A Review of Sexual Harassment and Misconduct in Science: Written Testimony

I am an anthropologist who studies workplace climate in the sciences. I am an associate professor at the University of Illinois at Urbana-Champaign. My degrees are in anthropology (PhD, Yale University) as well as biological anthropology and women’s studies (BA, Harvard University). With my collaborators, I have published three papers across two projects: one survey (n = 666) and interview (n = 26) project on sexual harassment and assault in the field sciences (Nelson et al. 2017; Clancy et al. 2014), and another survey (n = 474) and interview (n = 18) project on many forms of harassment (sexual, racial, etc) in astronomy and planetary science (Clancy et al. 2017). I have completed data collection on two more projects, a survey of female undergraduate physicists (n = 470) and focus groups of women of color science faculty (n = 15). In this written testimony I’ll be sharing my expertise from these projects and from the broader literature on sexual harassment. The main takeaways of this testimony are:

1. Enforcement efforts and media attention often miss the most prevalent forms of sexual harassment in the workplace.
2. Gender harassment, comprised of non-sexualized forms of sexual harassment, is widespread and responsible for the loss of women in science, to the detriment of science.
3. There are some key features of workplaces and the culture of science that enables this behavior to persist and that amplify its damage to the advancement of American science.
4. There are concrete, evidence-based steps we could take to make healthier workplaces, retain more women, and improve the state of our science.

Defining sexual harassment

It is unlawful to harass a person because of that person’s sex. Harassment can include “sexual harassment” or unwelcome sexual advances, requests for sexual favors, and other verbal or physical harassment of a sexual nature…. Harassment does not have to be of a sexual nature, however, and can include offensive remarks about a person’s sex. For example, it is illegal to harass a woman by making offensive comments about women in general…. [H]arassment is illegal when it is so frequent or severe that it creates a hostile or offensive work environment or when it results in an adverse employment decision (such as the victim being fired or demoted). – Equal Employment Opportunity Commission

The Equal Employment Opportunity Commission offers a great working definition of sexual harassment, however, in practice this definition is often used to excuse a significant number of behaviors that make workplaces inhospitable to women and gender minorities. In theory the bar for illegal sexual harassment that is “so frequent or severe that it creates a hostile
or offensive work environment” is more than adequate. In practice, this bar is so high that a significant number of unwanted behaviors that do impact climate, health, and productivity continue to be prevalent in the workplace.

Sexual harassment is comprised of three distinct sets of behaviors: unwanted sexual advances, sexual coercion, and gender harassment. The first two forms of behaviors are sexual in nature, and therefore are often considered together in studies of sexual harassment as “come-ons.” Gender harassment, the third category, includes crude behaviors and sexist hostility, or sexist behavior that isn’t necessarily sexual in nature. These behaviors are considered “put-downs.”

Come-ons are the most frequently reported to Title IX offices (Cantalupo and Kidder 2017) as well as those most reported by the media (Kantor and Twohey 2017; Ghorayshi 2016, 2015). However, across several decades researchers have consistently found that put-downs are the most frequent sexual harassment behaviors of the workplace (Leskinen, Cortina, and Kabat 2011; Schneider, Swan, and Fitzgerald 1997). Even when perpetrators commit come-ons, they almost always also include some form put-down, such that put-downs comprise over 90% of workplace sexual harassment (Schneider, Swan, and Fitzgerald 1997).

Therefore, in defining and seeking to understand sexual harassment, we must pay special attention to gender harassment, or put-downs, as 1) the most prevalent and frequent form of sexual harassment and 2) a set of behaviors that can precede sexual forms of sexual harassment.

Examples of gender harassment. Gender harassment can include crude behaviors such as offensive sexual teasing, sexual insults, obscene gestures, or pornographic images posted at work, or sexist hostility such as degrading remarks about bodies, sexist insults, harassment of feminists, harassment of mothers, or outright sabotage. These put-downs may seem less extreme than the come-ons, but they encompass non-sexual forms of both verbal and physical harassment targeted towards women. When gender harassment is frequent, and/or the perpetrator has power over the victim, gender harassment has the same level of job and mental health outcomes as more sexual forms of harassment (Langhout et al. 2005).

