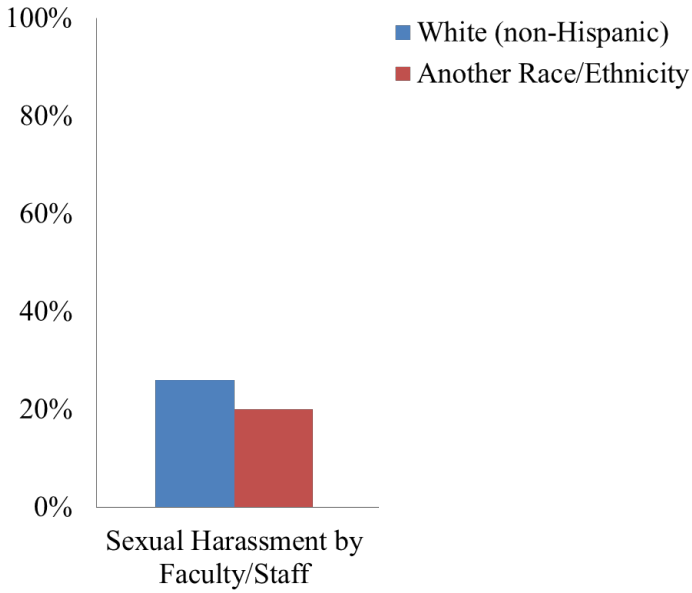

FIGURE D-13 Sexual harassment rates among female STEM majors by dichotomous race/ethnicity.

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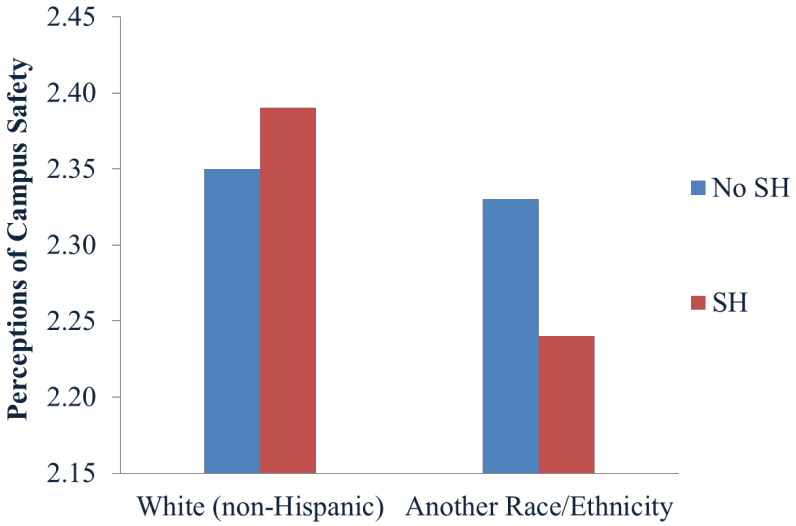

FIGURE D-14 Perceptions of campus safety among female STEM students by dichotomous race/ethnicity.
Note: SH = Sexual Harassment. Higher scores indicate greater perceptions of safety.

KEY TAKEAWAYS

- Overall, 20.0 percent of the students surveyed reported experiencing sexual harassment perpetrated by a faculty or staff member.
- Female students (22.0 percent) and students who endorsed a gender other than male or female (46.3 percent) had significantly higher incidence rates of sexual harassment by faculty/staff, compared with male students (15.3 percent).
- Female medical and engineering students both reported significantly higher incidence of sexual harassment by faculty/staff (medical: 47 percent, engineering: 27 percent), compared with students enrolled in another major (i.e., sciences, non-STEM).
- Female students who experienced sexual harassment, compared with those who had not, generally reported worse physical and mental health outcomes, feeling less safe on campus, and higher levels across various indicators of academic disengagement.

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- Among female STEM students, although white (non-Hispanic) students reported greater incidence of sexual harassment by faculty/staff, students of color and white Hispanic students who experienced sexual harassment by faculty/staff generally perceived their campus as less safe than the other female STEM students.

