Selective Incivility, Harassment, and Discrimination in Canadian Sciences & Engineering: A Sociological Approach

Jennifer Dengate[1], Tracey Peter[1], Annemieke Farenhorst[1], Tamara Franz-Odendaal[2]

[1]University of Manitoba, [2]Mount Saint Vincent University (Halifax Nova Scotia), Canada

ABSTRACT

There is little scholarly evidence describing the gendered and racialized climate faced by women in Canadian academic natural sciences and engineering (NSE). We address this gap with a sociological examination of selective incivility, harassment, and discrimination amongst NSE faculty from 12 Canadian universities; asking if women, and racialized female faculty in particular, are more likely to experience mistreatment at work than their white, male colleagues. Analyses of survey data indicated that women were significantly more likely to be mistreated by their co-workers and students than male faculty. Moreover, harassment and discrimination were associated with greater professional marginalization for women, including delayed advancement. Thus, taking a sociological approach to interpersonal mistreatment emphasizes the connection between employee interactions and structural gender inequality in male-dominated NSE. We found mixed evidence with respect to race: racialized women reported less co-worker and student mistreatment than their white female counterparts, but these results were only marginally significant; and racialized men reported significantly more harassment and discrimination than white men. As such, our findings suggest the importance of investigating the organizational employment setting to better understand which workers are at greater risk for mistreatment in different job contexts.

KEYWORDS
Incivility, harassment, STEM faculty, gender, Canada

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INTRODUCTION

Compared to the United States (U.S.), there is little scholarly work examining the climate faced by women in academic natural sciences and engineering (NSE) in Canada. This particular gap is striking because American research has demonstrated that women in science, technology, engineering, and mathematics (STEM) continue to experience sexism, discrimination, and gendered micro-aggressions (Riffle et al., 2013; Settles, Cortina, Malley, & Stewart, 2006; Yang & Carroll, 2018); and negative climates are associated with women's intent to leave their current positions (Blackwell, Snyder, & Mavriplis, 2009). Moreover, recent research suggests racialized female science faculty may be most at-risk for harassment (Clancy, Lee, Rodgers, & Richey, 2017). Women remain underrepresented in Canadian NSE (Canadian Association of University Teachers, 2018), thus, understanding the climate they encounter may be relevant to increasing both gender and racial diversity in these traditionally male-dominated fields.

Biased conduct (e.g., derogatory gender remarks) has been found to have a negative effect on STEM women's career satisfaction (Settles, Cortina, Buchanan, & Miner, 2013); and interpersonal conflict has been linked to job burnout for American STEM faculty (Pedersen & Minnotte, 2017). However, to our knowledge, STEM climate research has yet to investigate the distribution and effect of low intensity, ambiguous incivilities that violate norms of mutual respect, but lack any clear intent to harm (e.g., being discourteous) (Andersson & Pearson, 1999, p. 457). Nevertheless, relatively "harmless" incivility is similarly associated in the U.S. with workers' job dissatisfaction and intent to quit (Cortina et al., 2002, 2013; Miner-Rubino & Cortina, 2004, 2007). Accordingly, this research prioritizes selective incivility, wherein women and racial minorities may be disproportionately subjected to uncivil workplace conduct, such as exclusion from meetings or networks (Cortina, 2008).

This research advances the STEM climate literature through an investigation of harassment, discrimination, and co-worker and student incivility using a sample of Canadian NSE faculty from 12 universities. We ask: Are women, and racial minority women in particular, more likely to be targeted by their co-workers and students; and what effect does mistreatment have on faculty's careers? In contrast to the existing (largely social psychology-based) incivility literature, we take a sociological perspective, concluding with an argument for future research to examine selective incivility using an intersectional, organizational theoretical framework (Acker, 2012).

LITERATURE REVIEW

Incivility, Bullying, & Harassment in Academia

Between 32% and 52% of North American faculty have reported peer or co-worker bullying (Keashly & Neuman, 2010). However, academic bullying may largely consist of low intensity hostilities because success for individuals is tied to reputation and accomplishment. As such, in this particular environment, undermining one's colleagues may be an effective way to bully; and, moreover, blatant aggression contradicts professional norms and is likely to be punished (Keashly & Neuman, 2010, p. 53). Indeed, Canadian and American faculty stated that setting a colleague up to fail, making rude/belittling comments, gossip, and threatening comments were amongst the most uncivil or bullying behaviours committed by their peers (Cassidy, Jackson, & Faucher, 2016; Clark, Olender, Kenski, & Cardoni, 2013; McKay, Arnold, Fratzl, & Thomas, 2008).

Many U.S. university employees (41%) also witnessed the bullying of others (Keashly & Neuman, 2010), which may, itself, be detrimental. Observing poor treatment of female colleagues and perceiving a weak organizational stance on gender harassment has been correlated with poor psychological well-being for male and female faculty in the U.S. (Miner-Rubino & Cortina, 2007). Decreased psychological well-being and job satisfaction were, in turn, associated with poor physical health, job burnout, and intent to quit (Miner-Rubino & Cortina, 2007).

Student mistreatment

Student incivility is a form of contrapower harassment (CPH); where individuals with relatively less power harass those with more power (e.g., DeSouza & Fansler, 2003). Low intensity classroom incivility is commonly reported, including use of cellphones, side conversations, and leaving lectures early (Ausbrooks, Hill Jones, & Tijerina, 2011; Clark & Springer, 2007). Nearly all U.S. faculty (96%) reported experiencing at least one instance of student incivility within the last 2 years (DeSouza, 2011), and such prevalence rates suggest CPH may be "a routine part of being a professor in the 21st century" (Lampman et al., 2016, p. 170).

CPH has been linked to increased job stress, lost productivity, lost teaching confidence, job dissatisfaction, and greater intent to quit (DeSouza, 2011; Lampman, Phelps, Bancroft, & Beneke, 2009, 2016; Luparell, 2007). However, more serious behaviours were also reported (e.g., death threats and stalking); and faculty's worst experiences were, unsurprisingly, linked to negative professional and personal outcomes, such as stress-related illness (Lampman et al., 2009, 2016).

To our knowledge, there is no Canadian literature on student incivility, but related studies investigated student bullying/cyberbullying (Blizard, 2016; Cassidy et al., 2016; McKay et al., 2008). Bullying was more likely to be committed by colleagues than students (64% vs. 27%) but, nevertheless, Canadian faculty encountered deliberate class interruptions, gossip, rumours, and challenges to authority from their students (McKay et al., 2008). Similar to CPH, Canadian faculty reported lost confidence, decreased productivity, and thoughts of quitting as a result of student bullying (Cassidy et al., 2016).