The recent case against David Marchant at Boston University provides several horrifying examples of gender harassment. Marchant is a geologist who does field research in Antarctica; two of his alleged victims have recently come forward, waiting years to report him because they believed doing so would destroy their careers. The two complainants on this case alleged that Marchant called them “slut,” “whore,” “bitch,” and “cunt.” One complainant revealed:

“His taunts, degrading comments about my body, brain, and general inadequacies never ended…. Every day was terrifying.”

Another complainant alleged having rocks thrown at her by Marchant whenever she urinated while conducting fieldwork, being thrown three times down a mountainside, and having volcanic ash blown in her already-damaged eyes (Wadman 2017).
In my own research, I have seen additional examples of women being punished for urinating while in the field, and being punished for eating. In our samples women have also been given fewer interesting tasks in the field compared to men, have been denied access to materials or locations necessary for their research, or were forced on extended hikes for non-scientific reasons, then taunted when they tired (Nelson et al. 2017). **None of these behaviors are about wanting to have sex with someone: they are about exerting power, causing humiliation, derailing careers, all because of the victim’s gender. This is about sabotaging women in science.**

**Intersecting forms of harassment.** Women of color, as well as people who are sexual minorities or gender minorities (LGBTQIA+ folk) face additional obstacles. Women of color and/or sexual minority women experience more sexual harassment compared to straight, white women, women from these groups experience a much higher rate of intersecting forms of harassment, such as racial-gender harassment or heterosexist harassment (Berdahl and Moore 2006; Cortina, Fitzgerald, and Drasgow 2002; Silverschanz et al. 2008). Our research also suggests that women of color have worse workplace outcomes even when experiencing similar rates of sexual harassment, suggesting the type of harassment they receive may be more severe (Clancy et al. 2017).

**Causes of harassment.** Sexual harassment tends to be more prevalent in workplaces defined by two factors: male dominated work environments and organizational tolerance towards harassment (Willness, Steel, and Lee 2007). A male dominated work environment is defined as when a workplace has more men than women; has more men in leadership; or is a historically male job. Male domination is a key variable in understanding sexual harassment because most perpetrators are men, and most victims are women. Therefore conditions where women are outnumbered in general or in leadership, or are considered to be outside the norm for that job, are places where they are at greater risk of harassment. Increasing women in science is not a straightforward problem: male and female scientists hold implicit biases against women that affect their grades as well as their ability to be hired and paid adequately for their work (Grunspan et al. 2016; Moss-Racusin et al. 2012).

Organizational tolerance towards harassment is used to describe an organization that fails to take complaints seriously; fails to sanction perpetrators; or fails to protect complainants from retaliation (Willness, Steel, and Lee 2007; Bergman et al. 2002). When a victim is harassed, she is unlikely to report her experience if she has the impression or has been warned that her workplace doesn’t care about harassment. Organizational tolerance of harassment not only influences the risk of harassment, but the downstream experiences a harassed person has, as she is likely to feel unsupported and be retraumatized if she dares report her experience. Many science workplaces are tolerant of a number of unsavory or outright unsafe behaviors in the name of producing science. Interview respondents shared stories of field sites where it was common to not boil their water long enough to kill parasites; where scientists were bitten by animals and not provided adequate first aid; where they lived in tents that did not protect them from the elements (Nelson et al. 2017).
Many American workplaces could be argued to be both male dominated and tolerant of harassment, from politics, to the military, to the sciences. In the sciences, these factors often manifest as a disregard for safety and feelings, sabotage and other unhealthy forms of one-upmanship, and a prioritization of the research over all else. In some settings, scientists are expected to ignore bodily signals of hunger or the need to urinate, to ignore family commitments, and to flout rules if it means getting the data they want. At the same time hierarchy is strict and authority is expected to be obeyed at all times: to obtain the best possible science “pedigree” students and junior scholars must often work with a single supervisor whose regard for their work is the sole predictor of career success. Interview respondents often shared times they were yelled at by their supervisor to conduct their research using a particular technique that was outdated, incorrect, or lead to a loss of data, but disobeying meant only more abuse (Nelson et al. 2017). Authority that does not listen and engage, or hostile workplace environments that are about competition rather than cooperation, do not lead to the production of better science (Tepper 2007).