METHODS APPENDIX (UT CLIMATE SURVEY)

Human Subjects Protection

The UT Austin Institutional Review Board (IRB) approved and oversaw this campus climate study (IRB approval No. 2015-09-0110). Other UT institutors also independently reviewed and approved the study procedures. The IRB proposal was submitted by the UT principal investigator and research team and shared with Dr. Swartout and the National Academies staff for review. The IRB proposal included the overall research protocol, amendments to the principal survey instrument, which included variations made on an institution-by-institution basis. All institutions were provided with a copy of the study protocols and IRB approval at the time of the study. Each institution tailored the instrument to their specificities and population (e.g., each institution was able to define their own list of programs of study). No research-related activities involving human subjects took place until the study was fully reviewed and approved by the UT Austin IRB.

Students' privacy and confidentiality were protected at every step of the data collection and analysis process. Each institution's registrar office provided a list of official student e-mail addresses. The UT principal investigator and research team used the Qualtrics online survey software platform to conduct the survey and store the sampling frame information. The survey data were initially stored in a separate database within Qualtrics while the survey was active. There was no link between the sampling frames and the survey data. The platform generated a unique URL for each eligible participant that was destroyed upon survey completion. The institutional registrar did not provide the UT research team with any additional identifying information, nor was identifying information collected with the sensitive survey data. Although e-mail addresses were collective to facilitate incentives, they were not linked to the sensitive survey data.

Informed consent information was presented to students on the first page of the survey. It included a written description of the study made available online to participants, external resources for students, and information on incentives, risks, and benefits of survey participation. After reviewing the informed-consent information, participants were able to click "yes" to participate in the survey. Participation was confidential and voluntary, and participants could choose to skip any question in the survey without penalty, discontinue survey participation, or stop and restart at any time.

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Student Recruitment

The UT research team used the e-mail addresses provided by the institutional registrar offices to advertise the study to eligible students across institutions. This e-mail included an individualized hyperlink to the survey website. Additionally, the research team encouraged stakeholder groups at each institution to engage in survey recruitment. Each group was provided with templates for recruitment and promotional e-mails, fliers, and social media posts to help increase awareness of the study. Most institutions sent a recruitment/promotional letter to all students, faculty, and staff to announce the survey and express institutional support. Most institutions promoted the survey via social media (e.g., Facebook and Twitter). Social media posts included a general hyperlink to the survey website.

Survey Incentives

Individual institutions selected and funded incentives for their student participants. Incentives therefore differed across the UT institutions. Incentives included randomly selected drawings for parking passes, gift cards, athletic tickets, and cash prices. Participants could enter a given drawing by clicking on a link at the end of the survey, which took them to a separate incentives survey. This process separated participants' sensitive survey data from their identifiable incentive information, which included their names and contact information. Incentive winners were selected by the individual institution stakeholder groups.

Student Participants

The research team successfully recruited 28,270 (12.4 percent) of the 228,710 students actively enrolled in the UT system. Of this, 17,959 (63.6 percent) identified as women, 9,934 (35.2 percent) as men, 230 as another gender identity (< 1.0 percent), and 120 did not respond to the gender identity item (< 1.0 percent). Furthermore, 6.1 percent of the students self-identified as African American, 17.1 percent as Asian, 2.3 percent as biracial, 39.6 percent as Hispanic, 1.1 percent as multiracial, 39.5 percent as white (non-Hispanic), and 4.9 percent as another unspecified race/ethnicity. Undergraduates made up a majority of the sample at 69.8 percent, followed by master's students at 17.5 percent, doctoral students at 8.0 percent, medical students at 2.0 percent, and students in a number of post-baccalaureate or professional programs accounting for a total of 0.7 percent. For the present analyses, students were categorized into non-STEM (12,788, 45.2 percent), science and technology majors (11,069, 39.2 percent), engineering majors (3,157, 11.2 percent), and medical students (573, 2.0 percent). Of just the subsample of female students, 8,636 (49.4 percent) were non-STEM, 7,603 (43.5 percent) were science and technology majors, 939 were engineering majors (5.4 percent), and 304 (1.7 percent) were medical students. Students who had not yet

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declared a major at the time of the study (2.4 percent) were excluded from the present analyses.

