

# Engineering Exchanges: Daily Social Identity Threat Predicts Burnout Among Female Engineers

Social Psychological and  
Personality Science  
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DOI: 10.1177/1948550615572637  
spps.sagepub.com



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## Abstract

Efforts to promote women in science, technology, engineering, and math (STEM) require a clearer understanding of the experience of social identity threat outside academic contexts. Although social identity threat has been widely studied among students, very little research has examined how the phenomenon occurs naturalistically among working professionals in ways that could undermine productivity and well-being. The present research employed daily diary methodology to examine conversations with colleagues as triggers of social identity threat among a sample of 44 male and 52 female working engineers. Results of multilevel modeling revealed that (1) women (but not men) reported greater daily experiences of social identity threat on days when their conversations with male (but not female) colleagues cued feelings of incompetence and a lack of acceptance, and (2) these daily fluctuations of social identity threat predicted daily levels of mental exhaustion and psychological burnout. The implications for social identity threat in working professionals are discussed.

## Keywords

social identity threat, subtle bias, gender diversity, women in STEM

Social identity threat has been defined as the concern people experience in contexts where their social group is underrepresented, stereotyped to be inferior, or otherwise devalued in that setting (Steele, Spencer, & Aronson, 2002). A large body of research suggests that the mere awareness of negative stereotypes can subtly block women's interest and advancement in STEM settings (Walton & Spencer, 2009). However, very little research has examined the naturalistic experience of social identity threat among professional women already working in STEM fields (Kalokerinos, Von Hippel, & Zacher, 2014). Because conversations themselves are the forum for one's ideas to be shared and critiqued in the workplace, they provide the context where women in collaborative STEM professions might experience social identity threat. Thus, the goal of the present study was to examine daily conversations as a trigger of social identity threat and psychological burnout among a sample of working engineers.

This research is important for both practical and theoretical reasons. First, engineering is a particularly relevant field for inquiry as women makeup only 10–13% of the professional workforce and are leaving at the highest rates of any STEM profession (Hill, Corbett, & Rose, 2013; Hunt, 2010). Yet careers in engineering also offer the highest earning potential of any STEM profession (Payscale, 2013). In addition, such research has important implications for further theory development, given an ongoing debate about the existence of stereotype threat (a specific form of social identity threat) outside

tightly controlled laboratory settings (Sackett & Ryan, 2012). For example, those women who excel in and remain invested in STEM throughout earlier educational hurdles could arguably have developed coping strategies or possess other individual characteristics that make them invulnerable to social identity threat.

## Can Conversations Cue Social Identity Threat?

Professional contexts, unlike academic domains, do not include formal tests of one's abilities. Although success might be measured over a range of productivity metrics (e.g., number of reports, billings, project size, and completion time), more often performance is affected by more nebulous parameters (e.g., colleague and supervisor judgments of leadership potential, likeability, and competence). Engineering, in particular, is a

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highly collaborative profession where teams work together to develop, design, implement, and troubleshoot projects. In this kind of collaborative environment, task-based conversations with colleagues can be the daily encounters where one's ideas and abilities are critically evaluated by others. Thus, just as interactions can be a source of identity-based threats in cross-race conversations (Richeson & Shelton, 2012), we surmised that cross-sex conversations about work can trigger similar concerns among female engineers. Because the experience of social identity threat can encompass two broad concerns, namely, a threat to belonging and a threat of incompetence (Steele et al., 2002), we hypothesized that women experience greater social identity threat to the extent that their work conversations with male (but not female) colleagues engender feelings of incompetence and a lack of belonging.

Only three prior studies have examined the experience of social identity threat in cross-sex encounters within stereotyped domains, each providing some support for our hypothesis. One series of lab experiments revealed that female engineering students performed more poorly on an engineering test after having a conversation with a male peer who held implicit sexist beliefs (Logel et al., 2009). In a more naturalistic field study of workplace conversations among STEM faculty, Holleran, Whitehead, Schmader, and Mehl (2011) found that for men, the more time they spent during their workday talking about research with their male colleagues, the more engaged they reported being with their work. For women, however, the more time they spent talking about research with male colleagues, the more disengaged they were with their work. Interactions with female colleagues did not show the same pattern, nor did conversations about nonwork-related issues. These findings are consistent with the work of Von Hippel, Issa, Ma, and Stokes (2011) demonstrating that professional women report greater social identity threat when they self-report comparing themselves to male (vs. female) colleagues.