These impressions, and these behaviors, are harmful to scientists and to the advancement of American science. Therefore another significant roadblock to scientists being able to work unhindered by a hostile workplace is our fundamental misconception that scientists should endure horrible working conditions out of love for their science.

In our research on field site science, many of our interview respondents never reported their experiences because they were confident they wouldn’t be believed, based on what they had already observed of problematic behavior at the site. In general only about one quarter of workplace harassment is reported, and three quarters of those who report are retaliated against for doing so (Feldblum and Lipnic 2016). Therefore it’s likely that a large number of American workplaces, including science workplaces, are tolerant of sexual harassment.

But, in our sample, some did try to report the behavior they experienced. One respondent shared her story of staying in her tent one day because she was ill. A fellow field site worker tried to forcibly rape her while she was sleeping. She managed to fight him off, and she reported the incident that same day. That respondent said:

“[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.”

Despite having to fight off a rapist in a remote field site, this respondent had to continue to live and work with her aggressor for months (Nelson et al. 2017). Allowing the perpetrator to
continue to work at the site not only opened up the victim to more mental and physical trauma, it sends a signal that this type of behavior is tolerated in science.

The scope of the problem in science

The descriptions above are worrisome features of certain science workplaces. In our samples, we have found high numbers of women reporting sexual harassment in the field sciences (71% across their careers), and astronomers and planetary scientists regularly observe sexist remarks from coworkers (79% from peers, 44% from supervisors, 85% from others in the workplace over just the last 5 years) (Clancy et al. 2017; Clancy et al. 2014). In the field sciences, women in our sample also experienced more frequent harassment from perpetrators with more power in the hierarchy compared to men, who more often were harassed by peers (Clancy et al. 2014). Peer to peer harassment is in general the most common form of workplace sexual harassment (Rosenthal, Smidt, and Freyd 2016), which may indicate additional problems in field contexts due to the remoteness of the location and the authoritarian leadership style common at such sites. Field scientists in our sample described being encouraged to keep quiet about their field experiences with epithets like “what happens in the field stays in the field” (Nelson et al. 2017). As one interview respondent stated:

“I feel like [my field site director] just sees this divide between the field and at home. What happens to you in the field, it’s just like a different world so the way you behave can, it’s just completely separated from your daily life.”

In astronomy and planetary science, harassment was not more likely to originate from supervisors (Clancy et al. 2017). In interviews with respondents from these disciplines, they described a more systemic culture of hostility, intellectual takedowns, and competition that lay the groundwork for harassment (Clancy et al. in preparation). As research continues to disentangle the ways in which the cultural and historical context of the workplace affects the nature of the harassment that occurs there, one thing is clear: few workplaces are immune to it.

Impact on science and scientists

The effect of sexual harassment on workers has been well-studied, from job to mental health to physical health outcomes. Workers victimized by sexual harassment report a higher intention to quit, and are more likely to withdraw from work, be absent, and be less productive (Herschcovis and Barling 2010; Langhout et al. 2005; Nye, Brummel, and Drasgow 2009). Workers victimized by sexual harassment also report more depression, anxiety, and even physical pain, compared to those who are unaffected (Lì et al. 2016; Stock and Tissot 2012; Miner-Rubino and Cortina 2004; Richman et al. 1999). Sexual harassment can even adversely impact cardiovascular health (Thurston and Kubzansky 2017).
Sexual harassment reduces scientific productivity and drives scientists from the field. In our sample of field scientists, those who experienced sexual harassment felt far greater ambivalence about their field, stalled out in their careers, made lateral career moves to avoid their perpetrator, and in some cases left science altogether (Nelson et al. 2017). Those who experienced harassment in the field also observed that the effects of that harassment reverberated throughout their careers. For some, they felt physical resistance to working on the project once home; for others they were forcibly removed from projects, particularly if they had rebuffed the advances of anyone with control over their field site, materials, or collections (Nelson et al. 2017).

Forty percent of the women of color in our astronomy and planetary science sample reported they felt unsafe in their workplace due to their gender. Twenty seven percent of white women also reported they felt unsafe due to their gender (Clancy et al. 2017). Those who were harassed were more likely to skip work events, ranging from seminars to meetings to data collection at observatories, due to feeling unsafe. One respondent shared her story of social withdrawal after being raped by a fellow student.

