



# WALKING THE TIGHTROPE

AN EXAMINATION OF BIAS IN INDIA'S  
ENGINEERING WORKPLACE

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**ABOUT SWE**

The Society of Women Engineers (SWE), founded in 1950, is the world's largest advocate and catalyst for change for women in engineering and technology. The not-for-profit educational and service organization is the driving force that establishes engineering as a highly desirable career aspiration for women. To ensure SWE members reach their full potential as engineers and leaders, the Society offers unique opportunities to network, provides professional development, shapes public policy, and provides recognition for the life-changing contributions and achievements of women engineers. As a champion of diversity, SWE empowers women to succeed and advance in their personal and professional lives. For more information about the Society, please visit [www.swe.org](http://www.swe.org).

**ABOUT WLL**

The Center for WorkLife Law (WLL), based at the University of California, Hastings College of the Law, is a nonprofit organization dedicated to measuring and documenting implicit bias in the workplace, with a focus on how bias differs depending on gender and race. WLL works with innovative companies to develop best practice Bias Interrupters, which seamlessly interrupt the transmission of bias in basic business systems (see <https://hbr.org/2014/10/hacking-techs-diversity-problem> to learn more about the Bias interrupters model). For more information about the Center, please visit <http://worklifelaw.org/>.

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# TABLE OF CONTENTS

<b>Executive Summary</b> .....	<b>5</b>
<b>Introduction</b> .....	<b>7</b>
The Four Basic Patterns of Bias.....	9
The Current Research.....	11
<b>Methodology</b> .....	<b>13</b>
Analyses .....	13
Qualitative Data.....	13
A Note About Scales .....	13
U.S.-India Comparisons.....	13
<b>Overall Findings</b> .....	<b>15</b>
High Percentages of All Respondents Reported Bias.....	15
Key Issues for Employers .....	15
Why Are Men Reporting High Levels of Bias? .....	18
<b>Gender Differences in Reported Bias</b> .....	<b>21</b>
Differences Within the Four Patterns of Gender Bias .....	21
Bias in Workplace Processes .....	29
Sexual Harassment.....	38
The Shops and Establishments Act.....	40
<b>Recommendations</b> .....	<b>43</b>
Supporting Diversity and Inclusion in India.....	43
Bias Interrupters .....	43
<b>Future Directions</b> .....	<b>47</b>
<b>Conclusion</b> .....	<b>48</b>
<b>Appendix A: Demographics of Sample</b> .....	<b>49</b>
<b>Appendix B: Table of Percentages for Four Bias Patterns</b> .....	<b>50</b>
<b>Appendix C: Table of Percentages for Bias in Workplace Processes</b> .....	<b>51</b>
<b>Appendix D: Table of Regression Results</b> .....	<b>52</b>
<b>References</b> .....	<b>53</b>

# EXECUTIVE SUMMARY

In 2015, the Center for WorkLife Law at the University of California, Hastings College of the Law (WLL), and the Society of Women Engineers (SWE) conducted a large-scale study of bias experiences of engineers across the United States. Building upon this work, WLL and SWE conducted a subsequent study to explore bias reported by Indian engineers largely working for Western companies in India. Almost 700 engineers took our Workplace Experiences Survey and reported on their workplace climates.

## HIGH LEVELS OF BIAS

Indian engineers reported high levels of bias whether they were men or women. Our data suggest that women engineers are more likely to face gender bias, while men engineers are more likely to face bias based on where they come from (both their region and language). It may be that Indian engineers from one region were comparing themselves to Indian colleagues from other regions.

### Four Patterns

- **Prove-It-Again bias:** 76% of engineers reported having to prove themselves over and over to get the same level of respect as their colleagues.
- **Tightrope bias:** 77% of engineers reported that they were confined to a narrower range of acceptable behaviors than their colleagues.
- **Maternal Wall bias:** 40% of engineers in India reported bias against mothers in their workplaces.
- **Tug of War bias:** 45% of women reported that they have to compete with their female colleagues to get the one “woman’s spot” available.

### Key Issues

Higher levels of bias were associated with feelings of exclusion, belonging, and lower intent to stay with one’s employer.

- **Tightrope bias** had the most pervasive effect: it was strongly linked to every workplace process and outcome we studied, including hiring, performance evaluations, assignments, and intent to leave one’s current employer.
- An increase in **Prove-It-Again bias** was linked to a decrease in career satisfaction and an increase in intent to leave one’s employer.

Clearly, employers who want to retain the women they hire, and want to give them equal opportunity to advance, need to care about workplace bias. In addition, employers need to assess whether Indian engineers from some regions are artificially advantaged over engineers from different regions.

## Workplace Processes

- **Three-quarters** of engineers reported bias in assignments, promotions, sponsorship opportunities, and compensation.
- **Two-thirds** of engineers reported bias in their performance evaluations.
- **Half of engineers** reported bias in their companies' hiring systems.
- **Region- and language-based bias:** 44% of men and 30% of women engineers reported bias due to the state/region they are from.

## Sexual Harassment

Among survey respondents, 11% of women engineers and 6% of men engineers reported unwanted romantic or sexual attention or touching in the workplace.

## Comparison to U.S. Data

For the most part, men and women engineers in India reported similar levels of bias as women engineers in the U.S. Among engineers working for primarily Western companies in India, both men and women report higher levels of bias than do white men engineers in the U.S.

# INTRODUCTION

Over the past four decades, the number of women earning engineering degrees in India increased sharply but then stagnated. In 1980, only 1.5% of engineering degrees were earned by women (Patel & Parmentier, 2005). Twenty years later, in 2000, that number grew to 23.9% (Patel & Parmentier, 2005). Between 2000 and 2018, this sharp increase slowed down. By the 2017-2018 school year, women earned 31.7% of the engineering and tech degrees in India—an increase, but still not gender parity (AISHE, 2018).

Although the enrollment numbers are not as high as one might hope, the good news is that multiple studies have found that the climate for women engineering students in India is a positive one. A 2013 study of Indian engineering students found that only 8% of women students reported that they sometimes felt left out in their academic setting (Chandra, 2014). In a comparative study (Aspiring Minds, 2018) of engineering colleges in the U.S. and India, researchers found that the factors that create a “chilly climate” for women engineering students in the U.S. don’t exist in India and found “no evidence that college is a place of leakage for females in the engineering education and career path.” Women engineering students in India consistently reported being more confident and more respected compared to their male peers (Aspiring Minds, 2018).

After college, the situation gets worse for women engineers in India. The unemployment rate for women with engineering degrees is high: five times higher than the rate for men (Goel, 2007; Patel & Parmentier, 2005). Women engineers’ unemployment rates have been increasing in many parts of India. For example, in Kerala, the unemployment rate for women engineers was 35.9% in 1990 and increased to 41.9% in 1998 (Goel, 2007). Nationally, the unemployment rate for women engineers today in India is about 40% (Anand, 2016).

Why is the rate of unemployment for women engineers in India so high? Scholar Sudha Goel (2007) hypothesized that, because engineering jobs have traditionally been viewed as needing tough, long, on-site hours, employers have been reluctant to hire women: “Many women were and continue to be discouraged by employers’ expectations or demands and often the discomfort of their male colleagues and/or family members (reasons include safety concerns, lesser physical abilities or stamina, and long hours away from home).” Goel also notes that, even though advancing technology has improved and changed engineering jobs so that women can continue working, the unemployment rate remains high for women engineers in India.

The issues surrounding the employment of women in India are not isolated to engineers. Although the economy in India is growing steadily, the number of employed women has been dropping. The employment rate of women in India has fallen in recent years, from 35% in 2005 to 26% in 2018 (The Economist, 2018). If the women’s employment rate rose to match the employment rate of men, India’s gross domestic product would increase by 27% (The Economist, 2018).

Multiple reasons exist for the low employment rate of women. In wealthier households, it is considered undesirable for women to work outside the home, so fewer wealthy women try to work (The Economist, 2018). Across socioeconomic levels, there are social pressures for women to stay out of the workforce, particularly after marriage. Another issue is that 84% of Indians think that, when jobs are scarce, they should go to men instead of women (The Economist, 2018). Overall, the biggest barrier to gender equality in the workplace is social, and a large culture shift will be necessary to reach equal numbers of women in the workplace.

When it comes to women engineers who are employed, there are still inequalities. More women engineers than men engineers end up teaching, and there are fewer women the further we look up the corporate engineering ladder (WISE, 2014). For those who hold engineering jobs, few women receive awards or are elected to the National Academy of Sciences (Rao & Prakash, 2013).

Much of the existing research on bias in the workplace focuses on the barriers for U.S. and European women engineers from the 1980s through 2013. Many of these studies ask subjects to rate identical resumes with one variable that changes, signaling demographic differences based on gender, race, class, parenthood, etc. The most robust of these studies was a double-blind randomized experiment in which professors of science, technology, engineering, and math (STEM) were asked to rate resumes for a lab manager position (Moss-Racusin et al., 2012). All resumes were identical except for the name. Both men and women STEM professors rated male candidates more competent and more hireable than the (identical) female applicants. Professors also offered the male candidates a higher starting salary and more mentoring than the female candidates.

Another famous study asked subjects to rate resumes that were identical, with one exception: half of the resumes indicated that the candidate was a mother, and the other half indicated that the candidate did not have children. The study found that mothers were 79% less likely to be hired, half as likely to be promoted, offered an average of \$11,000 less in salary, and were held to higher performance and punctuality standards than identical resumes without motherhood indicated (Correll, Benard, & Paik, 2007).

The existing research has focused on participants in Western nations, but there is a paucity of similar studies in India. Our paper investigates the state of the engineering workplace for men and women in India in 2018. The decades of social science research showing bias in the workplace have consisted primarily of lab studies in psychology departments in U.S. colleges. The Center for WorkLife Law sought to build upon its recent research of gender bias in the U.S. engineering workplace by conducting a similar study of engineering workplaces in India.

The Workplace Experiences Survey, which was developed using an extensive research base of social psychology studies, provides objective measures of workplace gender and racial bias in the United States (Bias Interrupters Bibliography, 2018). The survey condenses the decades of studies into a comprehensive survey that tests for four basic patterns of bias, as well as bias in workplace processes (hiring, compensation, promotions, assignments, support, performance evaluations, and diversity-climate).

To investigate the experiences of engineers currently working in India, the Society of Women Engineers and the Center for WorkLife Law surveyed 693 engineers in India (423 women, 270 men) using the Workplace Experiences Survey, customized for an Indian audience. We wanted to know exactly which types of bias are playing out in engineering workplaces in India and to understand how bias is impacting outcomes in those workplaces.

## THE FOUR BASIC PATTERNS OF BIAS

**Prove-It-Again bias** is a common form of workplace bias that occurs when certain groups have to provide more evidence of their competence than their colleagues in order to be seen as equally competent (Williams & Dempsey, 2014). In other words, you have to prove yourself over and over again just to get the same recognition that other people do.

Forty years of social science research in the United States has shown that women and people of color often need to provide more evidence of competence than their peers in order to be seen as equally as competent (Bauer & Baltes, 2002; Biernat, Fuegen & Kobrynowicz, 2010; Biernat & Kobrynowicz, 1997; Bowles & Gelfand, 2010; Davison & Burke, 2000; DesRoches & Zinner et al., 2010; Fiske, Cuddy, Glick, & Xu, 2002; Foschi, 1996, 2000; Heilman, 1983, 1984, 2012; Heilman, Block, & Martell, 1995; Heilman & Chen, 2005; Knobloch-Westerwick, Glynn, & Huges, 2013; Landau, 1995; Moss-Racusin et al., 2012; Roth, Purvis, & Bobko, 2012; Scherer, Owen, & Brodzinski, 1991; Steele & Aronson, 1995). Though most of the research has focused on gender-based Prove-It-Again bias (and some on race), this bias can affect any group of people who are considered lower in status. Social and economic class, sexual orientation and gender identity, region of origin, accents, and other factors can trigger Prove-It-Again bias if they differ from the traits of the majority group (Ameri et al., 2015; Tilcsik, 2011).

Researchers in the United States have studied these issues extensively. One study (Rivera & Tilcsik, 2016) examined the influence of social and economic class on hiring. Researchers sent resumes to high-profile law firms for summer associate jobs. Resumes had identical education and experience listed; the only difference was in the extracurricular activities. Researchers signaled upper-class candidates with activities like sailing, polo, and classical music, while lower-class resumes listed things like pick-up soccer and country music as their hobbies. Employers overwhelmingly preferred the higher-class man: he had a callback rate more than four times that of other applicants. This suggests that Prove-It-Again bias is triggered by not only race and gender but other factors that are different from the majority (e.g., coming from a lower-class background in a field that is dominated by elite and upper-class legacy families).

Prove-It-Again bias doesn't just affect hiring. In promotions, some may be judged on their potential, while others are judged on what they have already accomplished. Groups that have to Prove-It-Again may have their mistakes noticed more and remembered longer, have their ideas ignored or passed over, have their successes attributed to luck rather than skill, and see objective rules applied leniently to everyone else but rigidly toward them (Williams & Dempsey, 2014).

**Tightrope bias** occurs when a narrower range of behavior is accepted from some groups than from the dominant group (Bowles, Babcock, & McGinn, 2005; Brescoll & Uhlmann, 2008; Glick & Fiske, 2001; Haselhuhn & Kray, 2012; Heilman & Chen, 2005; Heilman, Wallen, Fuchs, & Tamkins, 1995; Prentice &

Carranza, 2002; Rudman & Fairchild, 2004; Rudman & Glick, 2001; Rudman, Moss-Racusin, Phelan, & Nauts, 2012; Williams & Dempsey, 2014). This bias stems from prescriptive stereotypes: how we think people ought to behave based on stereotypes about their group. People can face backlash if their behavior does not conform to traditional notions of how members of certain groups should behave. Often, similar factors that trigger Prove-It-Again bias (gender, race, social class, region of origin, disability, etc.) can trigger Tightrope bias (Cuddy, Fiske, & Glick, 2008; Fiske, Xu, Cuddy, & Glick, 1999; Livingston & Pearce, 2009; Rosette & Livingston, 2012; Sy & Shore et al., 2010).

Women often walk a tightrope between being seen as “too masculine,” and thus are respected but not liked, and “too feminine,” and are liked but not respected (Cuddy, Fiske, & Glick, 2008; Fiske 1991; Fiske, Cuddy, & Glick, 2007; Fiske, Xu, Cuddy, & Glick, 1999; Glick & Fiske, 2001; Haddock & Zanna, 1994; Heilman, 1995, 2001; Heilman & Okimoto, 2007; Porter & Geis, 1981; Rudman & Glick, 1999, 2001; Rudman & Phelan, 2008). Because women are stereotyped as communal team players, they may face pushback if they advocate aggressively for a raise, assert themselves to be team leader, or don't sugarcoat their language (Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007; Glick & Fiske, 2001; Rudman & Glick, 1999, 2001). In addition, the expectation that women will be “team players” rather than leaders means that women do more “office housework.” This includes not just literal housework (getting coffee, ordering lunch, planning parties) but also administrative tasks (taking notes and reserving the conference room) and undervalued or rote work (as opposed to the glamour work that leads to promotion) (Williams et al., 2016; Williams et al., 2018).

Prior research in U.S. samples shows that Tightrope bias is triggered by race as well as gender. In the U.S., people of color also face pushback for behaviors that are accepted in white men, notably showing anger or assertiveness (Williams et al., 2016; Williams et al., 2018). Tightrope bias reflects that the dominant group gets more access to the “glamour work” and leadership roles and that nondominant groups are more often expected to be “worker bees” who do not claim the limelight.