Whether or not female and racialized female faculty, in particular are targeted more often by co-workers and students remains somewhat contested, but there is evidence suggesting selective incivility may be a feature of academic workplaces, as discussed next.

Selective Incivility and Harassment in Academia

The ambiguity of uncivil behaviour is what makes selective incivility more "pervasive" and "insidious" than blatant workplace harassment because the discriminatory intent is not obvious (Cortina, 2008, p. 71). Indeed, those engaging in incivility may not consciously intend to discriminate or even view their behaviour as discriminatory because uncivil actions can be dismissed as a joke or the target may be accused of overreacting or misinterpreting the situation (Andersson & Pearson, 1999; Cortina, 2008). Thus, if disproportionately mistreated, women and racial minorities may be experiencing "modern discrimination," circumventing social mores and labour laws (Cortina, 2008, p. 55).

To our knowledge, thus far, the concept of selective incivility has only been applied to scholarly researchers in the context of an academic conference (Settles & O'Connor, 2014). Women scholars reported more incivility than men, which was also associated with greater perceptions of sexism, suggesting women may partially attribute uncivil treatment to their gender (Settles & O'Connor, 2014, p. 78). Likewise, thus far, analyses of gender differences in university co-worker harassment appear scarce. However, Canadian female faculty were more likely than male faculty to be cyberbullied by their colleagues (14% vs. 8%) (Cassidy et al., 2016).

Similarly, American women have generally reported more contrapower harassment even when statistically significant gender differences were not found (DeSouza, 2011; Lampman et al., 2009). Likewise, female faculty in Canada and the U.S. have consistently reported more severe instances of student bullying and harassment than their male colleagues (Cassidy et al., 2016; Lampman et al., 2009, 2016; Lampman, 2012). Moreover, at least one study of U.S. faculty, including science and engineering, found women were significantly more likely to have their credentials and authority questioned by students; and experienced a greater number of hostile, threatening, and derogatory comments than their male colleagues (Lampman, 2012).

The extent of racialized faculty's risk of incivility from co-workers is unclear but racialized faculty in Canada and the U.S. have reported more student incivility, bullying, and cyberbullying than white faculty (Cassidy et al., 2016; Lampman, 2012). However, Lampman and colleagues (2009) found female faculty of colour reported more unwanted sexual attention from students but not incivility or harassment (Lampman et al., 2009). Yet, Clancy and colleagues (2017) found that racialized science faculty in the U.S. (male and female) reported significantly more verbal and physical harassment than their white colleagues; and, while female science faculty also experienced significantly more verbal and physical harassment than male faculty, racialized women reported the most (Clancy et al., 2017). Such mixed findings indicate a need to further investigate selective incivility in academic science, specifically.

Why Expect Selective Incivility in Canadian NSE?

Selective incivility (and subsequent intent to quit) has been positively associated with male-dominated workgroups in the U.S. (Cortina et al., 2013; Miner-Rubino & Cortina, 2004). A woman with few or no female co-workers is estimated to be 1.68 times more likely to experience gender harassment than a woman working in a gender balanced group (Kabat-Farr & Cortina, 2014, p. 68).

Women comprised less than 30% of all Canadian full-time faculty in agriculture, natural resources, and conservation; physical/life sciences and technologies; and math, computer, and information sciences in 2016-2017 (Statistics Canada, 2018) Given the gender imbalance in NSE workplaces (i.e., dominated by male faculty), we anticipate white and racialized female NSE faculty may also encounter more incivility (and other mistreatment) (e.g., Cortina et al., 2013). Specifically, their low numbers may make all female NSE faculty highly visible, highlighting their deviation from dominant cultural images of competent male scientists/engineers, perhaps making co-worker mistreatment more likely (Kabat-Farr & Cortina, 2014, p. 68) Likewise, students may expect female professors to be more accommodating in their course requirements or grading, for example; and those deviating from gendered expectations may be more vulnerable to student mistreatment (Lampman et al., 2009, p. 332).

Sociocultural status beliefs devaluing women and racial minorities may be one reason for greater reports of incivility from racialized female faculty, as compared to their male and white female colleagues. Specifically, women and racial minorities may be perceived as having less authority and power than all men and white women which suggests racialized women may be most at-risk for student mistreatment (Lampman, 2012). These sociocultural status expectations can reasonably be extended to co-worker incivility, as well.

Indeed, a Pew Research Center study found American women working in majority male STEM occupational settings were more likely to report gender discrimination than women working in majority female or gender balanced STEM settings (Funk & Parker, 2018). In addition, approximately 60% of Black and 40% of Asian and Hispanic STEM employees in the U.S. experienced racial discrimination, as compared to 13% of white employees (Funk & Parker, 2018). Further, 29% of women and 45% of Black STEM employees described being treated as if they were incompetent (vs. 4% of men and 3% of white employees) (Funk & Parker, 2018). With respect to uncivil treatment, 20% of women and 22% of Black employees reported experiencing small, repeated slights at work, as compared to 4% of men and white employees (Funk & Parker, 2018). Similarly, some scholars have asserted that racialized women working in science and engineering are at increased risk for biased treatment than men and white women (e.g., less access to desirable assignments/teams and being asked to continually prove their competency), as their belonging can be challenged because of both their gender and racial identities (e.g., Ong, Wright, Espinosa, & Orfield, 2011; Williams, Phillips, & Hall, 2014; Williams, Li, Rincon, & Finn, 2016).

Moreover, there is evidence suggesting racialized female professors are devalued in Canada, specifically. Racialized women are less likely to hold full-time/full-year university teaching positions, compared to white women (44.9% vs. 54.4%); and

the gender wage gap for racialized female professors appears larger than that of their white female colleagues (CAUT, 2018).

A Sociological Approach to Selective Incivility

The selective incivility literature draws upon multiple social psychological concepts in explaining why women and racialized individuals may be targeted (e.g., intergroup competition) (Cortina, 2008). Nevertheless, skewed gender ratios and cultural beliefs (e.g., women are better suited for child care than science or engineering) appear consistently. Cultural beliefs are core components of sociological approaches to workplace inequality, as well (e.g., Benard & Correll, 2010). Thus, they are a logical foundation for a sociological approach to selective incivility. However, our sociological framing places stronger emphasis on the potential for interpersonal interactions to *maintain* existing structural inequalities (e.g., men holding the majority of an organization's senior administrative positions), as opposed to gendered mistreatment being one possible consequence of imbalanced gender ratios at work (Kabat-Farr & Cortina, 2014).