“Yeah, and then at some point we were working at his house, at 3:00 a.m. on a lab report, and he just made a move on me. I rejected him, but he just—it wasn't violent or anything, but he just wouldn't stop pushing me. It was just horribly uncomfortable, and then he spread a rumor that we were in some consensual thing. I was like, ‘No, no, you basically raped me.’…. I really withdrew from the [physical science] department after that. I did my work, but my social group after that was [a different physical science] department.” (Clancy et al in preparation)

Perpetrators often have the power to dominate the narrative, and present a different face to the rest of the world. In some of the major cases covered by the news media, the alleged perpetrators have been allies for women in science (Ghorayshi 2015), or superlative teachers and mentors (Wadman 2017). This leaves victims feeling disempowered and unable to reintegrate into the workplace, which in turn lessens the contributions they can make as diverse team members.

Women, and in particular women with multiple marginal identities, must regularly push against a culture that does not feel welcoming to them. While today they are less likely to experience overt discrimination, research has shown that implicit bias still influences social distance, eye contact, and other ways of including or excluding fellow workers (Hebl, Madera, and King 2008). Diversity resistance is still an obstacle in the sciences, where many are enamored with the idea that the sciences operate as a meritocracy. This leads many scientists to believe that the lower number of women generally, and women of color specifically, must be related to aptitude or desire. However the data overwhelmingly point to implicit bias, discrimination, and sexual harassment as forces driving women out of science (Wasserman 2000; Xie and Shauman 2004; Caplan 1993; Gutiérrez y Muhs et al. 2012).
The false notion that career success in the sciences is objective and the best scientists have the most success drives out women and others who, despite intelligence and persistence, face substantial barriers to success. These scientists would diversify our workforce and thus allow for more rapid solutions to today’s complex problems (Hong and Page 2004; Hajro, Gibson, and Pudelko 2017; Jackson, Joshi, and Erhardt 2003; Roberge and van Dick 2010). Instead, those who are sexually harassed not given the full opportunity to make contributions to scientific advancement and discovery.

Hope for the future. That said, there are many individuals, laboratories, field schools, and professional societies who have decided to take steps to eliminate sexual harassment from their workplace and discipline. In our field sciences project, I interviewed several people who had either had positive field experiences, or were themselves taking steps to create positive field experiences for their students (Nelson et al. 2017). Our interview respondents identified several factors that made their science workplaces healthy, helped them produce the best science, and made them want to persevere in a challenging discipline. These were: having rules for appropriate conduct, implicit or explicit; swift consequences for those who transgress the rules; an egalitarian workplace structure; and commitment to a healthy workplace from the leadership (Nelson et al. 2017).

Recommendations for improving the culture of science

The main ways to overcome sexual harassment in science are directly tied to the ways in which male domination and organizational tolerance manifests in these workplaces. While the answer lies in increasing the number of women in science and creating stronger rules and enforcement structures against bad behavior, we cannot continue to operate our diversity and anti-harassment initiatives the way we always have. At this point, we have ample evidence stemming from nearly every American college and university that the ways we are trying to increase diversity and decrease harassment are not working. It is time for something new.

Making room for women. Women in science initiatives have long operated between a rock and a hard place: trying to advocate for change while not wanting to advocate too hard and alienate their largely male coworkers (Phipps 2006). These initiatives are also typically under- or un-funded, and do not take into account the varying experiences women from different backgrounds have in science. A focus on recruitment brings women into a workplace that is hostile to them, and tends to put them on the lowest rung where they are most vulnerable to harassment. Girls and women are blasted with the rhetoric that they can do anything, so when they encounter hostile behavior and/or sexual harassment, they often internalize these experiences and assume they are not worthy of science. We need to stop asking women to adapt to science. Instead, science has to adapt and make room for women and gender minorities.

Science culture. Several elements of science culture need to be addressed to make it more hospitable to a wider range of scientists. First is the way in which academia generally, but science specifically, sets up single advisor-student relationships where the student must depend
fully on the support and good will of a single person to determine their educational and career success. If that advisor is not supportive when the student is encountering a problem, or if the advisor themselves is the problem, that student can easily find herself with no path to graduation or no recommendation letters or networking to help her land a job. Because advisors still tend to be male and the majority of the women in science are students, problematic mentoring relationships block women from career success in the sciences.