**Maternal Wall bias** is when motherhood factors into the bias women experience at work. Being a mother, or even getting pregnant, tends to trigger strong negative competence and commitment assumptions in the workplace (Correll, Benard, & Paik, 2007; Crosby, Williams, & Biernat, 2004; Cuddy, Fiske, & Glick, 2004; Fuegen, Biernat, Haines, & Deaux, 2004; Halpert, Wilson, & Hickman, 1993; Hebl & King et al., 2007; Heilman & Okimoto, 2008). People assume that mothers are less committed at work and that they are more focused on their families. On the other hand, if mothers strive to show their commitment at work, they are perceived as “bad mothers” and are judged as less warm and less likable in the workplace (Bernard & Correll, 2010).

A second aspect of Maternal Wall bias is flexibility stigma. When women request family leave or a flexible schedule, it can trigger bias that harms their careers (Crosby, Williams, & Biernat, 2004; Epstein, 1983; Stone & Hernandez, 2013). The same thing is usually true for men but for a different reason: they aren't performing the way we expect from a male breadwinner (Rudman & Mescher, 2013; Vandello, Hettinger, Bosson, & Siddiqi, 2013). This is very common in the U.S., but we weren't sure what we would find in India. Recently, the government passed a ruling requiring companies to give women six months of maternity leave after the birth of a child; however, men are not guaranteed leave.

The Maternal Wall doesn't only impact mothers: if men try to take time off to care for children or prioritize their family time, they may face pushback at work. People without children can also face this type of bias, if they are asked to work extra hours to make up for the less flexible schedules of people with children (Williams et al., 2016; Williams et al., 2018). So, even though Maternal Wall bias is typically triggered by motherhood, it can have an impact on anyone, regardless of gender or parental status.

**Tug of War bias** exists when gender bias against women leads to conflicts among women (Williams & Dempsey, 2014). Women engineers may distance themselves from other women as a strategic move to avoid being seen as “a woman” rather than “an engineer” (Ellemers & Van den Heuvel et al., 2004; Derks, Van Laar, Ellemers, & de Groot, 2011; Van Laar, Bleeker, Ellemers, & Meijer, 2014); this type of distancing could also happen with men from a particular region. Sometimes women are treated as a token of diversity: they are invited so that there is a woman in the room, but they do not actually have a voice in the conversation. Likewise, if there is understood to only be one “woman’s spot” in the leadership team, then women become pitted against other women to get that spot (Williams et al., 2016; Williams et al., 2018). Tug of War bias can also be triggered by race, age, region of origin, and other factors (Carbado & Gulati, 2013).

Tug of War also encompasses pass-throughs of the other three types of bias: when women perpetuate these biases with other women (Parks-Stamm, Heilman, & Hearn, 2012). For example, an older woman might hold a younger woman to higher standards than a man and say, “That’s just what it takes to succeed as a woman engineer.” Or, a woman who chooses to wear a pantsuit to work might look at a woman who chooses to wear a sari and say, “Nobody will take you seriously if you dress like that.” Or, if a woman chooses to prioritize her family, another woman might say, “You’ll never get ahead here if you don’t put work over family.”

One influential U.S.-based study focused on administrative help for women lawyers (Batlan, 2010). Researchers surveyed admins and secretaries and found that not one preferred to work for a female lawyer. Most had no preference, but of those who had a preference, they all preferred to work with men. The reasons they gave were that women lawyers held them to higher standards and were less forgiving. They were under a lot of pressure, and they passed that on to the admins and secretaries who were there to support them.

## THE CURRENT RESEARCH

In 2016 the Center for WorkLife Law and the Society of Women Engineers surveyed over 3,000 engineers in the United States and released their findings in the report “Climate Control: Gender and Racial Bias in Engineering.” That report found that the patterns of bias being examined in college laboratories were also playing out in American workplaces. Of the four basic patterns of bias, higher percentages of women than men reported having experienced three out of four patterns in their workplace: Prove-It-Again, Tightrope, and Maternal Wall. For example, 78% of women versus 62% of white men reported that they have to prove themselves repeatedly to get the same levels of respect and recognition as their colleagues. The U.S. study also found large amounts of bias based on race: a higher percentage of engineers of color versus white men reported bias in compensation, performance evaluations, support and networking, and promotions. Smaller amounts of age-based bias were found.<sup>1</sup>

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<sup>1</sup> For full results, read the full report here: <https://research.swe.org>

The Center for WorkLife Law and the Society of Women Engineers set out to investigate whether the same patterns of bias that affect U.S. engineering workplaces exist in India. We started out by conducting focus groups with women engineers in India to examine whether the four bias patterns were cross-culturally relevant and to identify issues that are specific to engineers in India. We adapted our U.S. version of the survey by refining questions and adding new variables of interest and distributed the survey online to both men and women engineers in India. We obtained a sample of 693: 423 women and 270 men across a variety of disciplines, engineering sectors, and employment levels.

# METHODOLOGY

## ANALYSES

This survey used a 1-6 (strongly disagree-strongly agree) Likert scale for all questions except questions asking about demographics, sexual harassment, and government policy. To analyze the data, we first ran a confirmatory factor analysis and found that the data were a good fit to our hypothesized four-patterns model. Most of the workplace processes fit together as scales and are reported as such in the text; however, in a few instances, the scales did not fit together as we had expected, and so the items are discussed individually. We conducted independent sample t-tests to compare the responses of men and women on our variables of interest. We conducted simultaneous multiple regression analyses to examine the influence of the bias patterns on workplace processes and outcomes controlling for gender.

## QUALITATIVE DATA

To begin our study of bias faced by engineers in India, we conducted four focus groups of women engineers in Bangalore and Pune. We draw on qualitative data obtained from these focus groups and from comments left on the online survey throughout this report. Comments from the survey are presented verbatim. Remarks from the focus groups were recorded as close to verbatim as possible, although they may be paraphrased slightly.

## A NOTE ABOUT SCALES

Throughout this report we describe both survey respondents' answers to individual questions and survey respondents' overall responses for certain issues, like Prove-It-Again bias, or bias in hiring. We are able to do this through the use of scales.

Each issue has multiple components to it. The idea of Prove-It-Again bias, for example, involves having to prove yourself more than other people, having your ideas devalued and/or attributed to other people, being interrupted more than your colleagues, and a variety of other components. To try and fully capture this bias, we asked multiple questions that each attempted to address different aspects of Prove-It-Again bias. Then we made a composite variable, or scale, that incorporated all those different questions. So when we say "76% of people reported Prove-It-Again bias," we mean that 76% of people reported that they had experienced the things that are described in the questions making up the scale.

## REPORTING

Although the data was collected using a 1-6 Likert scale, we report percentages of agreement in the text in order to make the findings clearer and more useful for our audience. To calculate the percentages, we considered a response on the bottom third (1 or 2) of the Likert scale as analogous to “No, I have not had that experience” and a response on the top third (3-6) as “Yes, I have had that experience at least once.” We report these percentages in the text, but all statistical analyses were conducted using the Likert scale data, not the calculated percentages.

## U.S.-INDIA COMPARISONS

The survey on gender and racial bias used in the U.S. study was improved in two ways for the study in India: we added more constructs, specifically focused on workplace processes and outcomes, and we also edited the items within the existing constructs. In the U.S. study, the items did not fit well together and could not be used to form scales. Therefore, when we compare and contrast the results of the two studies, we are using scale-level data from the current survey and item-level data from the U.S. survey.<sup>2</sup>

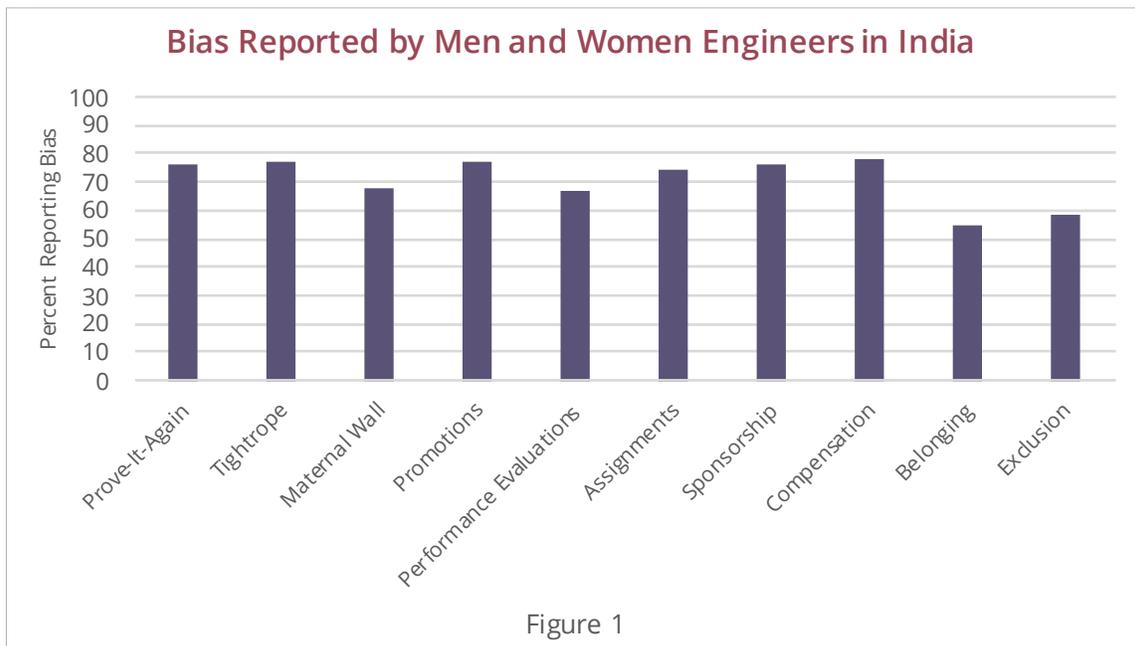
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<sup>2</sup> More details can be found in Appendices B and C.

# OVERALL FINDINGS

## HIGH PERCENTAGES OF ALL RESPONDENTS REPORTED BIAS

Overall, large percentages of Indian engineers, both men and women, reported workplace bias (see Figure 1). Roughly three-quarters of respondents reported Prove-It-Again bias (76%), Tightrope bias (77%), bias in assignments (74%), bias in promotions (77%), bias in compensation (78%), and bias in sponsorship and mentoring programs (76%). Roughly two-thirds of respondents reported Maternal Wall bias (68%) and bias in performance evaluations (67%). More than half of respondents reported that they did not feel a strong sense of belonging to their workplace (55%) and that they felt excluded from their colleagues (58%).



## KEY ISSUES FOR EMPLOYERS

The Workplace Experiences Survey revealed that engineers in India working in primarily Western companies report high levels of bias. The survey also asked a series of questions about how engineers felt about their future at their current workplace, including whether engineers were satisfied with their career; whether they saw a clear, long-term future for themselves at their workplace or are looking for work elsewhere; and whether they would recommend their workplace to a friend.

In order to examine the relationships between the different types of bias and workplace processes, we conducted regression analysis using the four patterns as predictors and controlling for gender.<sup>3</sup> We found that there were connections between the patterns of bias and workplace processes. We also

<sup>3</sup> Betas and p-values for all regression results can be found in Appendix D.

found a direct connection between the levels of bias reported by respondents and their feelings of inclusion at work, as well as their desire to stay or leave their organization. For ease of understanding, we are reporting significant results grouped by the bias pattern, not by the outcome variables.

Engineers' experiences of workplace processes were linked to their experiences of workplace bias. An increase in Prove-It-Again bias was associated with:

- A decrease in feelings of belonging at work.
- A decrease in perceptions of whether performance evaluations were fair.
- A decrease in perceptions that sponsorship and networking opportunities were fair.
- A decrease in perceptions that compensation was fair.

So individuals feel a lower sense of belonging if they feel that they have to prove themselves repeatedly while others do not. Also, when engineers have to prove themselves over and over, it actually has real implications for whether they think that their evaluations are fair, honest, and constructive. And individuals who have to prove themselves over and over to be seen as competent also struggle to get good mentors and sponsors and to have equal networking opportunities.

Prove-It-Again bias also had an impact on workplace outcomes. An increase in Prove-It-Again bias was linked to:

- A decrease in career satisfaction.
- A decrease in enjoyment of work.
- An increase in reporting that they are considering looking for a new job elsewhere.

This is not surprising; having to prove yourself over and over again is not a pleasant experience. If a company is looking to retain employees, it should address Prove-It-Again bias. Our recommendations section in this report has some tips on how to begin combating bias in your company.

Tightrope bias had a large number of negative impacts on workplace processes. An increase in Tightrope bias was associated with:

- A decrease in feeling like you belong in your workplace.
- A decrease in perceptions that performance evaluations were fair.
- A decrease in perceptions that the assignments process was fair.
- A decrease in perceptions that diversity is supported in the workplace.
- A decrease in perceptions that sponsorship and networking opportunities were fair.
- An increase in feeling excluded.
- A decrease in perceptions that compensation was fair.

Essentially, if individuals feel that they are constrained to a narrow set of behaviors at work based on their social group, they also feel a lower sense of belonging. Engineers who are expected to behave in a certain way and who receive pushback for behaving differently are seeing this type of bias come out in their performance evaluations. Also, people who are expected to be “worker bees” and not leaders are less able to obtain access to desirable assignments and high-profile tasks. People who feel like they have to walk a narrow tightrope of acceptable behaviors also think that other people in their workplace have a negative reaction to diversity initiatives. Individuals who have behavior constraints due to identity factors, such as gender or region of origin, have fewer opportunities to network, both formally and informally, and have more trouble getting good mentors and sponsors at work. Lastly, when individuals feel that they are only able to play a certain role in the workplace and have to police their own actions, it makes sense that they also feel like their colleagues are not as likely to accept them and would exclude them rather than chat with them.

Tightrope bias was also linked to negative workplace outcomes. An increase in Tightrope bias was associated with:

- A decrease in feeling that others are invested in your career at work.
- A decrease in seeing a clear path for advancement for yourself at your organization.
- A decrease in willingness to recommend your workplace to others as a good place to work.
- A decrease in career satisfaction.
- A decrease in enjoyment at work.
- A decrease in feeling happy for your career to continue how it has been.
- An increase in considering looking elsewhere for a new job.
- A decrease in seeing a long-term future for yourself at your organization.

Overall, employers would be well advised to eliminate situations in which some groups feel that they have to display a narrower range of behavior than the dominant group is allowed to display.

Tightrope bias had the strongest overall impact on outcomes and the perceived fairness of workplace processes. Tightrope bias covers a range of experiences: not being seen as a leader, being unable to express anger, receiving pushback for behaving in masculine ways, office housework, and more. Tightrope bias is also the most commonly reported pattern of bias. As such, it is not surprising that this type of bias has big impacts and it should be a focal area for companies looking to improve their workplace climate.

Maternal Wall bias and Tug of War bias were linked to fewer workplace processes and only one outcome.

Maternal Wall bias was linked to two negative workplace processes. An increase in Maternal Wall bias was associated with:

- A decrease in perceptions of diversity support.
- An increase in feeling excluded.

This means that people who are experiencing bias related to parenthood think that their coworkers do not see value in supporting diversity at work. Also, engineers who experience bias related to parenthood are feeling excluded from informal gatherings and information-sharing at work.

An increase in Tug of War bias, which indicates the existence of conflicts within a nondominant group, was linked to:

- A decrease in belonging.
- A decrease in perceptions of diversity support.
- An increase in feeling excluded at work.
- A decrease in perceptions that compensation was fair.
- An increase in reporting considering looking for a new position elsewhere.