Measures

Faculty/Staff-Perpetrated Sexual Harassment. The Sexual Harassment by Faculty/Staff module of the ARC3 Campus Climate Survey was adapted from the Department of Defense Sexual Experiences Questionnaire (SEQ-DOD), originally modified from the Sexual Experiences Questionnaire (Fitzgerald et al. 1988; Fitzgerald, Gelfand, and Drasgow 1995). This 16-item questionnaire had strong high internal consistency as part of this implementation of ARC3 Campus Climate Survey (α = .90). The 16 items and 4 subscales are as follows:

1. Sexist Hostility/Sexist Gender Harassment (α = .83)
   Unwanted and unwelcomed words, actions, symbols, gestures, and behaviors that are based on sex or gender and characteristically repetitive.
   1.1. Treated you "differently" because of your sex.
   1.2. Displayed, used, or distributed sexist or suggestive materials.
   1.3. Made offensive sexist remarks.
   1.4. Put you down or was condescending to you because of your sex.

2. Sexual Hostility/Crude Gender Harassment (α = .83)
   Unwanted and unwelcomed words, gestures, and body language of a sexual nature and characteristically repetitive.
   2.5. Repeatedly told sexual stories or jokes that were offensive to you
   2.6. Made unwelcomed attempts to draw you into a discussion of sexual matters.
   2.7. Made offensive remarks about your appearance, body, or sexual activities.
   2.8. Made gestures or used body language of a sexual nature which embarrassed or offended you.

3. Unwanted Sexual Attention (α = .83)
   Persistent unwanted, unwelcomed, or violating behaviors and gestures of a sexual nature that caused discomfort.
   3.9. Made unwanted attempts to establish a romantic sexual relationship with you despite your efforts to discourage it.
   3.10. Continued to ask you for dates, drinks, dinner, etc., even though you said "No."
   3.11. Touched you in a way that made you feel uncomfortable.
   3.12. Made unwanted attempts to stroke, fondle, or kiss you.

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4. Sexual Coercion (α = .95)
   Sexually compelled involuntary actions by an individual without regard for their desire or volition by use of force, threat, or authority.
   4.13. Made you feel like you were being bribed with a reward to engage in sexual behavior.
   4.14. Made you feel threatened with some sort of retaliation for not being sexually cooperative.
   4.15. Treated you badly for refusing to have sex.
   4.16. Implied better treatment if you were sexually cooperative

Survey Versions

Students who attended one of the academic institutions were randomly assigned to one of three survey paths—A, B, and C—to manage the overall level of survey burden on the student population. Path A mainly addressed campus climate and sexual misconduct victimization. Path B included fewer campus-climate questions, but included an economic impact module. Path C focused on a mix of victimization and perpetration questions. Of note for the present analyses, the sexual harassment modules appeared in versions A and B, but not C. All health institution students were given a version of the survey that included both sexual harassment modules.

Data Cleaning

The UT research team assessed the climate survey data for quality and consistency using a multiple-step approach. First, individual survey responses were inspected and average response times were computed to determine a reasonable minimum threshold for the acceptable time it should take a student to earnestly complete the survey. This in-depth process involved examining the questions missed by students, the relevance of open-ended responses to the topic being assessed, and whether participants had at least attempted all the victimization sections, when applicable. Participants' right to skip any question per the IRB-approved protocol was considered. Using this process, the UT research team established that 10 minutes was the minimum threshold for an acceptable survey completion. This criterion was therefore set to determine if a response would be retained in the final sample and used for subsequent analyses. In addition, the UT research team evaluated open-ended responses, and excluded responses where there was obvious evidence for survey abuse or participant response error.

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