Specifically, cultural gender/racial beliefs may influence employees' behaviour as they interact with each other in particular work settings that are, themselves, implicitly gendered and racialized (Acker, 2012; Ridgeway & Correll, 2004). For example, negative perceptions of women's competence in "masculine" NSE may result in more negative interactions with co-workers, undermining women's access to resources, which may impede their success within these contexts. As such, a sociological approach complements and extends existing social psychological analyses, especially those identifying the mistreatment of women as an impediment to the recruitment and retention of women and racialized employees (e.g., Miner-Rubino & Cortina, 2004).

Therefore, we expect female NSE faculty to report significantly more harassment, discrimination, and incivility from students and co-workers than their male colleagues; and anticipate that racialized female faculty will experience more mistreatment than their white female counterparts (Cortina et al., 2013). However, we predict faculty of both genders who have experienced/observed more incivility, harassment, and discrimination will report less career satisfaction and greater intent to quit than faculty who have not had these same experiences (Miner-Rubino & Cortina, 2004). Finally, we expect mistreatment may also be related to structural gender bias in NSE, with women experiencing additional professional marginalization.

METHODOLOGY

Sample and Data

This study used data from a cross-sectional workplace survey administered to NSE faculty from 12 Canadian universities located across 2 geographical regions (the Prairies and the Atlantic). The Prairie and Atlantic regions were chosen because they are 2 of the 5 regions represented by NSERC Chairs for Women in Science and Engineering. The 12 universities were selected to collect an adequate sample of faculty to gather initial data on gender differences in academic NSE, as improving the status of female faculty is a key element of these government funded Chair positions.The survey was not meant to be representative but we are currently

developing a third phase of data collection that would add more Canadian universities to the total sample. Participating universities included medical/doctoral, comprehensive, and undergraduate institutions. The sampling frame was constructed through university websites and, after securing ethics approval, faculty were emailed an invitation to participate including a link to access the survey online. Data were collected between September and November 2017 for the Prairie region and between April and June 2018 for Atlantic Canada.

After data cleaning, a final sample of 686 was obtained; a response rate of 22%. Nearly two-thirds (63.7%) of the sample are men and 36.3% are women. A large portion are full professors (46.7%) and the mean age is 49.4 years old (SD = 10.02; Md = 48). Associate and assistant professors account for 26.4% and 16.5%, respectively, and 10.5% are teaching stream faculty. Most are tenured (75.3%) and white (86.0%), and 14.0% report having a racialized background. Over half (59.7%) are in science, 20.3% in engineering or related disciplines, and 20% work in agriculture, forestry, ocean/fisheries or other fields.

Measures

The survey covered a number of topics expected to influence workplace climate, including harassment/discrimination, collegial respect, and experiences with students. The main independent variables are gender (male, female, transgender, and non-binary) and race/ethnicity (11 categories including First Nation, Black African, Southeast Asian, Latin American, etc.) Low total numbers of racialized respondents meant that all non-white individuals had to be grouped together into one less precise "racialized" group to compare against white respondents. Less than 2% of respondents identified as transgender or non-binary, making it impossible to conduct robust statistical analyses. As such, the measure of gender used in these analyses is dichotomous (0 = male, 1 = female). Similarly, because the proportion of racialized respondents was relatively small, all racialized faculty were grouped into one category in order to conduct comparative analyses (0 = white, 1 = racialized).

Interpersonal Mistreatment

Incivility, harassment, and discrimination were used as both explanatory and outcome measures. With respect to incivility, both general and gender-related incivility were measured. General incivility has neutral content (e.g., exclusion from formal networks), whereas gender-related incivility has either gendered content (e.g., derogatory gender remarks) or a gendered target (e.g., hostility towards female employees) (Cortina et al., 2002).

General incivility was assessed with a 7-item index that was adapted from the Workplace Interpersonal Conflict Scale for our academic sample (Glavin & Schieman, 2010; Pedersen & Minnotte, 2017). Faculty were asked how often in the past 2 years they had gossip/rumours spread about them; been excluded from formal networks; been excluded from informal department/unit discussions; had insulting or offensive remarks made about them in front of students (or another colleague); experienced intimidating behaviour from a colleague (e.g., invasion of personal space); and had unfair allegations made against them (0 = never, 4 = very often (10+ times)). A composite index was computed from these individual

items. A Cronbach's alpha test of scale reliability indicated high internal consistency between the individual items ($α = .87$). Due to problems with positive skew and kurtosis, the composite measure of general incivility was transformed using a base 10 logarithm, which improved normality.

Two separate 7-item indices, derived from the Workplace Incivility and Observed Hostility Toward Women Scales (Miner-Rubino & Cortina, 2007), were used to measure gender-related incivility. One index examined the mistreatment of female employees by any faculty, staff, or administrators ($α = .91$); and the other focused on the mistreatment of female professors/instructors by students ($α = .90$). Both indices asked female and male respondents how often, in the past 2 years, they observed university employees or students display hostility toward; act in a disrespectful or discourteous way toward; speak in a condescending or patronizing manner to; make derogatory gender-related comments to; make offensive or embarrassing public comments to; make a sexually suggestive comment to; and make a sexually suggestive public comment about a female employee, professor, or instructor ($0 =$ never, $4 =$ very often (10+ times)). Female respondents could also include their own personal experiences of mistreatment when answering these questions.

Finally, faculty were asked to indicate whether or not they had experienced harassment or discrimination in their own Faculty/College ($0 =$ no, $1 =$ yes). Overall, 20.5% of faculty reported experiencing harassment or discrimination within their Faculty/College. A follow-up question asked respondents to select all of the reasons for the harassment/discrimination (e.g., sex, age, race/ethnicity, etc.)

Professional Outcomes

Career satisfaction was measured with a 4-item index ($0 =$ strongly disagree, $4 =$ strongly agree) ($α = .80$), derived from the Career Satisfaction Scale (Greenhaus, Parasuraman, & Wormley, 1990). Items included personal satisfaction with progress made toward achieving overall career, income, advancement, and skills development goals. Intent to leave the university (i.e., turnover intentions) was assessed by a 3-item index asking if faculty have been actively looking for employment at another university, outside of academia, or if they planned on leaving their current university within the next 2 years ($0 =$ strongly disagree, $4=$ strongly agree). Faculty who indicated that they planned to retire within 2 years were excluded from the index ($n = 40$; 5.8%), given that they already intended to leave their jobs and university.

Qualitative Statements

We collected 32 quotes referencing co-worker and student mistreatment from 4 open-ended questions where faculty expanded on their experience of respect, collegial support, and workplace climate; their most serious workplace concerns; changes the university could make to improve the work environment, and one final question giving respondents the chance to make any last comments. Twenty statements were made by women, 11 comments were from men, and 1 comment was made by a respondent who did not indicate their gender identity. The limited amount of textual data precluded a robust qualitative analysis. As such, we offer relevant examples only to illustrate the statistical results.