In sum, engineers have a lower sense of belonging if they feel like they are seen as a “diversity hire” instead of a valuable team member. Also, engineers who are seeing intra-group conflict among their coworkers do not think those coworkers are supportive of diversity. Lastly, individuals who are feeling conflict within their own gender or demographic groups are feeling more excluded at work.

## WHY ARE MEN REPORTING HIGH LEVELS OF BIAS?

The men engineers in India reported sharply higher levels of bias than did male engineers in the U.S. When men reported that they are treated differently than their colleagues, this may reflect bias based on language and region within India or bias against Indian engineers working in Western companies—or both.

Indeed, men actually reported higher levels of bias than women in a few instances. Our study looked at bias experiences across a number of different dimensions, and we compared responses based on demographic variables. In our U.S. study, we found that men generally reported lower levels of bias than women. In the India dataset, men generally reported levels of bias on par with women. Based on our focus group data, survey comments, and quantitative survey data on region- and language-based bias, we can infer that women are reporting bias primarily based on gender, while men are reporting bias primarily based on their region of origin.

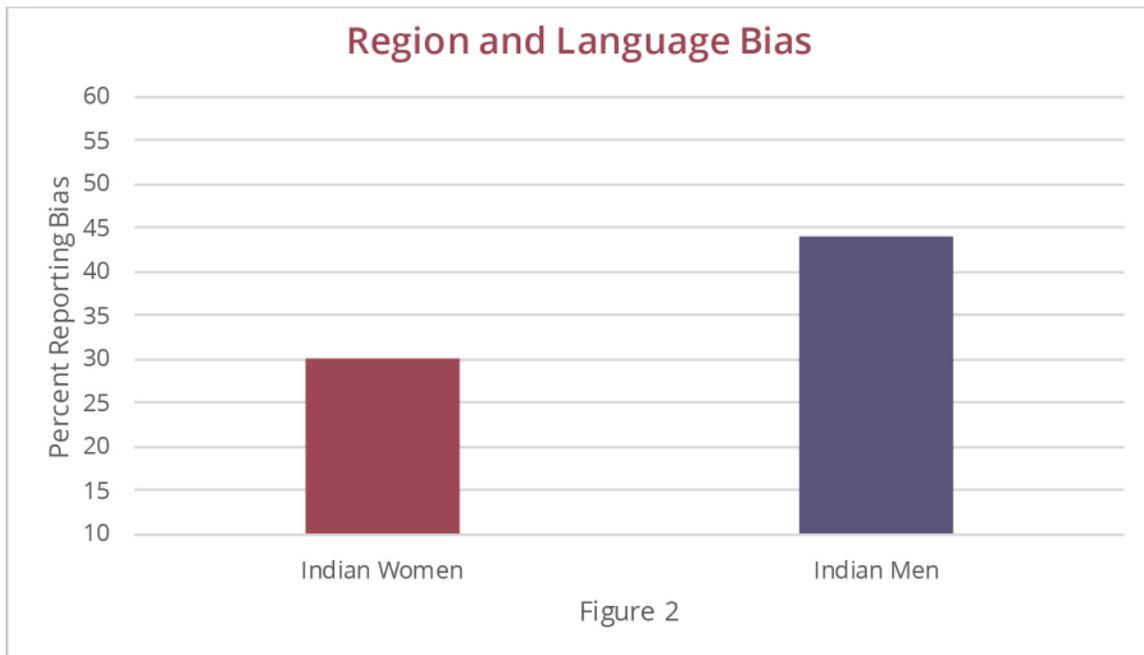
### Region- and Language-Based Bias

The Workplace Experiences Survey asked respondents if they felt bias directed at them because of the state that they are from or because of their ethnic heritage. We also asked survey participants whether they had experienced any types of bias in the workplace that were not covered by our survey. Some participants noted that they had experienced or seen bias based on region or state of origin:

“Yes, regional bias is one of the biggest challenge[s].”

“Yes I do observe that the Tamilnadu people are given more opportunities tha[n] other state employees.”

A higher percentage of men than women reported this type bias: 44% of men compared to 30% of women reported region- and language-based bias (see Figure 2).



The region and language bias scale consists of questions that ask respondents about the way they are treated due to their home state, how their coworkers think about their performance based on their region of origin, and how they have to behave in order to get ahead in the workplace.

In India, men are more likely to move to a new region for a job than women. Hence, there are two possible reasons for the discrepancy between the scores of men and women engineers. The first is that men are facing a higher rate of bias based on their region of origin simply because a higher rate of men are actually working in a different region. The second possibility is that it is extremely difficult to determine what aspect of your identity is triggering bias. Women may attribute unfair treatment to their gender, while men would attribute the same treatment to regional bias.

Although we cannot be sure, our qualitative data and conversations with experts lead us to infer that, in our sample of engineers in India, women are attributing the bias they face to gender, but men are attributing it to the state they are from. This represents a parallel to race in the U.S.: bias can come from many sources, and we cannot always tell which intersecting dimensions (gender, race, region, etc.) are the cause. However, the overarching story is clear: both men and women engineers in India are facing high levels of bias.

### Nationality

Another potential source of bias stems from the fact that many of the engineering companies that employ those we surveyed in India are based in the U.S. or Europe. The leadership in these companies is predominantly white and not of Indian descent. Therefore, engineers in India may be facing another issue: they do not see people like themselves at the top of the company, which makes it hard to imagine a path to the top. This is an issue that we would expect to weigh on the minds of both men and women and was noted by a few survey participants when we asked about other types of bias they had experienced at work:

*“Being a multi-national, there are instances of unconscious bias with regards to geographical diversity.”*

## Backlash

Women engineers in our focus groups and survey brought up diversity initiatives and employee resource groups their companies have created to increase inclusion of women engineers. However, it is possible that these initiatives could lead to backlash from men feeling disadvantaged, if these efforts are not implemented carefully and with full explanation.

On our Workplace Experiences survey, over three-quarters of all respondents reported Prove-It-Again and Tightrope bias. Almost two-thirds of respondents reported Maternal Wall bias. Roughly three-quarters of all respondents reported bias in assignments, promotions, sponsorship programs, and compensation. Two-thirds of engineers reported bias in performance evaluations, and roughly half of all respondents reported bias in their workplaces' hiring systems.

In the focus groups, women reported a lot of gender-based bias. On the Workplace Experiences Survey, both men and women engineers reported a lot of bias. The survey captures bias based on age, gender, race, social class, sexual orientation, and other types of non-majority identity-based bias. When we administered this survey to populations of engineers in the U.S., we saw large amounts of gender-based bias, but the pattern was less clear with the Indian engineers who took the survey. Women engineers in India reported lots of bias—and so did men. Based on the focus groups and data from the survey, we infer that women reported large amounts of gender-based bias and men reported bias based on other factors, such as language and region of origin.

Despite the high level of bias that men tended to report, some significant gender differences did emerge where women experienced higher levels of bias than men:

- 45% of women but only 28% of men reported that it was perceived as inappropriate when women argued at work, even when it was work-related.
- A higher percentage of women (45%) than men (30%) reported feeling pressured to play submissive roles at work.
- 40% of men and women reported that women should work less after having children, while 27% of men and women reported that men should work more after having children.
- A higher percentage of women (63%) than men (55%) reported feeling their female colleagues had just “turned into men.”
- 74% of women but only 60% of men reported thinking that most women didn't understand what it takes to succeed at work.
- 60% of women but only 44% of men reported a lack of support for diversity initiatives.

In contrast, sometimes men reported more bias than women:

- 44% of men but only 30% of women reported bias based on language or region of origin.
- Of engineers without kids, a higher percentage of men (50%) than women (39%) reported that they are perceived as having “no life” so they end up working overtime.
- A higher percentage of men (54%) than women (41%) reported they found it difficult to get administrative help.
- 54% of men but only 44% of women reported bias in hiring.

# GENDER DIFFERENCES IN REPORTED BIAS

## DIFFERENCES WITHIN THE FOUR PATTERNS OF GENDER BIAS

### Prove-It-Again Bias

Prove-It-Again bias occurs when members of certain groups have to prove themselves repeatedly in order to get the same recognition as others (Williams & Dempsey, 2014). Prove-It-Again bias can affect any group of people. Social and economic class, sexual orientation and gender identity, region of origin, accents, and other factors can trigger Prove-It-Again bias if they differ from the traits of the majority group.

Women engineers spoke about Prove-it-Again bias in the focus groups and in comments on the survey: they noted that they have to prove themselves over and over again in order to get the same respect as others. Several of the comments indicated that there is a gender element to this type of bias in their workplaces:

“I experience that during executive reviews and advisory meeting, the male advisors don’t give the due to what I bring to the table.”

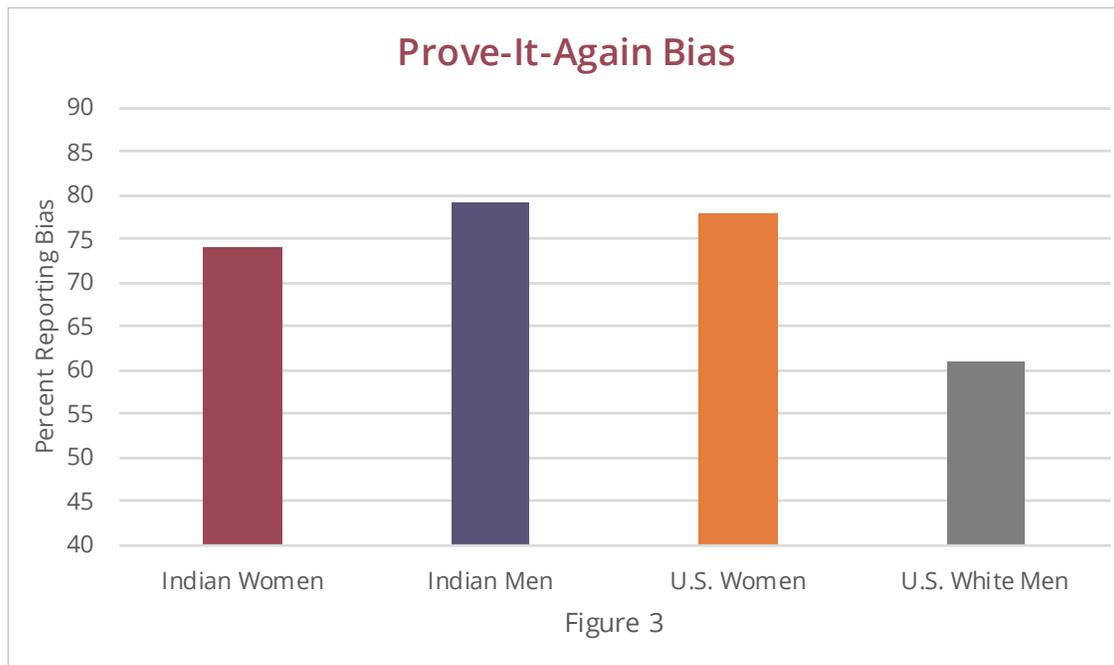
“Male colleagues ask me more questions and wish to detract me more. I have to prove it to them that I know what I am doing and that I have done my homework.”

One engineer noted that she has heard from more experienced women engineers that they have to work twice as hard. She thinks that because women are less in number, their work is always under focus. Another woman engineer remarked that male employees do not take her seriously at first as a manager, even though she has 10 years of experience.

On our Workplace Experiences Survey, a high level of Prove-It-Again bias was reported by engineers in India: 76% of respondents (both men and women) reported experiencing Prove-It-Again bias in their workplaces. The percentages of both men and women engineers reporting Prove-It-Again bias in India is similar to the percentages of U.S. women engineers who reported Prove-It-Again bias in the 2016 study of workplace bias<sup>4</sup> (see Figure 3). That study found that women engineers reported high levels of Prove-It-Again bias and significantly higher levels of Prove-It-Again bias than white men.

Men and women Indian engineers are facing similar levels of bias as women engineers in the U.S. Based on the data from our focus groups and survey, we infer that Indian women engineers are facing similar levels of gender bias as women in the U.S., but men engineers in India are facing bias based on other factors, such as race, region of origin, language, or nationality.

<sup>4</sup> More information on results from the U.S. study can be found in Appendices B and C.



The Prove-It-Again bias scale consists of questions regarding having to prove yourself more and work harder to get the same outcomes as your comparable colleagues, being able to get respect at work, and having your ideas “stolen” when others take credit.

### Tightrope Bias

Tightrope bias occurs when a narrower range of behavior is accepted from some groups than from others (Williams & Dempsey, 2014). Although women engineers have entered the workforce in greater numbers and now make up a substantial portion of the workforce in India, they are still expected to take on a specific role: submissive, supportive, and nonassertive. Women are seen more as workers on a team than as leaders, and they are pressured to take on more behind-the-scenes work and not to speak up.

Women engineers made comments on the survey and in the focus groups detailing their experiences with Tightrope bias at work. They specifically mentioned how their experiences differed from men’s. For example, women’s comments included examples of the backlash they receive for behaving assertively:

“To ensure the timeline I once forced my team to deliver. I was considered arrogant not performance oriented. Where in a similar situation [a] man would be considered [the] other way and would be eventually promoted.”

“All top level at my office except 1 are men only. This one lady is considered as aggressive, arrogant and with attitude. This woman is always targeted.”

“I never used to speak up so my manager used to take the credit. It felt bad. But when I started to speak up, it was seen as bossing around. Expectations at home are different; people started wondering why I was becoming outspoken. There was a conflict within which these dual roles were creat[ed]. For men, there is no conflict. While women are seen to be bossy, rude and assertive, males are right to behave like this.”

Women in the focus groups and survey comments noted that there are different consequences for expressing anger and frustration at work for women.

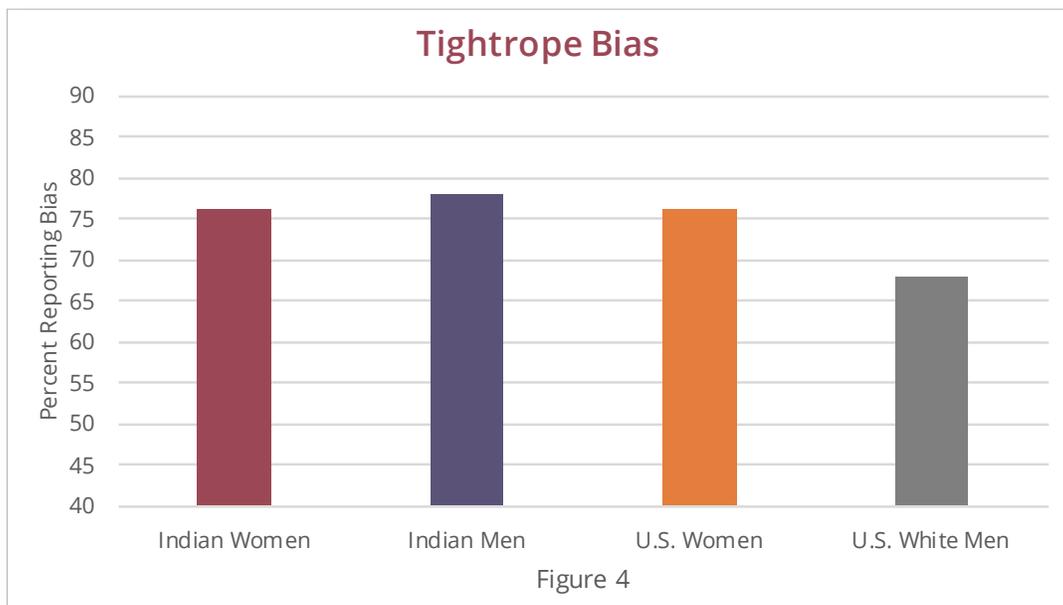
“Frustration is not accepted and considered anti-feminine.”