Next, scientists need to reevaluate how they define rigor: in many disciplines hostility, incivility, and one upsmanship parade as thoroughness, care, and objectivity. Many scientists believe that this is a culture that affects everyone equally, that everybody has to get used to it and accept that this is what it takes to do the best science. What few realize is that the evidence has demonstrated, again and again, that when there is a seemingly overall disrespectful environment, the reality is that those daily incivilities operate selectively against women, people of color, and specifically women of color (Cortina et al. 2013). Scientists may think they are toughening up the workplace, but what they are doing is targeting people from underrepresented groups and making them unwelcome.

Creating incentives and expectations around a respectful and equitable workplace is probably one of the greatest changes that will improve science culture. This will lead to a greater respect for basic safety practices, work against the exclusion and isolation that many women in science face, and make room for questioning leadership styles that are authoritarian without being thoughtful.

Respectful and equitable workplaces. An equitable workplace – one with clear guidance on appropriate workplace conduct, consequences for bad behavior, and a cultural emphasis on cooperation and inclusion is the way to ensure Americans continue to lead in the sciences. Additionally workplaces that acknowledged the differential production of reproductive and domestic labor would lead to the retention of more women, and would lead to the more rapid and innovative production of science.

What Congress can do. Here are some changes within Congress’s power to reduce or eliminate sexual harassment in science:

- Mandates:
  - Universally and other science workplaces need adequately staffed and accessible ombudsperson offices where victims could confidentially discuss their experience to plan next steps without necessarily having to formally report.
  - Encourage universities to adopt victim-led resolution policies. This means centering the experiences of the victim and making sure they feel heard and respected, but also that their wishes for resolution are considered.
  - Encourage swift sanctions for those who commit abuses. Most Title IX-reported abuses take months if not years to be investigated. While due process is important, swift resolution is crucial to keep the workplace intact and make workers feel as though their safety and respect matter to the leadership.
Encourage a values-driven approach to eliminating sexual harassment. This means being willing to evaluate policy, trainings, and procedures, and being willing to change them based on that evaluation. This also means developing training programs that focus on the creation of a respectful workplace, rather than the elimination of only the most egregious unwanted behaviors.

Encourage extralegal solutions. For too long we have abdicated responsibility of workplace culture to the court system. The legal standard only addresses the end game and the most egregious cases of sexual harassment. Create opportunities for mediation as well as confidential or even third party reporting.

- Funding (e.g., NSF, NIH, NASA, NOAA):
  - Provide funding for research on sexual harassment in the workplace.
  - Provide funding for organizations who propose novel ways to change their workplace structure and evaluate outcomes for women.
  - Provide funding for research on methods for improving recruitment and retention of women from underrepresented groups in science (e.g., racial and ethnic minorities, sexual minorities). At this time the main increases in numbers of women in science are those of white, cisgender, straight, able-bodied women. This is also the only group to have consistently benefitted from affirmative action policies.
  - Financial incentives and awards for collaborative research, graduate and undergraduate mentoring, service to one’s discipline or society. This acknowledges the important work of being cooperative, ethical, and thoughtful scientists.

To my mind, what’s most important is to move away from symbolic compliance and towards real change. It is not enough for universities to comply in name only with Title IX with trainings we know don’t work, with policies we know aren’t followed, with reporting structures we know are harmful to victims. Universities and other institutions that employ scientists must want real change, and be willing to do the work, for this change to happen (Grossman 2003).

While the study of sexual harassment in the particular context of the sciences is new, the study of sexual harassment in the workplace is not. We have several decades of research, and ample empirical evidence, to suggest a new way forward in the elimination of discrimination in the workplace. It is time to move away from unfunded mandates for trainings that worsen gendered beliefs (Tinkler, Li, and Mollborn 2007), from reporting structures that disincentivize guilty convictions (Bergman et al. 2002), and from a culture of compliance rather than willingness to change (Grossman 2003). It is time to move towards a true commitment to healthy, respectful, equitable workplaces in the sciences, in order to advance innovative practices in American science.
References


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