Analytic Procedures

All statistical analyses used SPSS (v.25). We calculated gender and racial differences in incivility (individual items), harassment, and discrimination using chi-square tests, including Cramer's V analyses of effect size and strength of association, and t-tests of mean differences for the incivility indices. Two ordinary least squares regressions were used to investigate the independent impact of incivility, harassment, and discrimination on faculty's career satisfaction and intent to leave. Finally, in order to aid interpretation, all indices were standardized with a mean of 0 and a standard deviation of 1; meaning positive scores indicate above average experiences of incivility, career satisfaction, or intent to leave and negative scores indicate below average experiences.

RESULTS

Are Incivility, Harassment, and Discrimination Selective?

Table 1 *Gender differences in general incivility*

	Never		Once or twice		Three or more times	
	Female	Male	Female	Male	Female	Male
Excluded from informal department/unit discussions***	46.4%	62.7%	19.7%	20.1%	33.9%	17.3%
Gossip or rumours spread*	50.6%	64.0%	29.1%	20.8%	20.3%	15.1%
Had insulting or offensive remarks made in front of another colleague(s)*	64.1%	75.6%	21.2%	15.5%	14.7%	8.8%
Excluded from formal networks within university*	56.9%	68.5%	22.1%	17.7%	21.0%	13.8%
Experienced intimidating behaviours	78.0%	84.6%	11.8%	9.7%	10.2%	5.7%
Had insulting or offensive remarks made in front of a student	76.2%	83.5%	15.7%	11.3%	8.1%	5.2%
Had unfair allegations made	74.6%	73.9%	14.6%	17.3%	10.8%	8.8%

Note. * p<.05; ** p<.01; *** p<.001

As shown in Table 1, female faculty were significantly more likely than male faculty to experience general incivility. Women were more likely to have gossip and rumours spread about them; be excluded from formal networks within the university; be excluded from informal department/unit discussions; and have insulting or offensive remarks made about them in front of another colleague(s).

Analyses of the composite index also indicated women were significantly more likely than males to experience general incivility (M = .16, SD = 1.01 vs. M = -0.11, SD = .97; t (517) = -2.96, p <.001). Even though racialized NSE faculty reported more general incivility than their white colleagues, the difference was not statistically significant (M = 0.05, SD = 1.10 vs. M = -0.05, SD = 0.95; t (502) = -0.80, p = .423). Moreover, there were no significant differences between racialized women and their white female counterparts (M = 0.08, SD = 1.10 vs. M = 0.16, SD = 0.98; t (177) = 0.33, p = 0.739).

Co-worker and Student Gender-Related Incivility

Women were significantly more likely to observe or experience gender-related incivility from co-workers than their male colleagues (M = 0.43, SD = 1.13 vs. M = -0.22, SD = 0.85; t (517) = -7.4, p <.001).

> A colleague from another department made a sexual pass at me, while I was in front of a student; that HURT. I moved on, but it hurt, and I expect the activity has continued on his part, despite a severe "warning" from [the university]. (female faculty member, Prairie region)

Similarly, women observed or experienced significantly more student incivility toward female professors/instructors than men (M = 0.43, SD = 1.20 vs. M = -0.23, SD = 0.77; t (516) = -7.7, p <.001).

> Undergraduate and graduate students (including female students) expect to be treated differently by a female faculty member (mothered, easy grading, etc.) compared with male colleagues. Some students can be quite aggressive/bullying to female faculty/staff, and students normally have the upper hand if there is any dispute or any complaint made [...] "the customer (student) is always right" is an attitude that pervades our department. (female faculty member, Atlantic region)

Racialized faculty reported significantly *less* gender-related incivility from co-workers than white faculty (M = -0.23, SD = 0.95 vs. M = 0.05, SD = 1.00; t (504) = 2.23, p <.05); and significantly less gender-related incivility from students than white faculty (M = -0.23, SD = 0.88 vs. M = 0.04, SD = 1.00; t (504) = 2.20, p <.05). Racialized women also reported less co-worker incivility than their white female counterparts (M = -0.04, SD = 1.02 vs. M = 0.49, SD = 1.11); as well as student incivility (M = 0.14, SD = 1.20 vs. M = 0.46, SD = 1.20). As one racialized female faculty member stated, "Almost all of my colleagues are very respectful. I have had more problems from undergraduate students in this respect," suggesting a possible distinction between junior and senior students' behaviour.

However, racialized women's lower reports of co-worker incivility were only marginally significant (t (176) = 2.0, p <.10); and the results for student incivility were insignificant (t (176) = 1.10, p = 0.26). Thus, even though these patterns of

association generally run contrary to our expectation that racialized women would experience significantly more incivility than their white female colleagues, the results do not clearly demonstrate racialized women have better interpersonal workplace interactions.

Harassment or Discrimination

Women experienced significantly more harassment or discrimination in their Faculty or College (30.1%) than men (13.9%) (X^2 (1, 507) = 19.30, p <.001, V = .20).

> I was sexually harassed and bullied by a [department co-worker] (he told groups of people he [has] fantasies about [sexually assaulting me]). My union was fabulous. The response by the department chair, dean, and VP-academic on my campus was, "that is just how he is" and "do you want an office outside of your department?" (female faculty member, Atlantic region)

No significant differences were found between white and racialized women, but racialized men were more likely to experience harassment or discrimination (25.0%) than white men (11.2%) (X^2 (1, 315) = 6.67, p <.05, V = .15). Not surprisingly, the majority of women indicated that the harassment or discrimination they experienced was based on their sex (81.5%). Age was the second-most cited reason for women's harassment/discrimination (37.0%). As one female faculty member from the Atlantic wrote, "the men (who are in charge) don't understand how much energy we spend against sexism every day; how much harder it is to be a woman in our world than it is to be a man."

In contrast, men were most likely to say they were harassed/discriminated against because of an academic issue (30.8%) or their race/ethnicity (23.1%). One racialized male faculty member recounted being "called names in our meetings, the Dean didn't do anything […]." Like incivility, these data only support the selective harassment/discrimination of women, not racialized women, but suggest racialized *men* may be at greater risk for harassment/discrimination in this particular work context.

Additional Professional Marginalization

Women who experienced harassment or discrimination in their Faculty/College were more likely to be dissatisfied with their progress in meeting their advancement goals compared to women who did not report similar mistreatment (44.4% vs. 24.4%; X^2 (2, 181) = 8.12, p <.05, V = .21). For men, harassment/discrimination had no effect on satisfaction in achieving advancement goals, with 24.4% of men who reported harassment/discrimination reporting dissatisfaction, as compared to 24.6% of men who did not report harassment/discrimination.