“Feeling passionately and talking about something is forcefully tied to impatience and mood swings.”

On the survey, we asked both men and women about whether it is perceived as inappropriate for women to argue at work, even if it is business related. Among respondents, 45% of women said yes, while only 28% of men said yes. These findings, along with the qualitative data, indicate gender bias when it comes to expressing anger and frustration: women feel less able to express these emotions, although men may not be noticing.

Though most of the studies about Tightrope bias have been on gender, the results from the Workplace Experiences Survey show that Tightrope bias affects most Indian engineers working in primarily Western companies, regardless of gender.

Seventy-seven percent of all respondents (both men and women engineers) reported that they had experienced Tightrope bias in their workplaces. More than three-quarters of Indian engineers feel they have to walk a tightrope between being too assertive and being too submissive at work. Like Prove-It-Again bias, the levels of Tightrope bias reported by both women and men in India were similar to the levels of Tightrope bias reported by women engineers in the U.S., with white men engineers in the U.S. reporting lower levels of Tightrope bias (see Figure 4).



The Tightrope bias scale consists of questions asking whether respondents feel like they are expected to play certain roles at work or whether they can be assertive without pushback. Specific questions are centered on whether respondents feel that they are able to be leaders or followers in their organization, act assertively, express anger, and vocalize their accomplishments without criticism. The Tightrope bias scale also includes questions regarding if respondents are interrupted frequently and if respondents do more administrative-type tasks or literal office housework (like planning parties) than their colleagues.

Though men and women engineers both tended to report high levels of Tightrope bias, there was one individual Tightrope question for which a statistically significant gender difference emerged. When asked if respondents felt pressure to play a traditionally feminine role in the workplace (for example, that of office party planner or dutiful daughter), more women respondents agreed with this question than men: 45% versus 30%. This is one of the few questions in the survey that specifically sought to capture a gender element. Social science research shows that women are often pushed into subservient roles in the workplace and can face pushback if they resist such roles, while men are not pressured into these roles (Allen, 2006; Heilman & Chen, 2005; Kanter, 1977; Williams & Dempsey, 2014). If women refuse, they are seen as not being good team players, but if they acquiesce and play these roles, it takes time away from actual work and makes it harder for them to get ahead.

## Maternal Wall Bias

Women engineers commented on the survey and in focus groups about their experiences as working mothers. Some women's experiences reflect hostile prescriptive bias—the idea that mothers should not prioritize work after having children (Burgess & Borgida, 1999). Other comments reflect benevolent prescriptive bias, which reflects the same idea but in a way that is framed as concern rather than disapproval (Williams & Bornstein, 2006).

“I had been back from [m]aternity leave and just at the phase of balancing work and the kid, I was not given any important assignments to work, with which I could have proven myself that I am not less capable....”

“Several times my boss asks me not to travel as I have young kids.”

“I would not say a bias but especially for women after her maternity break and in their initial days of motherhood, need to put extra effort to prove her credibility.”

The Maternal Wall can also affect fathers, but engineers on our survey made comments about how it is easier for men.

“Men take pride in boasting about the long hours that they put in, it is viewed as a good thing, but if women say the same it is viewed as being ambitious while compromising on family.”

“Men have the wrong mentality about maternity leave. They see it as a vacation.”

One woman noted a common question to women who work from home:

“Are you working from home or for home?”

Women engineers without children also commented on the bias they face:

“About 12-13 years ago, she interviewed for a sales role in Malaysia. She was up against a man. The managers said that they would send the man because they were worried that she might end up getting married. Now (she is still single), people assume that she is available for work at any time, not caring about her social life.”

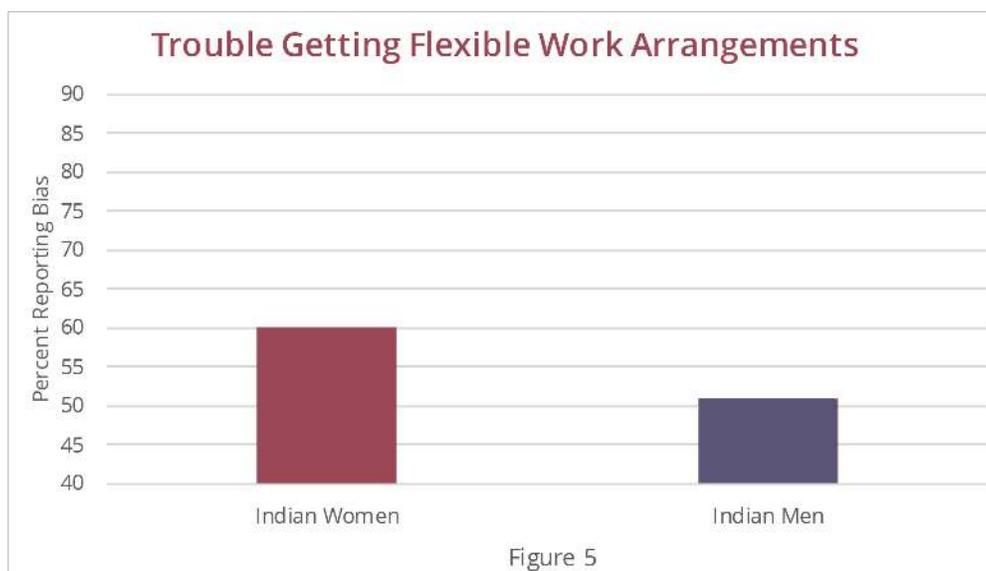
“Duty of being a good daughter-in-law. After 60 years, parents are taken care of. In-laws expect their son's wife to provide hot meals, care for the family.”

From the focus group data, we saw the pattern we expected: mothers are required to take on the family care responsibilities, while fathers are not (although they may volunteer). The evidence from the survey supports these findings.

Our survey asked questions designed to explore the expectation that women will be homemakers while men will be breadwinners. Forty percent of women and men engineers agreed that, in their workplaces, there is an attitude that mothers should work less because they should be caring for children. At the same time, 27% of women and men engineers said that their colleagues think fathers should work more after having children. Taken together, these numbers indicate strong endorsement of traditional gender roles: mothers should work less and be home with the children, while fathers should work more. These types of expectations make it harder for parents to make their own choices about how to balance work and family.

When we asked about bias against people with caregiving responsibilities on our Workplace Experiences Survey, we found high rates of bias: 71% of women engineers and 69% of men engineers agreed that people who have caregiving responsibilities have a harder time getting ahead and face negative competence and commitment assumptions. However, it was not clear who respondents were thinking about: just mothers, who take on most of the caregiving responsibilities, or fathers as well? Given the previous data that 40% of men and women engineers think mothers should focus on childcare and that 27% of men and women engineers think men should work more after having children, we can infer that, when engineers were thinking about who takes on caregiving responsibilities, they were thinking of women.

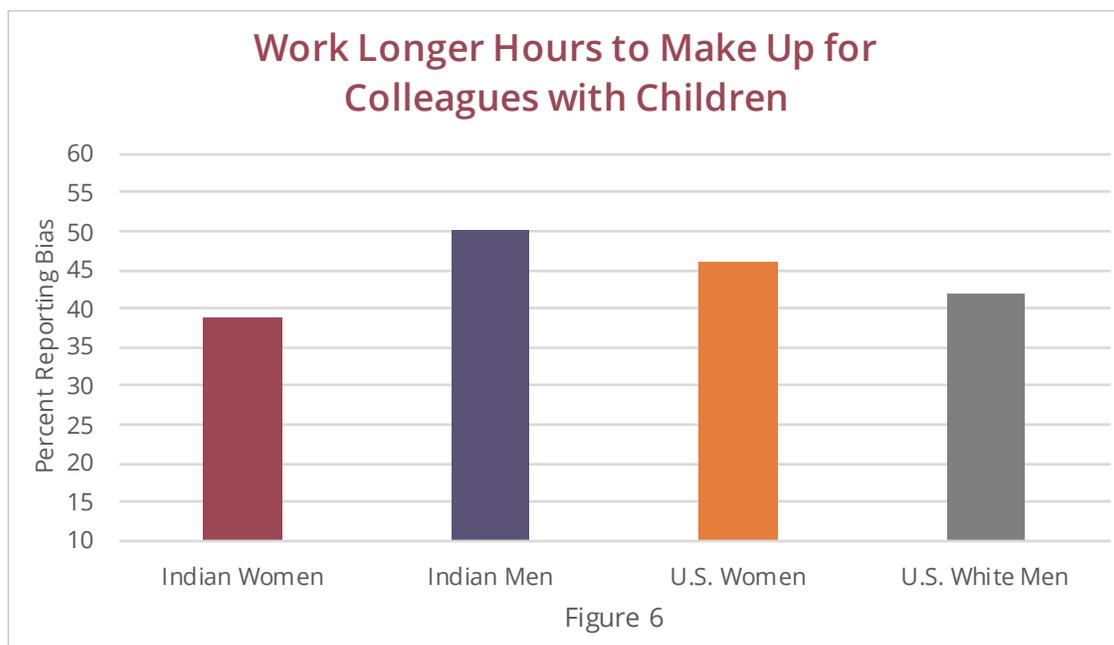
We also asked about bias that individuals face personally and found statistically significant gender differences. While 60% of women engineers reported that they would have trouble getting flexible work arrangements for family care, 51% of men engineers said the same (see Figure 5). Although the number of men reporting this was also high, we thought the disparity between men and women might be due to seniority, since men are likely to be more senior and more senior people are likely to be able to obtain flexible work arrangements. However, this was not the case in our sample: although the sample of men was slightly more senior than the sample of women, there was not a significant correlation between flexibility bias and seniority.



Finally, we found that 46% of women engineers reported feeling pressure to work more to show their commitment to work as opposed to 39% of men engineers. However, we also found that 45% of women engineers felt pressure to work fewer hours to show their commitment to their families, while 50% of men engineers felt the same. This last finding was somewhat unexpected, as there is a prescriptive bias that women should work less to spend time with their families, but this is not true for men.

Compared to women engineers in the U.S., a similar percentage of women engineers in India reported Maternal Wall bias. A slightly higher percentage of men in India reported Maternal Wall bias versus men in the U.S.

Though most of the Maternal Wall questions asked about people with children, one question explored how Maternal Wall bias affects people without children. The survey asked respondents whether they have to work longer hours because they don't have children. Among Indian respondents without children, 50% of men and 39% of women reported this bias. In a cross-cultural difference, the U.S. study revealed that slightly more women than men reported being asked to compensate for the schedules of their colleagues with children (46% versus 42%) (see Figure 6). One reason for this difference may be gender roles in the two countries. In the U.S., women without children are asked to do more work because of the stereotype that they have no other responsibilities. In India, women are expected to take care of their parents, their in-laws, and manage the home, so even women without children are seen as having lots of other responsibilities besides work. In India, it is men without children who are stereotyped as having no other responsibilities.



## Tug of War Bias

Tug of War bias occurs when bias in gender bias against women fuels conflicts among women (Williams & Dempsey, 2014).

Women engineers made comments on the survey and in the focus groups about their Tug of War bias experiences. Some were seeing Tug of War from more senior employees:

“Privileged [w]omen who had no critical problems at home never put themselves [in] others’ shoes. Favoritism is higher with women managers in general though most men don’t do so.”

“My woman senior man[a]ger is the one who least understands and puts pressure even after knowing the personal limitations though my immediate manager (male) is very adjustable.”

Some women received judgmental comments from other women:

“How can you get a maid to cook for your family? I cannot allow my family to eat food cooked by someone else.”

“Women will say that another woman was promoted because of her looks. One woman she knows reported another woman because of how she dressed (dress code).”

One comment focused on the idea that women are expected to support each other:

“Once, two women in a meeting were contradicting each other. They continued fighting afterwards. A female mentor told them to support each other in front of men and fight later. Take your disagreement outside.”

Some women reported not experiencing Tug of War bias. One woman engineer commented:

“Fighting to go to the top is not common because there are few women to compete against.”

Although Tug of War bias is common, in our study of U.S.-based engineers, many women did not experience conflict with other women. They noted that the “Boys’ Club” atmosphere of their workplaces was a bigger problem and said there aren’t enough women in their workplaces for them to be in competition with one another.

Women in focus groups in India also brought up the idea of the boys’ club:

“The existence of the Smoking Club. The Indian version of the Boys’ Club. Good Indian women do not smoke, so they are left out of the discussions and decision making that happens during smoking breaks.”

If business discussions and decisions are made in spaces women do not have access to, it is much harder for women to get ahead in the workplace.

Because Tug of War bias can manifest itself in so many different ways, we found it wasn’t helpful to composite the questions from the Workplace Experiences Survey into a scale. Instead, we looked at each question individually.

One Tug of War question asked only women about tokenism: specifically, do women feel they have to regularly compete with their female colleagues to get the one spot that's available to them? In India, 45% of women agreed with this question compared to 38% of women in the U.S., suggesting that notions of tokenism, and the lack of leadership positions available to women, negatively affect many women engineers in India (see Figure 7).