This existing evidence suggests that women's work-related conversations can cue underperformance and disengagement even in highly accomplished women. However, no prior study has (a) directly measured women's concerns with being evaluated by others based on their gender, (b) linked such concerns to specific types of conversational cues, and (c) examined how daily fluctuation in these experiences predict within-person variability in psychological burnout. Von Hippel et al.'s and Holleran et al.'s findings might speak more to individual differences in women's reactions to cross-sex conversations or social comparisons than to contextual cues to threat. Logel et al.'s research targets situational triggers but does not measure women's subjective experience of social identity threat nor have these results been replicated in a field context. Furthermore, linking subjective social identity threat to daily experiences of psychological burnout, an important impediment to organizational productivity and predictor of employee turnover (Maslach, Schaufeli, & Leiter, 2001), is derived from past stereotype threat theory (Schmader, Johns, & Forbes, 2008; Steele, 1999) and could play a role in understanding women's high attrition rates from engineering.

Thus, the present study sought to integrate and extend these past findings to test more directly the hypothesis that cross-sex conversations that engender feelings of incompetence and unacceptance trigger greater social identity threat and greater psychological burnout among women in STEM. Put differently, positive cross-sex interactions should minimize women's experiences of social identity threat. And because same-sex conversations (even those that elicit negative self-perceptions) are less likely to be interpreted by women as gender relevant, they should not elicit social identity threat.

To examine these questions, we conducted a daily diary study of social identity threat among a matched sample of male and female professional engineers. Participants reported their daily interactions with male and female colleagues and their daily experience of social identity threat and psychological burnout, operationalized as feeling mentally exhausted, and psychologically disengaged from one's work at the end of each workday. To rule out individual differences in stigma consciousness that might bias women's perceptions of cross-sex interactions (Pinel, 1999) or organizational status differences that could be confounded with gender during conversations, these variables were covariates in analyses.

## Methods

### Participants

Participants were recruited via e-mail advertisements sent out on company and professional listserves. Participants were eligible to complete the study if they indicated that they were trained as an engineer, spent most of their workday in a company office, and were employed full time. Two-hundred and ninety-one participants (129 women and 162 men) completed the initial screening survey. All eligible women ( $n = 112$ ) were contacted about participating in the study. For each female participant, the research team also contacted a male participant who was matched on age, level of education, and ethnicity. Recruitment continued until 50 male and 50 female engineers enrolled in the study. This target was established to balance attaining a sample sufficient for data analysis against the constraints placed on data collection of this unique and difficult to recruit sample (i.e., the scarce supply of female engineers).

One hundred and twenty-one participants (58 women and 62 men) completed our first survey. The final study sample of 96 engineers (52 female and 44 male) included only those participants who had data on all relevant study variables, including stigma consciousness, a critical covariate measured 2 weeks later on a final survey, as well as a sufficient number of conversations across the diary period to estimate effects. The attrition rate from the first to last survey was 21%, with men (29%) being significantly more likely to dropout than women (11%),  $\chi(1)^2 = 6.54, p = .011$ . The 25 participants who did not complete measures beyond the first survey did not significantly differ on any of the first survey measures from the 96 participants that completed all relevant survey data.

Participants, recruited from 51 different engineering companies across Canada, were mostly White (77 White, 8 Chinese, 4 South Asian, 2 Aboriginal, 1 Black, 1 West Asian, 1 Chinese/Latin American, 1 White/Japanese, and 1 Chinese/Southeast Asian) and the average age was 33.5 years old (there were no gender differences on participant's age). Participants were compensated with a US\$10 gift card and entry into a prize draw for a Kindle Fire.

## Procedure

Participants completed all surveys online on their home computer. These included 10 daily diary surveys over the course of 2 work weeks as well as a longer survey at both the start and the end of the 2-week period. Subsequently, we describe the measures relevant to the present study; a complete list of measures used in this research can be found in supplementary online materials.

## Day-Level Measures

**Daily interactions.** On each of the 10 work days of the daily diary, participants completed a modified version of the Rochester Interaction Record (Wheeler & Nezlek, 1977). They were asked to recall the three most significant face-to-face conversations they had while at work that day and identify the topic of conversation (work, social, or both) as well as the gender of and their own relative status to (1 = *much lower status*, 7 = *much higher status*). Drawing from prior research (Holleran, Whitehead, Schmader, & Mehl, 2011), we focused our analyses on work conversations and included conversational partner status as a covariate.<sup>1</sup> Participants completed an average of 7.72 daily surveys across the 10 days ( $SD = 2.33$ , range 1–9) and provided an average of 1.51 work conversations per day.