Dissatisfaction with advancement progress amongst females who experienced harassment/discrimination was also consistent with the additional time it took many women to be promoted from assistant to associate professor. It took an average of 5.81 (SD = 3.06) years for applicable female faculty who experienced harassment or discrimination in their Faculty/College to be promoted from the assistant to associate rank, compared to 4.34 (SD = 2.36) years for the equivalent female faculty who did not report harassment or discrimination (t (141) = -3.12, p <.01, d

= .54). Thus, these data also suggest a possible link between interpersonal mistreatment and structural gender inequality in NSE.

Faculty who reported harassment/discrimination in their Faculty/College were also more likely to have been excluded from informal discussions within their department/unit (71.7%) than those who have not had these experiences (34.8%) (X^2 (1, 511) = 46.78, p <.001, V = .30). This association remained significant even after controlling for gender and is concerning because it suggests compounding experiences of marginalization: On top of being harassed/discriminated against within their larger Faculty/College, some NSE faculty were also excluded within their immediate work environment (or vice versa). Similarly, one female faculty member from the Prairies illustrated the pathway from gender-based mistreatment to professional marginalization via social withdrawal:

> I have had support staff and colleagues make inappropriate sexual comments. Physical touching in front of other colleagues. Due to a high level [of] discomfort, I limit my social interactions with my colleagues. I believe this has had a negative impact on my networking success within [my Faculty]. For instance, I was told by a close colleague that they "had hoped that the other candidate was hired into my position because she was better looking."

As an explanatory measure, department/unit exclusion was found to be significantly and inversely related to career satisfaction and positively related to faculty's intent to leave the university within 2 years (excluding those who were planning to retire during that time period) (Table 2). Taken together, these bivariate associations suggest that female faculty's career satisfaction and turnover intentions may be more strongly influenced by incivility, harassment, and discrimination than their male colleagues'.

Table 2 *Effect of department/unit exclusion on professional outcomes*

	Female		Male	
	Mean	SD	Mean	SD
Career satisfaction				
Excluded	-.29*	1.06	-.10**	1.00
Not excluded	.15*	.95	.17**	.90
Intent to leave				
Excluded	.06**	1.01	.57***	1.14
Not excluded	-.32**	.80	-.21***	.88
Note. *p<.05; **p<.01; ***p<.001				

Impact of Mistreatment on Professional Outcomes

Separate linear regression models were run for female and male faculty to assess the impact of incivility, harassment, and discrimination on career satisfaction and intent to leave the university within the next 2 years.

Career Satisfaction

The regression results indicated that women's career satisfaction was significantly reduced by experiencing general incivility; and either experiencing or observing gender-related incivility from both co-workers and students (see Table 3). The B values in Tables 3 and 4 are unstandardized regression slopes that indicate the amount of change in the dependent variable for every one unit increase in each independent variable. Because each independent variable is measured on its own scale, the standardized beta weight values (β) should be used to compare the relative impact of each independent variable on the dependent variables. One female faculty member described the negative daily impact of interpersonal mistreatment by her co-worker:

> I recently made a formal complaint to HR about my treatment by our head of department. It was not dealt with satisfactorily. […] My day-to-day life in our department is pretty unbearable in terms of disrespect and lack of support. (female faculty member, Atlantic region)

Similarly, another suggested student gender incivility detracts from her work:

> If I could get someone else to respond to [sexist students] and to take the time to explain to them why their behaviour or attitudes or actions are problematic and unacceptable, my days would have more time for what I should/would like to be doing. (female faculty member, Atlantic region)

While not explicitly connecting these experiences to career satisfaction, we reasonably infer that "unbearable disrespect" and "having more time for what I should/would like to be doing" might have a negative effect.

For men, experiencing general incivility and observing student incivility toward female professors/instructors significantly reduced career satisfaction. However, the size of the standardized beta weights (β) indicated that experiencing general incivility and experiencing/observing student mistreatment of female faculty had the greatest negative impact on satisfaction for both women and men. Nevertheless, incivility, harassment, and discrimination explain relatively more of the variance in women's career satisfaction than men's ($R^2 = 0.13$ vs. $R^2 = 0.04$). This difference may be the result of only asking about gender-related incivility toward women; more of men's career satisfaction might have been explained had we inquired about incivility toward men. As one male faculty member from the Prairies noted, "I encountered serious gender discrimination in the early years." Another emphasized that off-campus professional events are also relevant to men's experiences of gender-related incivility: "I still experience sexist attitudes from some persons outside the university, i.e., a few whom I encounter at conferences. The vast majority of my colleagues are just that: collegial."

Intent to Leave

For men and women, general incivility was significantly and positively associated with intent to leave (Table 4). However, men's turnover intent was also significantly and positively associated with experiencing harassment/discrimination in their own Faculty/College.

> I have been openly attacked and threatened by colleagues; yelled at in my office. My dean was dismissive and abusive when I brought it to [their] attention. The [Faculty] is an extremely toxic environment, I would leave if I possibly could. My colleagues make snide comments about how I must be stupid or lazy because I'm an instructor. (male faculty member, Prairie region)

Table 3 *Impact of mistreatment on career satisfaction*

Female faculty	***B***	***SE B***	**β**
General incivility	-.30	.10	-.30**
Co-worker gender incivility	.25	.11	.27*
Student gender incivility	-.28	.09	-.32**
Harassment/discrimination in own Faculty/unit	-.02	.19	-.01
R² = .13			
Male faculty	***B***	***SE B***	**β**
General incivility	-.17	.07	-.17*
Co-worker gender incivility	.12	.08	.11
Student gender incivility	-.17	.08	-.14*
Harassment/discrimination in own Faculty/unit	.09	.18	.03
R² = .04			
Note. *p<.05; **p<.01; ***p<.001			

Nevertheless, the standardized beta weights indicated that personally experiencing general incivility was the strongest predictor of both men's and women's intent to leave their university in the next 2 years. Incivility, harassment, and discrimination accounted for slightly more of men's intent to leave than women's but the difference was minimal (R² = 0.22 vs. R² = 0.17). Thus, it appears incivility, harassment, and discrimination similarly affect both genders' intent to leave.

We must note that the direction of some of the regression coefficients appeared reversed, compared to the bivariate Pearson's correlations (e.g., the partial regression slopes (B) for co-worker incivility in Table 3 indicated a positive effect on women's and men's career satisfaction (0.25 and 0.12, respectively)). This suggested a problem with multicollinearity, where some of the independent variables were strongly related to one another (i.e., not independent or measuring the same phenomenon). As such, the Pearson's correlations are a more reliable estimation of the strength and direction of the relationships between incivility, harassment/discrimination, career satisfaction, and intent to leave (Table 5).