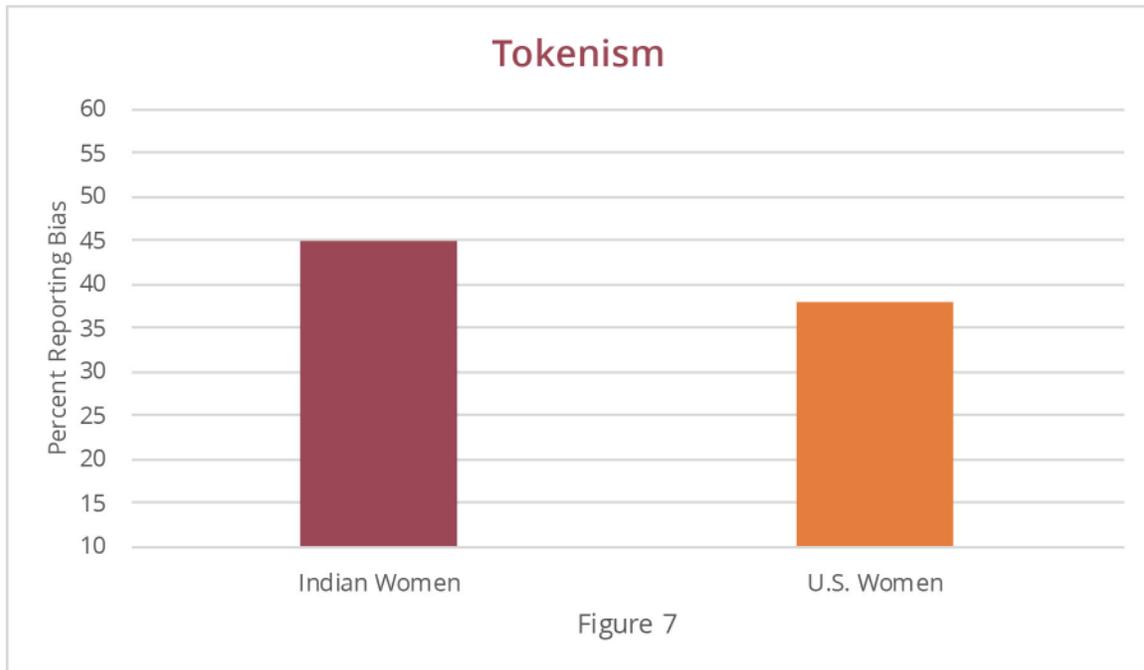
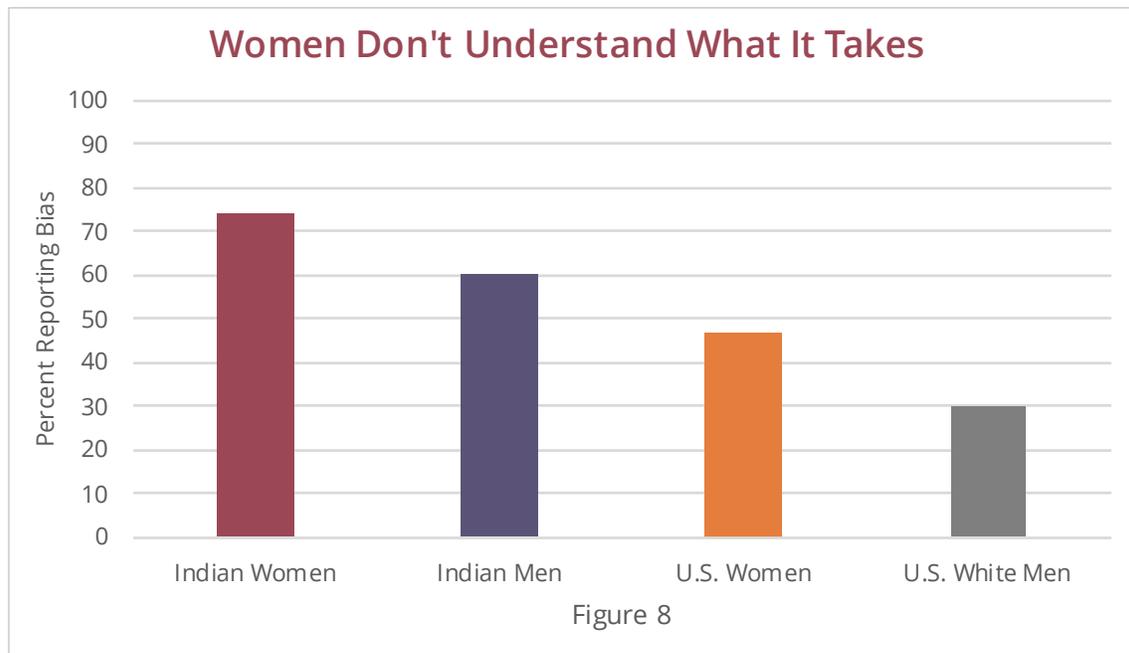


Figure 7

Three Tug of War questions probed about strategic distancing by asking whether participating in diversity initiatives is seen as a good career move. We asked whether you should avoid talking about diversity at work, whether participating in diversity activities at work is a good idea, and whether promoting diversity initiatives in general would hurt your career. We found that 50% of engineers, both men and women, agreed that their careers would be harmed if they participated in these diversity initiatives.

To supplement our focus group comments indicating conflicts among women in the workplace, a quantitative Tug of War question regarding how women interact in the office found that less than half, or 42%, of engineers agreed that their female colleagues generally support each other.

Two Tug of War questions attempted to capture gender Tug of War bias based on age differences. Sometimes more junior women can feel as though the more senior women have just “turned into men” and have assimilated to the way men do things instead of trying to change things to help women feel comfortable. In India, 63% of women but only 55% of men reported this happening in their workplace. Other times, more senior women can feel as though the more junior women don’t understand what it takes to succeed as an engineer, especially as younger generations of women are pushing for things that the more senior women didn’t have, like longer maternity leaves, more leadership positions, and gender parity. Much higher rates were reported by engineers in India than those reported by engineers in the U.S, with 74% of women and 60% of men in India agreeing with this question (see Figure 8). It seems Tug of War bias does affect women engineers in India, especially when it comes to generational differences.

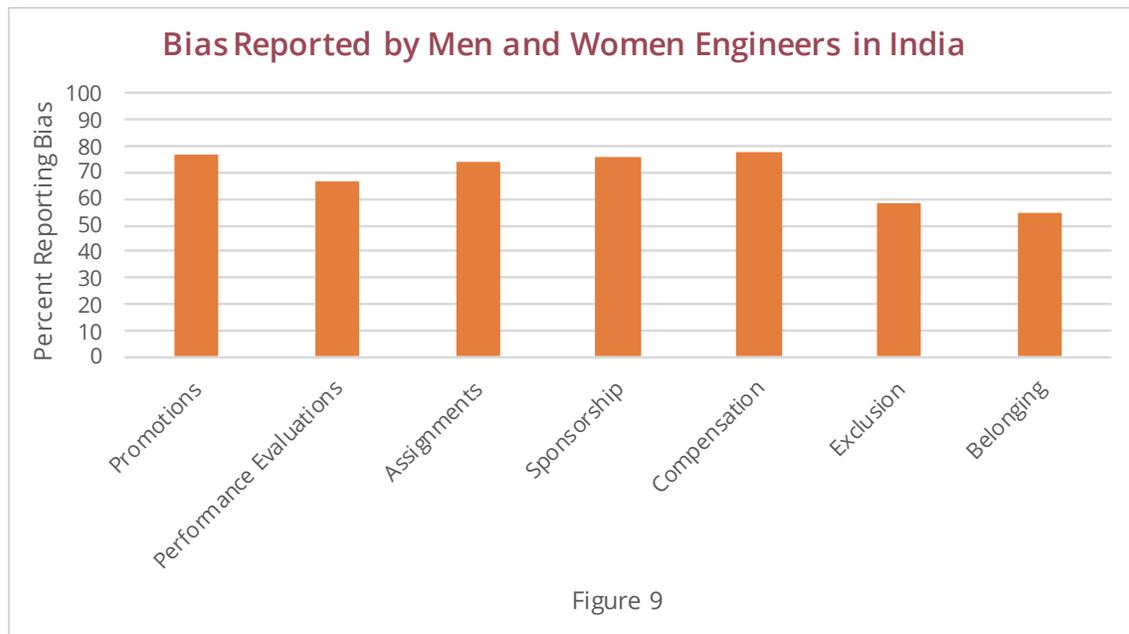


In a surprising finding, when the survey asked if respondents have a difficult time getting administrative support compared with the rest of their colleagues, more men than women reported this: 54% of men versus 41% of women. This is in contrast to the research and survey results in the U.S., where women report more trouble getting administrative support than men, and merits further research.

## BIAS IN WORKPLACE PROCESSES

One set of questions on the Workplace Experiences Survey attempted to understand whether subtle biases are affecting workplace processes and negatively impacting employees. Workplace processes include hiring, promotions, performance evaluations, compensations, sponsorship, and assignments. For each workplace process, a series of questions was asked and then formed into a scale.

Across most of the workplace processes we studied, respondents reported a high level of bias (see Figure 9). With the use of a survey, we could only look at people's perceptions of these systems and not the actual systems that are in place. So, when engineers report bias in workplace processes, there are two possible explanations: the business systems that companies are using are unfair, or the business systems are not unfair, but employees think they are. This highlights an important issue that anyone who wants to improve employee experiences needs to consider. It is not enough to implement fair systems; you also have to communicate to your employees what you are doing, so they know your systems are fair. For example, having transparent systems for compensation can lead to an increase in employees' happiness at work, even if the only thing that has changed in the system is how open about it the company is.



## Hiring

Many studies in the U.S. have revealed biases in employers' hiring practices that make it more difficult for people who aren't in the majority to get hired (Ameri et al., 2015; Bertrand & Mullainathan, 2004; Norton, Vandello, & Darley, 2004; Phelan, Moss-Racusin, & Rudman, 2008). The research base has mostly covered hiring biases against women and people of color, but (as noted earlier) studies have begun to assess hiring biases triggered by other factors, such as socioeconomic status.

Comments from women on the survey and in focus groups tended to focus on the idea that men think it is easier for women to get hired:

"People believe that companies are lowering the bar to hire more women to increase diversity. They don't question quality with male hires."

"I was hired because of my abilities but sometimes co-workers say that my hiring was bound to happen because of diversity quotas. But I do not think so.... If I was not good and someone (male) for the same position was better than me then obviously they would have chosen that person instead of me. They are not bound to take females to complete diversity quotas."

On the Workplace Experiences Survey, more men than women reported hiring bias. In fact, 54% of men versus 45% of women reported bias in their hiring processes. These figures are comparable to the bias reported by women in the U.S. study (see Figure 10). Data from our focus groups and survey point to two major explanations for bias: women are facing bias based on their gender, and men are facing bias based on their region of origin or the state they are from. However, the high rate of hiring bias reported by men could also be a sign of backlash against women for an increase in diversity efforts in the company: if men think that women are getting an advantage, they may react negatively.



Prior research suggests that men in STEM fields are more reluctant than women, and more reluctant than men in other fields, to believe evidence that gender bias exists (Handley, Brown, Moss-Racusin, & Smith, 2015). Engineers often consider their profession to be strictly meritocratic and think that a focus on diversity and bias will be detrimental to the field (Williams et al., 2016). However, research has shown that organizations that view themselves as highly meritocratic actually have worse outcomes when it comes to gender and racial bias (Castilla & Bernard, 2015; Uhlmann & Cohen, 2007; Monin & Miller, 2001).

If respondents felt that diversity efforts were corroding meritocracy in engineering, our findings that men report more bias in hiring make sense. The employment numbers of engineers in India indicate that there are more men than women in the workforce, but efforts to increase the number of women may result in backlash nonetheless.

The hiring scale consists of questions asking how respondents feel about the fairness of the hiring process at their company and what the company is looking for when they hire new employees.

### Promotions

The numbers tell us part of the story about promotions for engineers in India: the higher up you move, the fewer women. One study puts the number of women in management at 29%, with men holding 71% of the management positions (Catalyst, 2015).

Promotions can be a complicated issue. The best workers are not automatically promoted to the next level if the selection process introduces bias. Sometimes, decision-makers are looking for “culture fit” for a certain position, which can make it more difficult for people who do not fit with the culture due to their gender, state of origin, or accent.

There were comments from women specifically implicating gender bias as an issue in promotions at their companies:

“Bias exists during promotions. You see four men promoted for every one woman. Women just do not come to mind when thinking about who deserves a promotion.”

“I used to work in the first shift 6:30 am to 3:30 pm, but people did not notice. I used to stay close by so [I] could come back to the office in the evenings to attend meetings. I used [my] early years productively. But people still wonder – how did she get the promotion so quickly? People don’t recognize the effort we put in.”

Some individuals made comments on the survey regarding why the promotions processes in their companies are unfair:

“The organization follows a hierarchy and expects aspiring employees to go through all the steps as their superior did. If someone has the capability to be a manager in a short period of time their superiors see him as a threat. They don’t want him to be at their level in a short period of time or they don’t want him to take [more] superior roles than him.”

“The promotions were targeted, meaning for the formality purpose eligible candidates were interviewed, but in real[ity] management had already decided the candidates who will get promotions.”

Over three-quarters of Indian engineers reported bias in their promotions systems. Among all survey takers, 77% reported promotion bias. This is a high level of bias reported and, again, a surprisingly high percentage of men reporting bias. The level of bias reported in the U.S. by both white men (54%) and women (64%) engineers was lower than all engineers in India (see Figure 11).

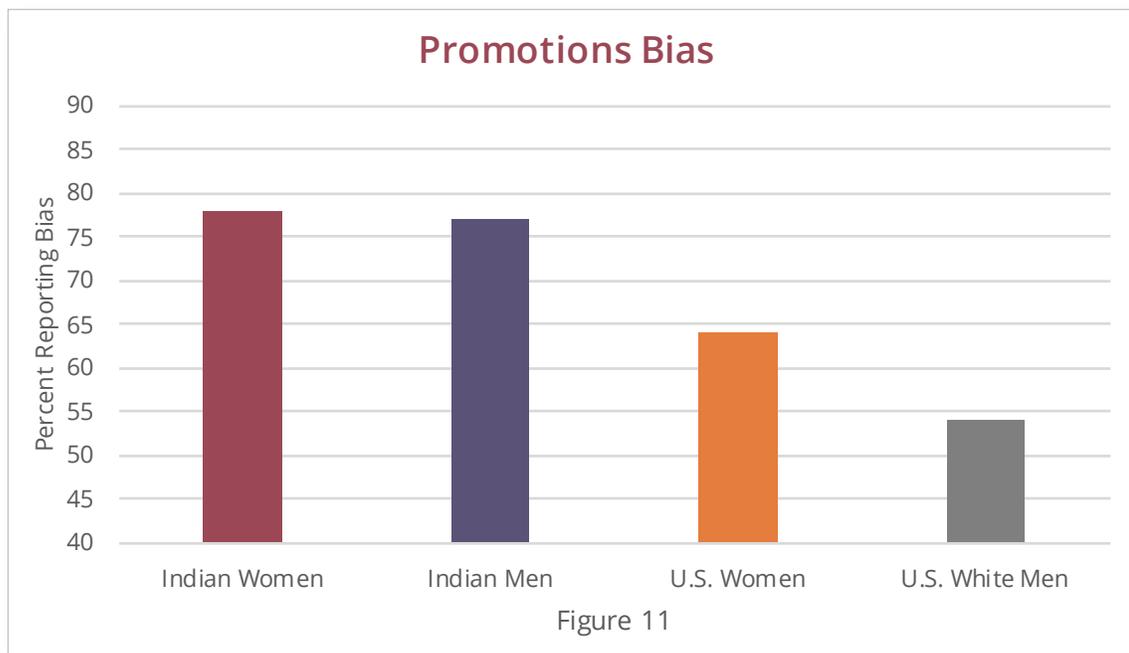


Figure 11

The promotions scale consists of questions asking whether respondents feel that the promotions systems their company has in place are fair, what types of behaviors are rewarded at work, and their own experiences with career advancement in their company.

## Performance Evaluations

The process of performance evaluations can be rife with bias, even when we think we have an objective system. Research in the U.S. shows that women are often faulted for personality problems, a phenomenon that rarely happens to men (Snyder, 2014). Research using the Workplace Experiences Survey with lawyers found gender differences in men's and women's opinions about the fairness of performance evaluations (Williams et al., 2018).

In our focus groups and survey comments, women engineers reported gender bias in the performance evaluations process.

"Recently I have been interviewed for a particular role which is purely my current area. Absolutely no difference from the current role [that] I play, but I see that it's been offered to another male. I see clearly a bias of not getting selected though [I did] extremely well in the interview. Even when [I asked for feedback], I have not been told of any constructive feedback."

"I have really found this to be true, even to this date. I have a male colleague with similar degree and experience, he hardly comes to work, but I took six years to get promoted while he got promoted instantaneously. I did not raise this with my boss as we are not supposed to talk about someone else in our one to one. We can discuss only our own issues. I got the leadership award also. My notion is that one day someone will notice your work but my boss said you have to work smart."

"Women do not promote themselves. They seek perfection. During performance review or promotion review, men focus on what they did right (I did 8 of 10 things, but I did them well), while women focus on what they are missing (I only did 8 of 10 things, so I am not deserving)."

On the Workplace Experiences Survey, two-thirds of all respondents (67%), both men and women, reported bias in their performance evaluations systems.

The performance evaluation scale is based on questions regarding the different types of feedback that respondents and their colleagues receive during performance evaluations and the fairness of the performance evaluation systems in their company.

More Indian engineers reported bias in performance evaluations than engineers in the U.S. Roughly 63% of U.S. women engineers and 55% of U.S. white men engineers reported performance evaluation bias (see Figure 12). When comparing engineers' experiences in India and the U.S., the level of bias was highest for men and women engineers in India and lowest for white men engineers in the U.S., with women engineers in the U.S. falling in between.