Table 4 *Impact of mistreatment on intent to leave*

Female faculty	***B***	***SE B***	**β**
General incivility	.30	.09	.33**
Co-worker gender incivility	.09	.10	.11
Student gender incivility	-.05	.08	-.07
Harassment/discrimination in own Faculty/unit	.14	.17	.07
R² = .17			
Male faculty	***B***	***SE B***	**β**
General incivility	.42	.07	.38***
Co-worker gender incivility	.03	.08	.02
Student gender incivility	.04	.08	.03
Harassment/discrimination in own Faculty/unit	.36	.18	.12*
R² = .22			
Note. *p<.05; **p<.01; ***p<.001			

Table 5: *Pearson's correlations for female and male faculty*

Female faculty	**Career satisfaction**	**Intent to leave**
General incivility	-.27***	.40***
Co-worker gender incivility	-.15*	.31***
Student gender incivility	-.27***	.18**
Harassment/discrimination in own Faculty/unit	-.14*	.26***
Male faculty	**Career satisfaction**	**Intent to leave**
General incivility	-.15**	.46***
Co-worker gender incivility	-.02	.21***
Student gender incivility	-.13**	.16**
Harassment/discrimination in own Faculty/unit	-.05	.32***
Note. *p<.05; **p<.01; ***p<.001		

DISCUSSION

Three of our 4 empirical expectations were supported by the statistical data. Relative to men, female NSE faculty did experience and observe significantly more harassment, discrimination, and incivility from both their co-workers and students. In addition, our results support the literature linking observed incivility/misogyny to negative career outcomes for both male and female employees (Miner-Rubino & Cortina, 2004; 2007). The Pearson's correlations, in particular, suggest only minor gender differences in the relationships between mistreatment and career satisfaction. Likewise, intent to leave the university was significantly negatively associated with each measure of observed and experienced mistreatment for both men and women.

The results also suggest that women who experience harassment and discrimination may encounter additional professional marginalization, including exclusion within their own department/unit, dissatisfaction with advancement goals, and delayed promotion to associate professor. However, contrary to expectations, racialized female NSE faculty did not experience or observe significantly more mistreatment of women by either co-workers or students than their white female counterparts (Cortina et al., 2013; Clancy et al., 2017).

Why might racialized women report less mistreatment in largely white, male Canadian NSE environments? Are they treated better in NSE or are racialized women underreporting hostile/uncivil interactions? The fact that our findings differ from some existing U.S. studies (which found racialized women in the military and astronomy/planetary science experienced greater mistreatment (Clancy et al., 2017; Cortina et al., 2013)), suggests the importance of investigating the impact that organizational employment context has on interpersonal interactions (Acker, 2012).

An Organizational Approach to Selective Incivility

In her exploration of "inequality regimes," Acker (2012) asserts that, rather than being neutral entities, employment organizations may contain intersecting gender and racial biases (she also acknowledges class bias but, for the purposes of applying her framework to selective incivility, we focus on gender and race). Specifically, Acker (2012) theorizes that bias is embedded in various organizational practices, producing and recreating a gendered and racialized substructure that maintains inequality (p. 215).

Gendered and racialized substructures are made up of organizing processes, organizational culture, interactions between employees, and individual gender and racial identities. Organizing processes refer to features in which biases are embedded, such as job design (e.g., office vs. lab work), wage determination (e.g., higher salary for senior administrative duties), and the distribution of decision-making and supervisory power (e.g., tenured vs. untenured faculty's influence) (Acker, 2012, p. 215). Organizational culture includes beliefs about gender and race (e.g., stereotypes) that may implicitly skew seemingly neutral workplace practices, such as the disproportionate allocation of university service work to female faculty (Bird, Litt & Wang, 2004; Park, 1996). Formal and informal interactions between co-workers may further perpetuate gender and racial inequality (e.g., incivility

toward women). Finally, employees' own gender and racial identities enter with them into the workplace but are also shaped by the workplace and its processes (e.g., differences in racialized men's and women's style of interaction at work to match or contradict cultural expectations of race, masculinity, and femininity). These four components interact with one another to continually reproduce gender and racial inequalities (Acker, 2012, pp. 215-7).

To illustrate how interpersonal mistreatment may help embed gender bias in the distribution of decision-making power and wage determination, specifically, we apply examples from our results. First, we found women were significantly more likely to be harassed within their own Faculty/College, and excluded from informal department/unit meetings and university networks on multiple occasions. These exclusions can limit women's voices at the department, Faculty, and university levels, and any decisions made in these groups may then also reflect women's absence. As a result, Faculty/university practices similarly lack women's perspectives, arguably maintaining the existing organizational structure, including any masculine biases (e.g., Bird et al., 2004; Park, 1996). Moreover, meetings and networks provide access to information, and new collaborative and professional opportunities, and the career advancement prospects of excluded women may be negatively affected (e.g., Sagebiel, 2018).

In addition to being more likely to experience exclusion, harassment, and discrimination, we found female NSE faculty were significantly more likely to be dissatisfied with their advancement progress; and women experiencing harassment/discrimination took longer to be promoted to associate professor. This suggests exclusion, harassment and discrimination could play a role in delaying women's advancement to a higher paying and more powerful rank in NSE (e.g., Ornstein et al., 2007). While this hypothesis requires further investigation, delayed promotion is generally consistent with both the national gender gap in faculty wages and women's overrepresentation at the assistant professor rank in Canada, overall (CAUT, 2018). Thus, an organizational analysis can help bring the structural gender/racial inequality implications of interpersonal workplace hostilities into sharper focus, and perhaps also contribute to the advancement of selective incivility research.

Implications for Future Research

Even though our results cannot be generalized beyond our sample, they indicate the selective mistreatment of white female NSE faculty but not racialized female faculty. Still, the marginal significance of racialized women's lower reports of co-worker and student incivility and racialized men's significantly greater reports of harassment/discrimination, suggest targeted racial incivility cannot be ruled out (e.g., Berdahl & Moore, 2006). However, we agree with Acker (2012) that future research applying an intersectional organizational framework would be best served by an ethnographic or case study design. These two methods are likely better suited to the identification and exploration of simultaneous gendered, racialized, classed, and/or heteronormative unit, Faculty, and university processes than surveys.