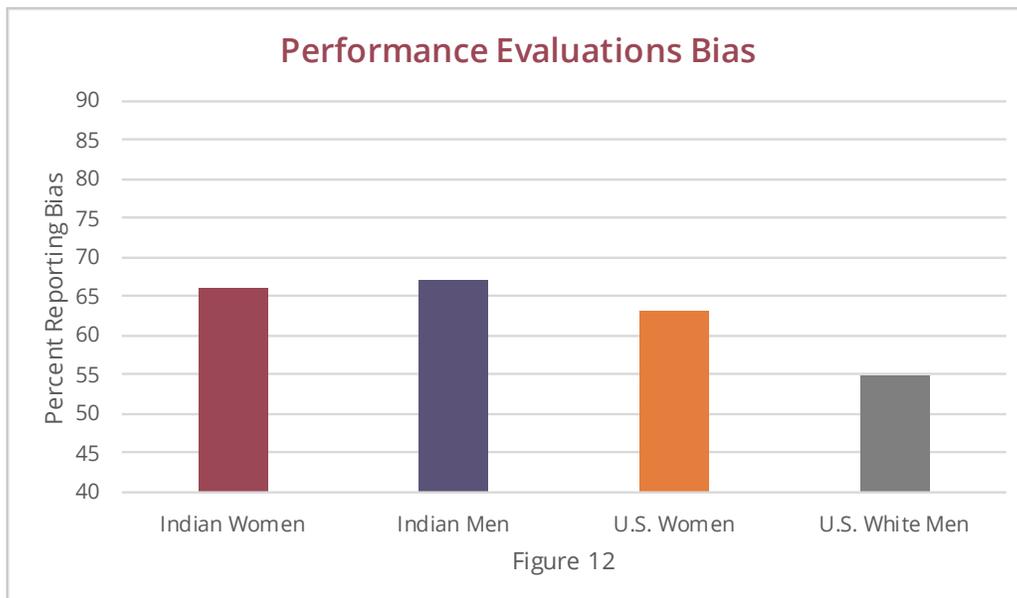


Figure 12

## Assignments

Under the Tightrope bias pattern, we discussed the tendency for women to do more than their fair share of the “office housework” and administrative tasks, due to stereotypes that women are “self-effacing team players” (Allen, 2006; Babcock, Recalde, Vesterlund & Weingart, 2017). Here we explore the corresponding issue: whether everyone, at similar skill and seniority levels, has access to high-quality and career-enhancing assignments, or the “glamour work.” Research from the U.S. has shown that both women and people of color have less access to glamour work than white men (Williams et al., 2016; Williams et al., 2018).

The ability to perform high-profile assignments is key to being promoted and moving up in a workplace. High-profile assignments give employees the opportunity to stretch themselves, signal that they are leaders in their organization, and get seen by leadership.

Women made comments on the survey and in the focus groups indicating that they face gender bias when it comes to assignments.

“Yes, I have faced biases in my earlier organization where I was not given customer facing roles due to gender bias, and travel opportunities were passed to male co-workers. Even when I was applying for jobs, in a certain large organization, 30 min into the interview the second level manager said that he did not find me suitable as the role required frequent travel to Europe which I wouldn’t be able to do (so he assumed).”

One woman engineer noted that women must prove themselves first to get something, while men don’t. Managers will give an assignment to men first and make equally qualified women wait for the next assignment.

Another woman discussed an example of a friend she has. Her friend was on a team (three women and two men). They had to select a team leader, so they made a list of attributes that a leader should have. One woman marked that she had them all. So did one man, but she was first. The man insisted that he should be named team leader. When asked why, he said straight out—it was because he is a man.

The Workplace Experiences Survey found that, in India, 74% of all respondents, both men and women engineers, reported bias in assignments. The assignments scale consists of questions that asked what respondents think about the assignments systems in their company and whether all groups of people have equal access to stretch assignments that are likely to help advance their careers.

## Diversity Climate

The Workplace Experiences Survey also explored engineers' perceptions of the diversity climate in their workplace. Are diversity and inclusion considered a worthy goal in their organization or are they considered a waste of time?

In the U.S. study, many men engineers left comments on the survey expressing a disdain for diversity efforts and asserting that diversity is threatening the quality of the engineering profession (Williams et al., 2016). Obviously, talking about gender bias and diversity efforts is controversial in U.S. engineering workplaces. Research in the U.S. has also shown that women and non-white men may face a career penalty for focusing on diversity efforts at work (Hekman, Johnson, Foo, & Yang, 2017).

There was also evidence of a negative attitude toward diversity in engineering workplaces in India. One survey respondent commented:

*“Some men think that it is ok to have funny jokes about diversity, especially women, but if company culture doesn't encourage it, such comments are very minimal.”*

On the survey, the data revealed a gender difference between women and men engineers. The diversity climate scale consists of questions asking how coworkers think about and react to diversity initiatives. Sixty percent of women engineers in India reported a workplace climate where coworkers don't appreciate and don't value diversity. The fact that only 45% of men reported bias in their workplace diversity climates suggests that women face more of the pushback for advocating for diversity than their male colleagues (see Figure 13).

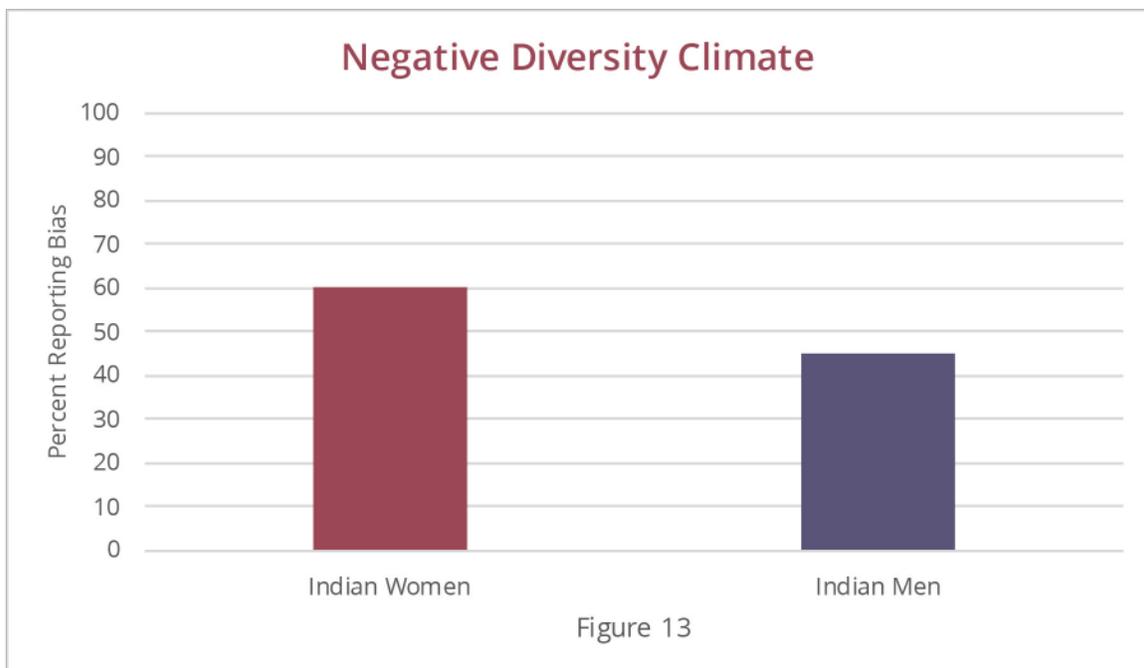
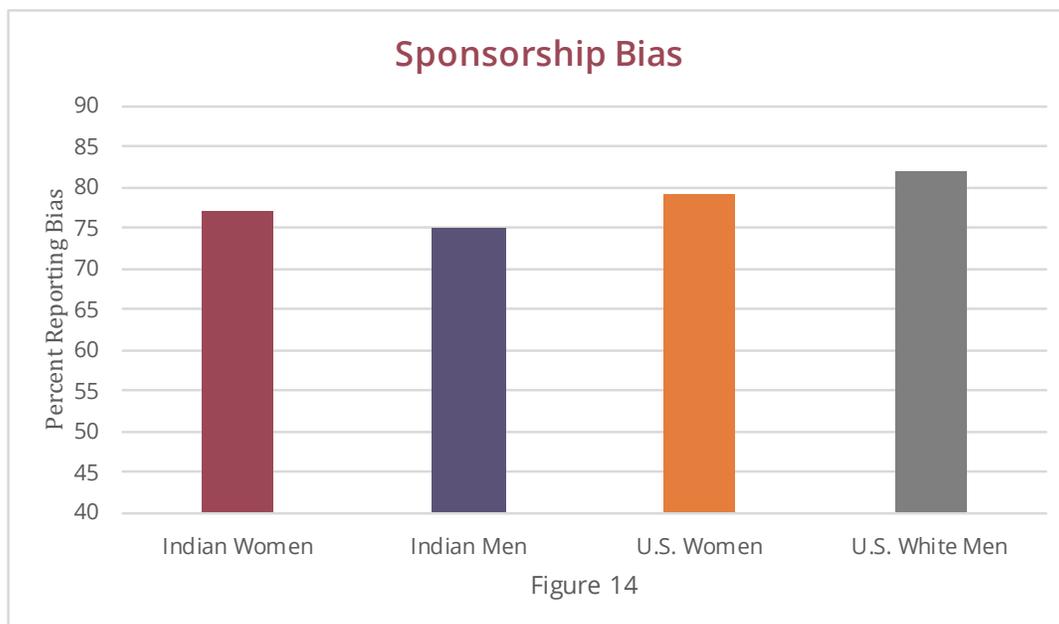


Figure 13

## Sponsorship and Networking

Access to good mentors, sponsors, and networking opportunities are key to workplace success. Sponsors and mentors are both important, but in different ways. A sponsor is someone who is willing to use some of his or her political capital and workplace influence to help your career. Mentorship is a more general term. Sometimes mentors invest in their protégé's career and spend their political capital to help them, but mentorship can also include relationships cultivated through informal coffee or lunch meetings or a formal, workplace-sponsored mentorship program where you are required to meet with your mentor once a quarter. Sponsors and mentors are especially important for people who do not fit in with the majority group in the workplace. Access to informal networking opportunities also can be crucial to your success in the workplace.

Three-quarters of all surveyed Indian engineers, both men (75%) and women (77%), reported bias in sponsorship and networking. This number was slightly lower than the percentages of white men (82%) and women (79%) engineers in the U.S. (see Figure 14). Although 75% is still a high number that companies should strive to lower, it is possible that formal policies regarding sponsorship and mentoring are having a positive effect. Survey participants suggested specifically that increasing mentorship opportunities would be a way for their companies to make changes to improve their experiences in the workplace.

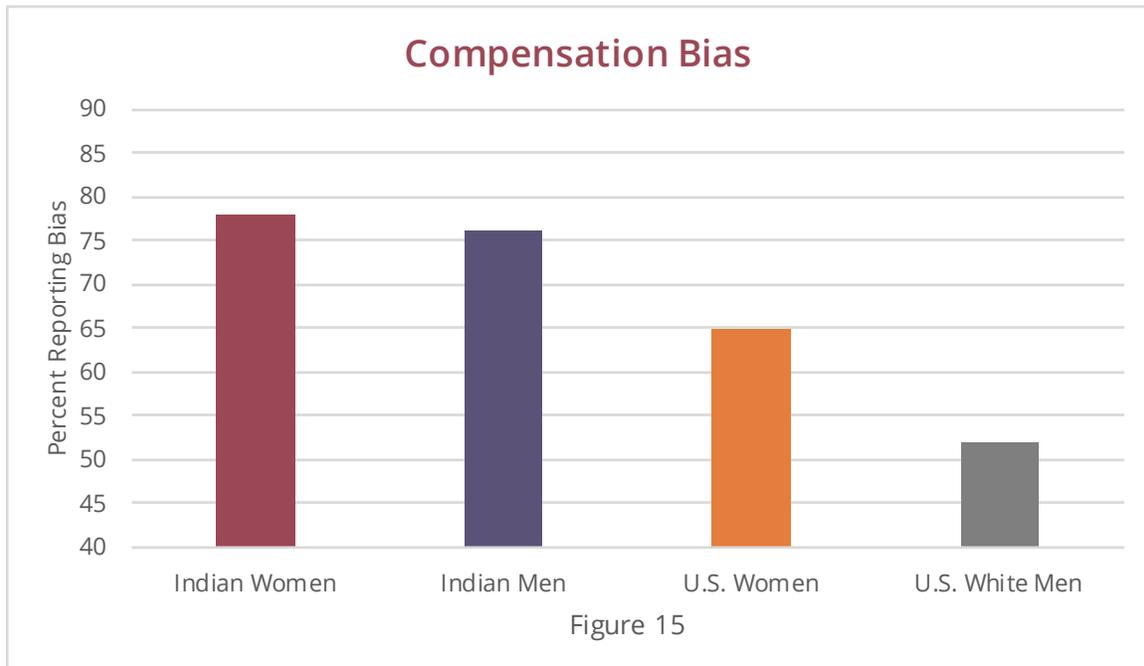


The sponsorship and networking scale consisted of questions asking whether respondents have had mentors and sponsors in their workplace and about networking opportunities in their company.

## Compensation

The gender pay gap in the United States has been widely documented (Bertrand & Hallock, 2001; Blau & Beller, 1988; Blau & Kahn, 2006; Elkinawy & Stater, 2011; Kahn 2014; Munoz-Bullon 2010). Less well documented is the gender pay gap in India, but some studies have shown Indian woman earn 56% to 60% of what men earn in the same job (Patel & Parmentier, 2005). The Indian pay gap increases the more educated a woman is and the farther women advance into leadership (Catalyst, 2015).

Though research has shown that there is a gender difference in compensation in India, the Workplace Experiences Survey responses on perceptions of compensation bias reflected similar levels of dissatisfaction with compensation among men and women engineers. Seventy-eight percent of all Indian engineers surveyed reported bias in their workplaces' compensation systems, a much higher percentage than those seen by engineers in the U.S. (see Figure 15). This means that engineers in India feel that they are not being fairly compensated, regardless of gender. Improvement of compensation systems will improve the workplace experiences of both men and women engineers in India.



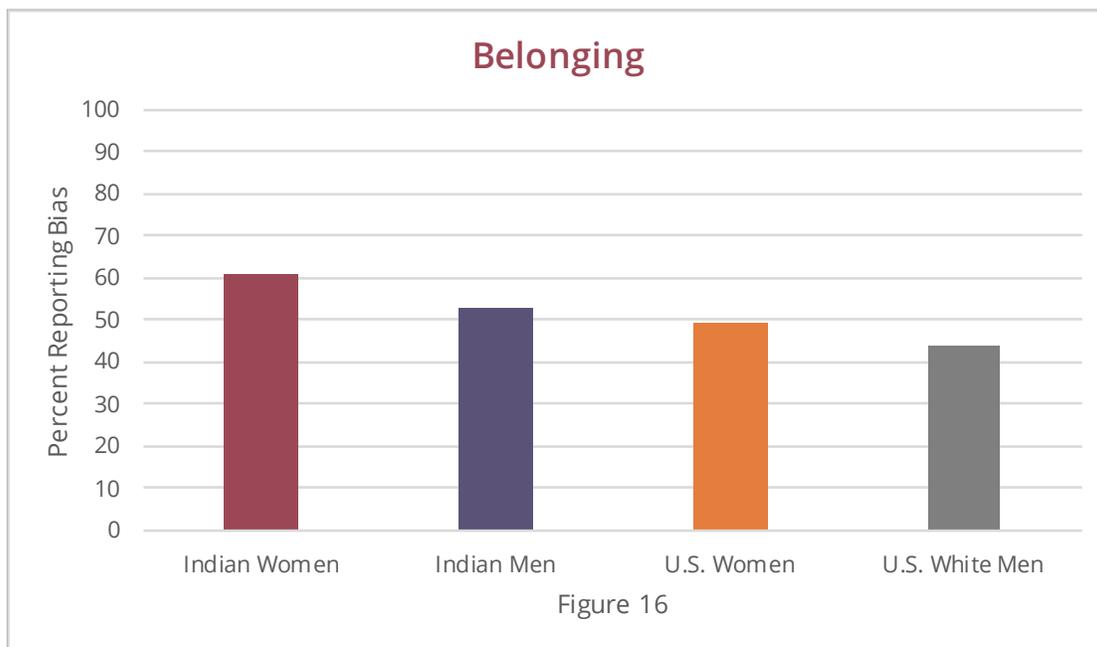
The compensation scale was made up of items asking respondents about whether they think the compensation systems at their company are fair and about their satisfaction with those systems.