Specifically, interviews conducted during a parallel ethnography or case study (following an incivility and harassment survey), can help explain why, when, and

how race and gender affect particular workers' treatment. Employees can be directly asked about the reasons underlying contentious interactions and how these may interact with workplace practices (e.g., verbal disputes over the disproportionate allocation of community science outreach work to "token" female NSE faculty) (Moss Kanter, 1977). As such, a mixed methods intersectional organizational approach may help make sense of variation in findings of selective incivility across different samples of workers, further elaborating why race and/or gender have certain effects in one job context but not in another (e.g., are sociocultural status beliefs about academic competence contributing to racialized men's greater reports of harassment/discrimination in NSE Faculties/Colleges?).

Finally, it is unlikely that female NSE faculty's greater mistreatment by co-workers and students is a unique product of STEM unit cultures (e.g., Blackwell et al., 2009; Britton et al., 2012). Instead, the gender gap may be one expression of the masculine bias of universities, in general (e.g., Bird, 2011). It may also reflect male bias in STEM more broadly, extending beyond academia to private industry. Thus, future mixed methods research using multi-disciplinary faculty samples and multi-sector STEM samples could help uncover the extent to which selective incivility, harassment, and discrimination reflects and maintains biased academic and industry substructures, shedding more light on women's attrition from a range of STEM occupations (e.g., Glass, Sassler, Levitte, & Michelmore, 2013).

CONCLUSION

Incivility, harassment, and discrimination are not merely problems amongst individual scientists and engineers. Beyond creating an unpleasant (even "unbearable") daily work environment, they may contribute to women's delayed advancement, exclusion from institutional networks and decision-making, diminished career satisfaction, and increased turnover intentions. As such, women's exposure to interpersonal mistreatment may be relevant to the persistence of structural gender inequality within Canadian academic NSE.

REFERENCES

Acker, J. (2012). Gendered organizations and intersectionality: Problems and Possibilities. *Equality, Diversity, and Inclusion: An International Journal, 33*(3), 214-224. https://doi.org/10.1108/02610151211209072.

Andersson, L.M., & Pearson, C.M. (1999). Tit for tat: The spiralling effect of incivility in the workplace. *Academy of Management Review, 24*(3), 452-471. https://doi.org/10.5465/amr.1999.2202131.

Ausbrooks, A.R., Hill Jones, S., & Tijerina, M.S. (2011). Now you see it, now you don't: Faculty and student perceptions of classroom incivility in a social work program. *Advances in Social Work, 12*(2), 255-275.

Benard, S., & Correll, S.J. (2010). Normative discrimination and the motherhood penalty. *Gender & Society, 24*(5), 616-646. https://doi.org/10.1177/0891243210383142.

Berdahl, J.L., & Moore, C. (2006). Workplace harassment: Double jeopardy for minority women. *Journal of Applied Psychology, 91*(2), 426-436. https://doi.org/10.1037/0021-9010.91.2.426.

Bird, S. (2011). Unsettling universities' incongruous, gendered bureaucratic structures: A case-study approach. *Gender, Work and Organization, 18*(2), 202-230. https://doi.org/10.1111/j.1468-0432.2009.00510.x

Bird, S., Litt, J., & Wang, Y. (2004). Creating status of women reports: Institutional housekeeping as "women's work". *NWSA Journal, 16*(1), 194-206. https://www.jstor.org/stable/4317042.

Blackwell, L.V., Snyder, L.A., & Mavriplis, C. (2009). Diverse faculty in STEM fields: Attitudes, performance, and fair treatment. *Journal of Diversity in Higher Education, 2*(4), 195-205. https://doi.org/10.1037/a0016974.

Blizard, L.M. (2016). Faculty members' experiences of cyberbullying by students at one Canadian university: Impact and recommendations. *International Research in Higher Education, 1*(1), 107-124. http://dx.doi.org/10.5430/irhe.v1n1p107.

Britton, D.M., Baird, C.L., Dyer, R.A., Middendorf, J., Montelone, B.A., & Smith, C. (2012). Surveying the campus climate for faculty: A comparison of the assessments of STEM and non-STEM faculty. *International Journal of Gender, Science & Technology, 4*(1), 102-122. http://genderandset.open.ac.uk/index.php/genderandset/article/view/221.

Cassidy, W., Jackson, M., & Faucher, C. (2016). Gender differences in cyberbullying towards faculty members in higher education (79-98). In Navarro, R., Yubero, S., & Larrañaga, E. (Eds.) *Cyberbullying across the globe: Gender, family, and mental health*. Switzerland: Springer International Publishing.

Canadian Association of University Teachers. (2018). *Underrepresented & underpaid: Diversity & equity among Canada's post-secondary teachers*. Ottawa: CAUT.

Clancy, K.B.H., Lee, K.M.N., Rodgers, E.M., & Richey, C. (2017). Double jeopardy in astronomy and planetary science: Women of color face greater risks of gendered and racial harassment. *Journal of Geophysical Research: Planets, 122*, 1-14. https://doi.org/10.1002/2017JE005256.

Clark, C.M., Olender, L., Kenski, D., & Cardoni, C. (2013). Exploring and addressing faculty-to-faculty incivility: A national perspective and literature review. *Journal of Nursing Education, 52*(4), 211-218. https://doi.org/10.3928/01484834-20130319-01.

Clark, C.M., & Springer, P.J. (2007). Thoughts on incivility: Student and faculty perceptions of uncivil behavior in nursing education. *Nursing Education Perspectives, 28*(2), 93-97. https://www.researchgate.net/publication/6344217.

Cortina, L.M. (2008). Unseen injustice: Incivility as modern discrimination inorganizations. *Academy of Management Review, 33*(1), 55-75. https://doi.org/10.5465/amr.2008.27745097.

Cortina, L.M., Lonsway, K.A., Magley, V.J., Freeman, L.V., Collinsworth, L.L., Hunter, M., & Fitzgerald, L.F. (2002). What's gender got to do with it? Incivility in

the federal courts. *Law & Social Inquiry, 27*(2), 235-270.
http://www.jstor.org/stable/829030.

Cortina, L.M., Kabat-Farr, D., Leskinen, E.A., Huerta, M., & Magley, V.J. (2013). Selective incivility as modern discrimination in organizations: Evidence and impact. *Journal of Management, 39*(6), 1579-1605.
https://doi.org/10.1177/0149206311418835.

DeSouza, E.R. (2011). Frequency rates and correlates of contrapower harassment in higher education. *Journal of Interpersonal Violence, 26*(1), 158-188.
https://doi.org/10.1177/0886260510362878.

DeSouza, E., & Fansler, A.G. (2003). Contrapower sexual harassment: A survey of students and faculty members. *Sex Roles, 48*(11/12), 529-542.
https://link.springer.com/article/10.1023/A:1023527329364.