## Belonging and Exclusion

We asked respondents if they felt like they belonged in their company. Respondents were also asked whether the people they work with made them feel excluded.

Over half of all respondents (55%), both men and women engineers, reported that they did not feel like they belonged in their workplace. Although it is not as high as some of the reported bias levels of workplace processes, this finding should still be concerning for companies. The belonging scale also encompasses feeling like you know what it takes to succeed at work and that individuals who succeed are similar to you. Without a strong sense of belonging, individuals will not feel like staying with their current employer long-term.

Among engineers in India, 61% of women and 53% of men reported that they felt excluded in their workplace, compared to 49% of women and 44% of white men engineers in the U.S. (see Figure 16). The exclusion scale was made up of questions asking if respondents felt excluded in their workplace, in activities, and in the networks in their workplace. When someone is excluded at work, it can have tangible effects on the productivity of the team. For example, if important decisions are being made in informal groups that don't include everyone, you might miss out on the input of some of your top talent.



## SEXUAL HARASSMENT

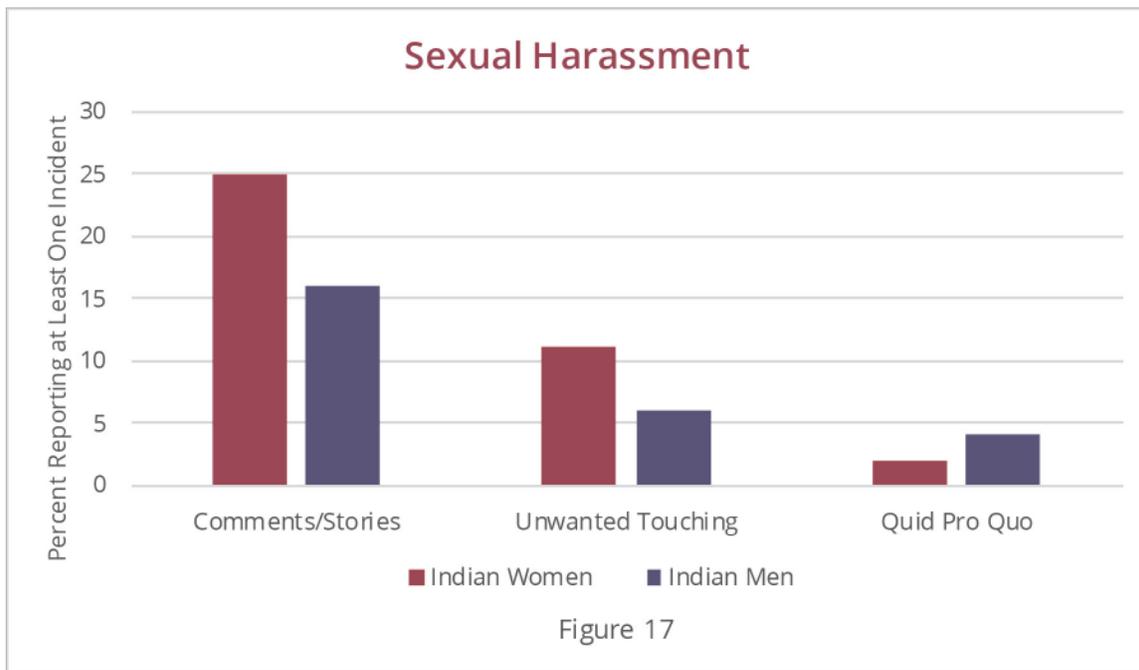
A final set of questions on the Workplace Experiences Survey inquired about sexual harassment. The sexual harassment questions were asked using a different scale and were analyzed on a different metric. They yielded some interesting findings in terms of sexual harassment, but more research is necessary to examine the state of sexual harassment in engineering workplaces in India.

Some women commented on experiences they had:

“What women hear when they are in a male group and a sexist joke or comment is made: ‘Please don’t go all “female liberation” over a joke.’ Women just learn to ignore such comments as minor issues.”

“Staring is a particular issue for junior-level women (freshers out of college). They are not comfortable complaining to a manager.”

We also asked about specific experiences in our survey (see Figure 17). When asked if respondents had ever experienced sexual harassment at work (defined as unwanted romantic or sexual attention or touching), 11% of women and 6% of men reported that they had. Though these are relatively low percentages, this indicates that about 1 in 10 women reported experiencing sexual harassment at work—not an insignificant finding. When asked if respondents had ever lost opportunities to advance in their careers because they had rebuffed sexual advances at work, 17% of women and 23% of men agreed. This is a strange finding: losing work opportunities due to denying sexual advances is a form of sexual harassment, and we would have expected the percentages of respondents reporting this to be lower than the percentages of people reporting unwanted romantic or sexual attention (11% and 6%), instead of the other way around. We theorize that the wording of the question, and specifically the use of the word “rebuffed,” may have been confusing to participants. This was the only survey item in the sexual harassment scale that did not fit with the other items.



When asked if respondents had ever felt bribed with workplace advances (quid pro quo) or threatened with workplace consequences for not engaging in sexual behavior, 2% of women and 4% of men agreed. Although a higher percentage of men than women reported this type of harassment, the numbers were very low for both men and women.

Finally, when asked if respondents had been told sexist or sexual stories, jokes, or comments, 25% of women and 16% of men reported that they had. This type of sexual harassment appears to be the most common, with a quarter of women engineers reporting it.

In our focus groups, we heard from women engineers who serve on their employers' committees that hear sexual harassment complaints. One woman noted that her committee had not received a single complaint and that they were concerned about the lack of reporting. Another woman said that she only sees reports when the harassment is pervasive and that they don't get reports about incidents that have only happened once.

The numbers above reflect responses on an anonymous survey. However, as our focus group comments indicate, we have reason to believe that the true rates of sexual harassment are higher. A study by the India National Bar Association (Netrika & INBA, 2017) found that 70% of working women do not report workplace sexual harassment in India. There are multiple reasons for underreporting, such as employees who may not feel that a particular incident was severe enough to count as harassment, employees who feel embarrassed by what has happened, or those who may be reluctant to report if there are not clear consequences for perpetrators.

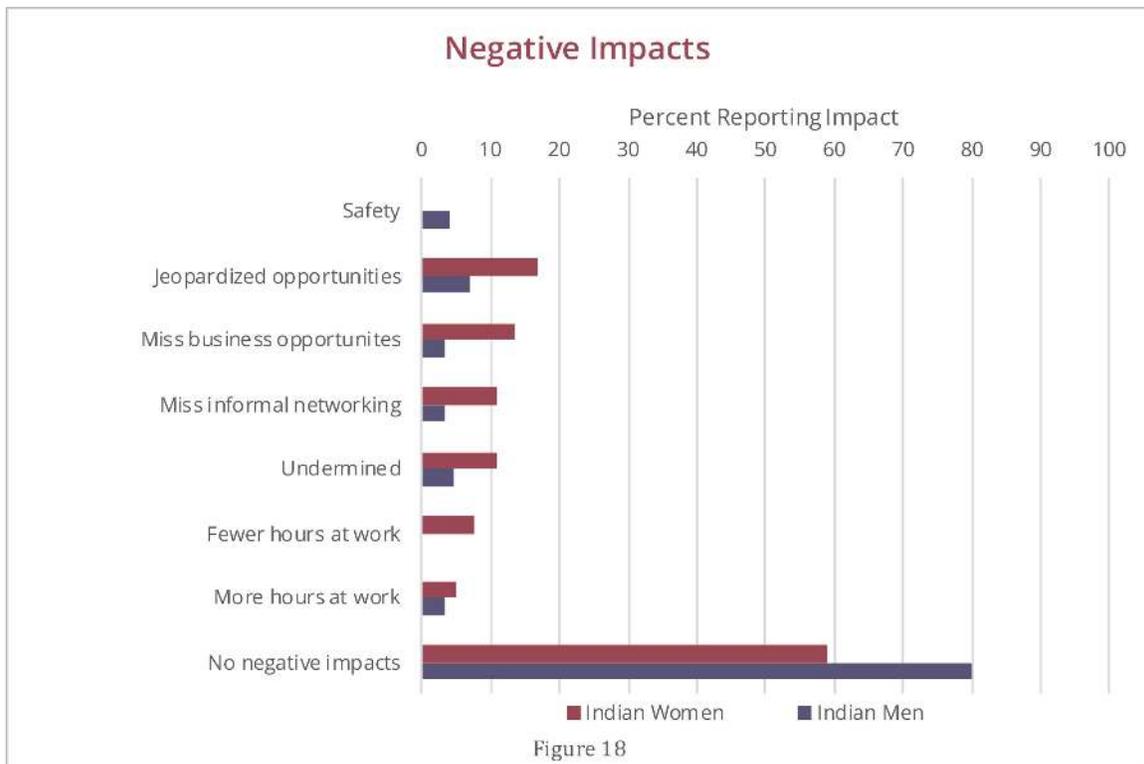
## THE SHOPS AND ESTABLISHMENTS ACT

In India, the Shops and Establishments Act (SEA) prohibits women from working late nights without permission. In order to get approval for their women employees to work late hours, the employer must meet requirements set by the state, which include providing adequate security and ensuring that the women can get home safely at night. Companies that don't have these extra measures in place have policies requiring women to leave work at a certain time in the evening. In our study, 57.5% of respondents reported that their company had this type of policy. The times reported ranged from 6:00 pm to 10:00 pm, but most fell between 7:00 pm and 9:00 pm. Some respondents noted that they are able to get special permission to stay late or that they are allowed to work from home, but not all women and not all jobs were able to do so.

We explored the specific positive and negative consequences of this policy (summarized in the charts below). Although the policy is created to keep women safe, one of our focus group participants described how the reality of implementation could make women less safe. She commented that her workaround to the policy was to take phone calls outside of the security desk at night, where the policy does not apply.

On the survey, we asked if this policy actually had a negative impact on the safety of participants. Only 4% of men said yes, while no women surveyed believed that there was a negative impact on safety.

However, there were other, non-safety concerns (see Figure 18):



- 17% of women and 7% of men reported that this policy jeopardizes their opportunities for advancement.
- 13.7% of women and 3.5% of men reported that they are forced to miss out on business opportunities.

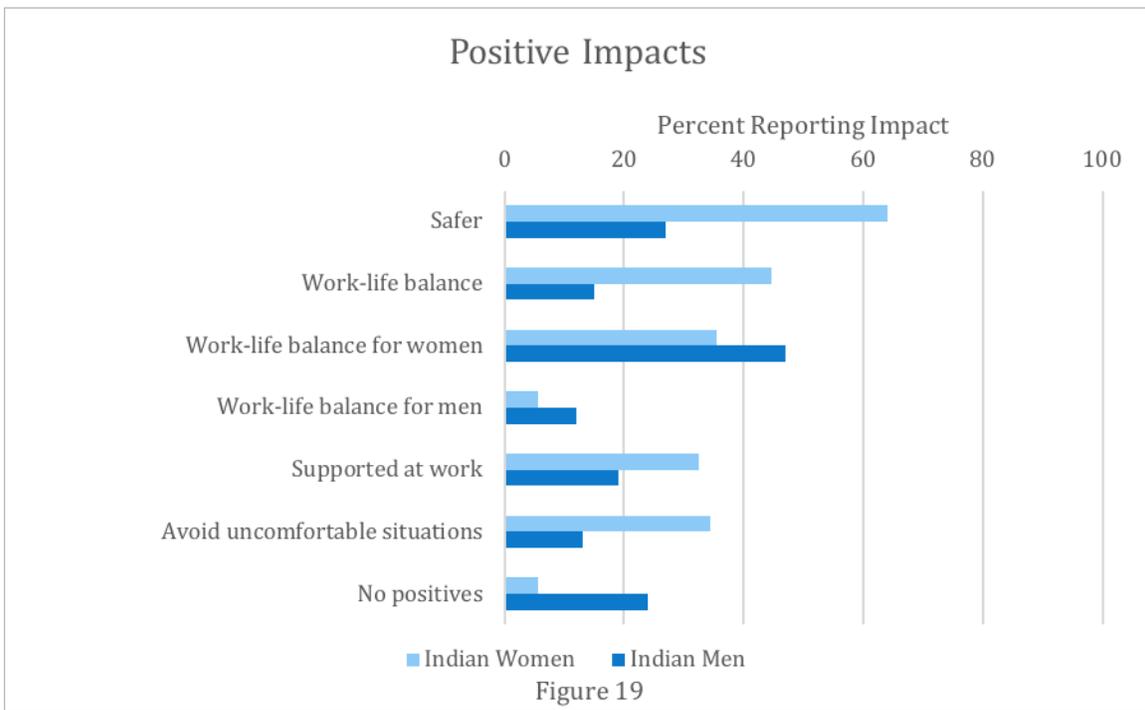
- 11% of women and 3.5% of men reported missing out on informal networking opportunities.
- 11% of women and 4.7% of men reported that they feel undermined in front of their coworkers because of this policy.
- 7.7% of women, but 0% of men, felt forced to put in fewer hours at work because of the policy.
- 5% of women and 3.5% of men felt forced to put in more hours at work because of the policy.

It is worth noting that 80% of men and 59% of women reported that they personally experience no negative impacts of this policy; however, that means that 20% of men and 41% of women are experiencing some type of negative impact.

Although these policies only specify the times that women must leave work, some men did report negative consequences. Some of these make sense: if women leave earlier, it may fall to the men to put in more hours to get the work done. Some negative consequences for men are less intuitive, though. It is possible that some men report negative consequences when it comes to opportunities for advancement or business opportunities because they are working with women. If you have a woman boss, this policy might make it more difficult to get time with your boss, which could make it harder for you to get a promotion or network. This policy might also lead to men feeling on edge and feeling like the company does not trust them to be around women at late hours. So, even though the policy is aimed at women, it may still have negative impacts on some men.

We also explored the positive personal impacts of this policy (see Figure 19). Only 5.7% of women and 24% of men reported no positive impacts of this policy. For those who did report positive impacts:

- 64% of women and 27% of men reported that the policy makes them safer.
- 44.6% of women and 15% of men reported that they personally experience better work-life balance because of the policy.
- We explored the issue of work-life balance a little more in depth:
- 35.3% of women and 47% of men thought that the policy led to better work-life balance for women in general at their workplaces.
- Only 5.7% of women and 12% of men thought that the work-life balance for men was better at their workplaces because of the policy.
- 32.4% of women and 19% of men felt supported in the workplace because of the policy.
- 34.5% of women and 13% of men reported that the policy helped them to avoid uncomfortable situations in the workplace.