Funk, C., & Parker, K. (2018). Women and men in STEM often at odds over workplace equity. Washington: Pew Research Center.

Glass, J.L., Sassler, S., Levitte, Y., & Michelmore, M. (2013). What's so special about STEM? A comparison of women's retention in STEM and professional occupations. *Social Forces, 92*(2), 723-756. https://doi.org/10.1093/sf/sot092.

Glavin, P., & Schieman, S. (2010). Interpersonal context at work and the frequency, appraisal, and consequences of boundary-spanning demands. *The Sociological Quarterly, 51*(2), 205-225. https://doi.org/10.1111/j.1533-8525.2010.01169.x.

Greenhaus, J.H., Parasuraman, S., & Wormley, W.M. (1990). Effects of race on organizational experiences, job performance evaluation, and career outcomes. *Academy of Management Journal, 33*(1), 64-86.

Kabat-Farr, D., & Cortina, L.M. (2014). Sex-based harassment in employment: New insights into gender and context. *Law and Human Behavior, 38*(1), 58-72.
https://doi.org/10.1037/lhb0000045.

Keashly, L., & Neuman, J.H. (2010). Faculty experiences with bullying in higher education: Causes, consequences, and management. *Administrative Theory & Praxis, 32*(1), 48-70. https://doi.org/10.2753/ATP1084-1806320103.

Lampman, C. (2012). Women faculty at risk: U.S. professors report on their experiences with student incivility, bullying, aggression, and sexual attention. *NASPA Journal about Women in Higher Education, 5*(2), 184-208.
https://doi.org/10.1515/njawhe-2012-1108.

Lampman, C., Crew, E.C., Lowery, S., Tompkins, K.A., & Mulder, M. (2016). Women faculty distressed: Descriptions and consequences of academic contrapower harassment. *Journal of Women in Higher Education, 9*(2), 169-189.
https://doi.org/0.1080/19407882.2016.1199385.

Lampman, C., Phelps, A., Bancroft, S., & Beneke, M. (2009). Contrapower harassment in academia: A survey of faculty experience with student incivility, bullying, and sexual attention. *Sex Roles, 60*, 331-346.
https://doi.org/10.1007/s11199-008-9560-x.

Luparell, S. (2007). The effects of student incivility on nursing faculty. *Journal of Nursing Education, 46*(1), 15-19.

McKay, R., Arnold, D.H., Fratzl, J., & Thomas, R. (2008). Workplace bullying in academia: A Canadian study. *Employee Responsibilities and Rights Journal, 20*, 77-100. https://doi.org/10.1007/s10672-008-9073-3.

Miner-Rubino, K., & Cortina, L.M. (2004). Working in a context of hostility toward women: Implications for employees' well-being. *Journal of Occupational Health Psychology, 9*(2), 107-122. https://doi.org/10.1037/1076-8998.9.2.107.

Miner-Rubino, K., & Cortina, L.M. (2007). Beyond targets: Consequences of vicarious exposure to misogyny at work. *Journal of Applied Psychology, 92*(5), 1254-1269. https://doi.org/10.1037/0021-9010.92.5.1254.

Moss Kanter, R. (1977). Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology, 82*(5), 965-990. https://www.jstor.org/stable/2777808.

Ong, M., Wright, C., Espinosa, L.L., & Orfield, G. (2011). Inside the double bind: A synthesis of empirical research on undergraduate and graduate women of color in science, technology, engineering, and mathematics. *Harvard Educational Review, 81*(2), 172-208. https://doi.org/10.17763/haer.81.2.t022245n7x4752v2.

Ornstein, M., Stewart, P., & Drakich, J. (2007). Promotion at Canadian universities: The intersection of gender, discipline, and institution. *Canadian Journal of Higher Education, 37*(3), 1-25.

Park, S.M. (1996). Research, teaching, and service: Why shouldn't women's work count? *The Journal of Higher Education, 67*(1), 46-84. https://doi.org/10.1080/00221546.1996.11780249.

Pedersen, D.E., & Minnotte, K.L. (2017). Workplace climate and STEM facultywomen's job burnout. *Journal of Feminist Family Therapy, 29*(1-2), 45-65. https://doi.org/10.1080/08952833.2016.1230987.

Ridgeway, C.L., & Correll, S.J. (2004). Unpacking the gender system: A theoretical perspective on gender beliefs and social relations. *Gender & Society, 18*(4), 510-531. https://doi.org/10.1177/0891243204265269.

Riffle, R., Schneider, T., Hillard, A., Polander, E., Jackson, S., DesAutels, P.,Wheatly, M. (2013). A mixed methods study of gender, STEM department climate, and workplace outcomes. *Journal of Women and Minorities in Science and Engineering, 19*(3), 227-243. https://doi.org/10.1615/JWomenMinorScienEng.2013005743.

Sagebiel, F. (2018). Gender and network awareness in/for successful leadership in academic science and engineering. *International Journal of Gender, Science & Technology, 10*(1), 24-51.

Settles, I.H., Cortina, L.M., Buchanan, N.T., & Miner, K. (2013). Derogation, discrimination, and (dis)satisfaction with jobs in science: A gendered analysis. *Psychology of Women Quarterly, 37*(2), 179-191. https://doi.org/10.1177/0361684312468727.

Settles, I.H., Cortina, L.M., Malley, J., & Stewart, A.J. (2006). The climate for women in academic science: The good, the bad, and the changeable. *Psychology of Women Quarterly, 30*(1), 47-58. https://doi.org/10.1111/j.1471-6402.2006.00261.x.

Settles, I.H., & O'Connor, R.C. (2014). Incivility at academic conferences: Gender differences and the mediating role of climate. *Sex Roles, 71*(1-2), 71-82. https://doi.org/10.1007/s11199-014-0355-y.

Statistics Canada. (2018). Full-time university teachers by sex and subject taught, 2016-2017. Retrieved from https://www.caut.ca/content/26-full-time-university-teachers-sex-and-subject-taught-2016-2017.

Williams, J., Phillips, K.W., & Hall, E.V. (2014). Double jeopardy? Gender bias against women in science. Work Life Law Center. UC Hastings College of Law.

Williams, J.C., Li, S., Rincon, R., & Finn, P. (2016). Climate control: Gender and racial bias in engineering? San Francisco, CA: Center for Work Life Law and Society of Women Engineers.

Yang, Y., & Carroll, D.W. (2018). Gendered microaggressions in science, technology, engineering, and mathematics. *Leadership and Research in Education, 4*(special issue), 28-45. https://eric.ed.gov/?id=EJ1174441.