Overall, our research suggests that engineers in India tend to feel either positive safety impacts or no safety impacts of this policy. So the government policy aimed at keeping women safe appears to be working. However, there were still a number of negative impacts of this policy that weren't related to safety. Most notably, women reported missing out on opportunities, being forced to work less, and having more trouble getting advancement opportunities. On the other hand, positive impacts were not experienced equally across genders. Men did not report the same bump in work-life balance as women. What this tells us is that companies need to be thoughtful in their interpretation and implementation of this government policy. It is important to keep everyone safe in the workplace, but that does not mean we have to sacrifice opportunities for advancement for women or family time for men.

# RECOMMENDATIONS

In this report, we explored the impacts of bias in the workplace and found many opportunities for companies to make big improvements for their employees. One of the issues we discovered from our study is that, in addition to actual workplace policies, employees' perceptions of these policies matter. To make employees feel more confident that their careers are being driven by merit and not restricted by bias, it is important for companies to have clear policies regarding workplace processes such as hiring, promotions, and performance evaluations. These policies should be transparent and available to employees. That way, if someone doesn't get promoted, they are less likely to blame bias and more likely to see the concrete actions they can take to reach the goals they want to achieve.

To better understand the impact of bias in the workplace, it is a good idea to explore this issue in your own company. You can hold focus groups to see where problems exist and ask your team for solutions. Provide opportunities for open dialogue on diversity and inclusion topics within your organization by allowing time for such discussions to occur. During these times, encourage your employees to share their personal stories, or prompt these conversations by asking thought-provoking questions.<sup>5</sup> In many cases, employees know exactly what they need, but their needs are not being communicated to leadership.

## SUPPORTING DIVERSITY AND INCLUSION IN INDIA

Many engineers in India reported that supporting diversity is not a good career move in their place of work. If companies want to change this, there are a few different actions they can take. First of all, signify to employees that supporting diversity is a priority for the company by making sure there is a budget and support staff for diversity efforts and making it easy for employees to participate. Appoint diversity champions, ideally high-ranking men who can provide an example for others that supporting diversity is valued by the company. If you choose a woman to be in charge of diversity efforts, make sure a high-status man is her co-chair or mentor, so she has support.

Regarding the government policy on women's safety, we offer some suggestions for improved implementation, including allowing everyone to work the same hours and not restricting the time that women can spend in the office, allowing people to work from home, and prioritizing giving laptops to people who are asked to leave early. Employers can also try to schedule meetings at times when all team members can attend.

## BIAS INTERRUPTERS

At the institutional level, companies that want to reduce bias in their processes sometimes turn to programs like diversity trainings. However, evidence shows that one-time diversity trainings often do not work. For change to occur, systemic bias at each level of a business organization must be addressed.

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<sup>5</sup> The Society of Women Engineers' Inclusion Solutions cards can help introduce diversity and inclusion topics for group discussion: <http://societyofwomenengineers.swe.org/inclusion-solutions>.

Research has shown that bias interrupters are an effective way to make systemic changes.<sup>6</sup> Bias interrupters are small tweaks to your existing business systems and processes that often interrupt bias before it happens.

To effectively use bias interrupters, the first step is to do a climate assessment. Find out if the bias patterns are present in your workplace and how they are affecting everyday work interactions. One tool for accomplishing this is the Workplace Experiences Survey—a version of the survey used in this study that is adapted for use to assess organizational climate.<sup>7</sup> Second, develop an objective metric to establish baselines. For example, do performance evaluations in your company show consistently higher ratings for men than for women? Do women’s ratings fall after they have children?

Next, implement a bias interrupter. Typically, this involves evidence-based tweaks to existing systems and processes. For example, if your climate assessment shows that men from certain groups get less access to the glamour work or that women are doing more “office housework,” consider rotating the less glamorous tasks among those within your area.

After putting a bias interrupter in place, return to your metric to assess success—and try something else if you have not yet met your goal. Bias interrupters involve an iterative process, so you should plan to go through several rounds of adjustments to get the results you are hoping to achieve.

### Addressing Bias in the Hiring Process

If you notice unequal gender representation in your workplace or that new hires seem to come from the same region, a closer look into the candidate selection process is in order. For example, in workplaces that have a high level of Prove-It-Again bias, majority group members tend to be judged on their potential, while minority group members tend to be judged on what they have already accomplished (Brewer, 1999; Brewer & Gardner, 1996; Hewstone, 1990). Similarly, in a workplace that has high levels of Maternal Wall bias, you might find that mothers are not seriously being considered for available positions, under the assumption that their priorities should lie with their children. If these patterns are playing out in your workplace, there are some easy actions you can take to make things more equitable. With a few tweaks, you can lower the amount of bias that your current and potential employees are facing:<sup>8</sup>

- Decide what’s important for the position, and rate every resume on the same criteria.
- Make sure to assemble a diverse candidate pool for available positions, and be clear that you are considering people from a variety of backgrounds. If you are not getting the candidates you are hoping for, try checking your job advertisements with a writing enhancement tool like Textio<sup>9</sup> to ensure that you are using inclusive language.
- Develop an interview protocol, and follow it for every candidate.
- Appoint people in the hiring process to spot bias and make sure they are equipped with the tools to assess candidates fairly.

<sup>6</sup> The Center for WorkLife Law offers toolkits on its Bias Interrupters website to assist individuals and organizations: <https://biasinterrupters.org/toolkits/orgtools/>

<sup>7</sup> <https://biasinterrupters.org/services/>

<sup>8</sup> See the Hiring & Recruitment toolkit available on the Bias Interrupters website.

<sup>9</sup> <https://textio.com/>

## Addressing Bias in Performance Evaluations

If bias is affecting your performance evaluations system, women and/or people from certain regions might receive artificially low scores. For example, if there is a high level of Tightrope bias in a workplace, women may be faulted on their performance evaluations for not playing the role of “dutiful daughter” or “office mom” (Allen, 2006; Heilman & Chen, 2005; Kanter, 1977; Williams & Dempsey, 2014). If there is a high level of Tug of War bias, women may unfairly penalize other women on performance evaluations for not conforming to their standards of what it takes to be a successful woman engineer. We offer a few specific tips for revising your performance evaluations system:

- Use specific performance criteria that are related to the job requirements.
- Make sure that your performance evaluations are backed up by objective evidence from the employee’s performance record.
- Consider performance and potential separately.
- Keep personality feedback separate from skill sets.
- Give constructive feedback to everyone—it’s essential for improvement!

If you suspect bias in performance evaluations may be an issue at your company, the National Center for Women & Information Technology’s Supervising-in-a-Box Series is a helpful resource.<sup>10</sup> Identifying problems in your performance evaluations system, developing metrics, and making small adjustments to the performance evaluation process can help mitigate biases that may be preventing women from advancing in your organization.<sup>11</sup>

## Addressing Bias in Assignments

A high level of Tightrope bias in a workplace could indicate that women are being asked to do more office housework. Or there might be a belief that only men, or men from certain regions, are good at the high-profile assignments. Addressing bias in assignments can help organizations to clearly communicate what they value while allowing everyone to have the opportunity to shine and develop in their careers:<sup>12</sup>

You will need to handle the office housework and glamour work separately. For the less desirable jobs:

- Establish a rotation so everyone takes a turn.
- Don’t ask for volunteers, because women are under powerful pressure to volunteer.
- Keep everyone accountable for carrying out the assignments.
- Use admins when possible for office housework tasks.

For the high-profile tasks:

- Be clear about what your organization values.
- Set up a diverse candidate pool, and make sure you are keeping track of who gets the glamour work assignments.

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<sup>10</sup> <https://www.ncwit.org/resources/supervising-box-series-full-series>

<sup>11</sup> See the Performance Evaluations toolkit available on the Bias Interrupters website.

<sup>12</sup> See the Assignments toolkit available on the Bias Interrupters website.

- Let everyone have an opportunity to shine and develop their careers—not just the most outspoken group.

Tightrope bias can also be at play when members of certain groups are interrupted more or given less time to speak during meetings. If this is the case on your team, apps like GenderEQ<sup>13</sup> and WomanInterrupted<sup>14</sup> can help you track who is speaking, and who is being interrupted in your meetings.

Companies are beginning to see the benefits of bias interrupters in their organizations. For example, Airbnb increased the percentage of women on its data science team in 2015 from 15% to 30% through small adjustments in the hiring process, including (1) taking names off resumes when judging objective tests given to candidates and (2) ensuring that at least half of the members of interview panels were women (Newman & Grewel, 2016).

It is important to remember that bias can be hard to spot and correct in the moment. That is why it is critical to take a systematic approach. By using metrics to understand the unique problems in your workplace, identifying outcomes you want to improve, and taking incremental steps, you can guide your company toward success without having to completely overhaul your existing business systems.

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<sup>13</sup> <https://gendereq.com/>

<sup>14</sup> <http://www.womaninterruptedapp.com>

# FUTURE DIRECTIONS

The current study is a step toward understanding the workplace bias experiences of engineers in India. Although we learned a lot, there are still unanswered questions that should be addressed with future research.

The biggest question that our study presents concerns men engineers in India. In our survey, men reported high levels of bias across many different variables—as high and sometimes higher than women and much higher than men engineers in the U.S. study. Further research is needed to assess what are the sources of the biases reported by men engineers: are the men reporting that they are treated less favorably than their colleagues thinking of their treatment as compared with other Indian men from different regions or language groups?

We also found lower reports of sexual harassment than we would have expected. Future research would do well to explore the issue of sexual harassment of both men and women engineers more fully to understand prevalence rates and reasons for underreporting and to identify potential solutions.

Lastly, it would be beneficial to explore the ways that companies are implementing government policy and other diversity- and inclusion-related policies. Such research will help companies and policy makers identify the most effective policies for reducing bias.

# CONCLUSION

In this large study of engineers in India, we found high levels of bias across a number of different variables. For many of the concepts we examined, both men and women reported high levels of bias. However, women reported more bias based on parenthood than men, and men reported more bias than women based on the state they are from or the language that they speak.

We also examined the impacts of different types of bias on workplace processes and outcomes and found that experiencing bias at work actually leads to worse business outcomes for employees. When employees face bias in the workplace, they feel less engaged, feel less satisfied with their jobs, and are more likely to think about leaving and starting over in a new workplace. Unfortunately, our survey found that many engineers in India, both men and women, are experiencing these outcomes. Although this message may be a bit disheartening, bias in the workplace is a problem that companies can address and ameliorate through concerted effort and a commitment to equality.

# APPENDIX A: DEMOGRAPHICS OF SAMPLE

**TOTAL: 693**

	NUMBER	PERCENTAGE
<b>Gender</b>		
Women	423	61%
Men	270	39%
<b>Age</b>		
18-24	80	12%
25-34	397	57%
35-44	176	25%
45+	40	6%
<b>Highest Level of Education</b>		
Bachelors degree or below	238	34%
Professional/masters degree/doctorate	438	63%
<b>Specialization</b>		
Aerospace engineering	91	13%
Computer engineering	141	20%
Computer science	92	13%
Mechanical engineering	89	13%
Other engineering	280	40%
<b>Years of Employment Experience as an Engineer</b>		
2-5	228	34%
6-10	197	30%
11-20	200	30%
20+	22	3%
<b>Other Demographics</b>		
Have dependent children	298	43%
First-generation college grad or professional	248	36%
Work in corporate sector	521	75%

## APPENDIX B: TABLE OF PERCENTAGES FOR FOUR BIAS PATTERNS

The following table lists the percentage of respondents who indicated feeling four bias patterns in the workplace. Where appropriate, the results are reported at the individual and scale levels.

	INDIA MEN	INDIA WOMEN	U.S. WHITE MEN	U.S. WOMEN
<b>Prove-It-Again</b>	78.9	74.3		
Prove myself more than colleagues			60.8	78.0
Held to higher standards			64.9	76.1
Ideas valued			37.4	56.8
Stolen idea			57.9	68.2
<b>Tightrope</b>	77.8	76.0		
Interruptions			41.7	66.4
Penalized for assertive behavior			68.2	75.9
Self-promotion			74.5	73.5
Expressing anger			77.4	77.4
Worker bee			62.8	69.3
Office housework			52.2	72.0
High-profile tasks and teams			68.8	76.9
Access to assignments			42.1	59.7
Feminine role	30.0	45.0		
Women can't argue	28.0	45.0		
<b>Maternal Wall</b>				
Bias against mothers	40.4	40.3		
Bias against fathers	26.8	27.1		
Caregiver bias	69.3	70.9		
Work long hours			53.2	60.3
Flex arrangements			63.3	73.9
Personal bias	59.7	65.6		
Compensate for people with kids	50.6	38.9	42.3	46.2
<b>Tug of War</b>				
Women don't know what it takes	59.1	74.5	29.8	46.7
Pushback from admin personnel	54.6	40.8	32.7	37.2
Lot in common with my gender	51.0	54.5	52.9	53.6
Tokenism		45.4		37.9
Supportive women	38.6	43.7		
Women act like men	54.9	63.3		
Supporting diversity is a bad move	50.8	48.6		

## APPENDIX C: TABLE OF PERCENTAGES FOR BIAS IN WORKPLACE PROCESSES

The following table lists the percentage of respondents who indicated feeling bias in specific workplace processes. Where appropriate, the results are reported at the individual and scale levels.

	INDIA MEN	INDIA WOMEN	U.S. WHITE MEN	U.S. WOMEN
<b>Hiring</b>	54.2	44.7	26.8	46.6
<b>Promotions</b>	76.9	77.8	54.3	64.1
<b>Performance evaluations</b>	67.4	65.9		
Fair performance evaluations			37.8	45.5
Honest performance evaluations			44.3	55.6
<b>Assignments</b>	73.5	74.2		
<b>Support for diversity</b>	44.4	59.2		
<b>Sponsorship</b>	75	76.8		
Good mentors			59.9	60.2
Have a sponsor			77.7	74.8
Access to networking			40.0	54.5
<b>Compensation</b>	76.3	78.1		
Paid the same			52.4	65.3
Paid less			57.3	66.8
<b>Belonging</b>	53.3	56.2		
<b>Exclusion</b>	52.8	61.0	43.5	49.1
<b>Region &amp; Language</b>	44.2	30.1		

# APPENDIX D:

## TABLE OF REGRESSION RESULTS

Betas and p-values for regression analyses

	PROVE-IT-AGAIN	TIGHTROPE	MATERNAL WALL	TUG OF WAR	GENDER
Belonging	.12*	.40***	.06	.12*	.02
Performance evaluations	.37***	.32***	.06	.03	.00
Assignments	-.04	.44***	.00	-.04	-.03
Support for diversity	.01	.21***	.22***	.24***	-.14***
Sponsorship	.14*	.34***	.04	-.11	-.03
Exclusion	.07	.31***	.14**	.23***	.02
Compensation	.21***	.24***	.01	.11*	.00
Others invested in my career	-.09	-.36***	-.05	.03	.05
Clear path for advancement	-.10	-.35***	.02	.00	.04
Career satisfaction	-.15**	-.46***	.08	-.04	-.03
Career enjoyment	-.12*	-.39***	.02	-.06	-.05
Happy for career to continue	-.05	-.40***	-.02	.00	.04
Looking for new job	.17**	.28***	.02	.14*	-.03
Long-term future	-.05	-.49***	.08	-.07	.00
Recommend my company	-.04	-.30***	-.04	-.10	-.01

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

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