**Conversational reactions.** Participants rated the positivity of their reaction during the conversation on a series of 9 semantic differential items (e.g., 1 = *Not friendly*; 7 = *Friendly*). Items were originally created to assess separate feelings of perceived competence (*competent*, *free to exchange opinions and ideas*, *engaged*, *easy to follow*, and *relaxed*) and perceived belonging (*friendly*, *respected*, *accepted*, and *authentic*), a distinction that was confirmed with a factor analysis in a separate data set of STEM graduate students (Hall & Schmader, 2014). However, because these subscales were highly correlated with one another across the 10 days ( $r$ s ranged between .60 and .82) and the resulting multicollinearity between correlated predictors might lead to unstable parameter estimates, we focused analyses on the average of all 9 items to represent the positivity of thoughts elicited for each conversation (see supplemental online materials [SOM] for analyses separated by scale). Next, mean daily positivity scores for work conversations by gender of conversation partner were calculated by collapsing across the number of work conversations that participants reported each day. Thus, if participants reported one work conversation with a male colleague on a given day, then the mean positivity

score was computed from that single conversation. If two work conversations with male colleagues were provided, then the mean was computed by collapsing across those two conversations. This method was used to calculate positivity of work conversations with male and with female colleagues as separate variables for each day of the 10-day diary period ( $\alpha$ s ranged from .84 to .94 across days).

Importantly, there were no gender differences in the number of conversations about work, the number of conversations with men, or the number of conversations with women,  $p$ s > .20. Not surprising, in light of the underrepresentation of women in engineering, both men and women reported having more work conversations with male ( $M_{\text{men}} = 16.50$ ;  $M_{\text{women}} = 16.11$ ) than with female colleagues ( $M_{\text{men}} = 6.19$ ;  $M_{\text{women}} = 5.25$ ). As mentioned earlier, the final sample only included participants who reported a sufficient number of conversations to estimate effects (i.e., 52 women and 44 men had at least one day where they had a conversation with male colleagues and 43 women and 36 men had at least 1 day where they had a conversation with female colleagues).

**Daily outcomes.** Each day, participants rated 2 items to assess daily social identity threat on a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*): “Today at work, I felt very aware of my gender” and “Today at work, I was concerned that, because of my gender, my actions influenced the way other people interacted with me” ( $r$ s ranged from .70 to .92). These items were constructed by consulting past studies measuring the subjective experience of social identity threat (Cohen & Garcia, 2005; Shapiro & Neuberg, 2007).

Using the same 7-point scale, participants rated 12 items adapted from Demerouti, Bakker, Nachreiner, and Schaufeli (2001) to measure daily burnout (e.g., “Today, I felt emotionally drained during work”;  $\alpha$ s ranged from .84 to .91). This measure contains both mental exhaustion and disengagement subscales that we combined, given the high covariation between subscales ( $r$ s = range from .47 to .72 across the 10 days). See SOM for analyses separated by subscale.

## Person-Level Measures

**Demographic variables.** Demographic variables included participant's age, ethnicity, level of education, number of prior career positions, personal salary, gross salary, number of children, marital status, and job status (i.e., “What is your position/title” with five response options ranging from 1 = *Engineer in training* to 5 = *Executive director and senior management*).

**Stigma consciousness.** Individual differences in *stigma consciousness* were assessed in the final survey using the 4 items with highest factor loadings from the stigma consciousness scale ( $\alpha = .74$ ; Pinel, 1999). These items were modified to be specific to one's gender (e.g., “When interacting with men/women, I feel like they interpret all my behaviors in terms of the fact that I am a woman/man”; response options ranged from 1 = *Strongly disagree* to 7 = *Strongly agree*).

**Table 1.** Means (SD) on Demographic Variables for Male and Female Participants.

	Female	Male	<i>t</i> Statistic <sup>a</sup>	<i>p</i> value
Age	33.20 (8.18)	33.88 (7.17)	-0.42	.679
Education	4.44 (1.06)	4.16 (.48)	1.64	.104
# of career positions	2.27 (1.88)	1.86 (1.81)	1.07	.287
Status of position	2.20 (1.05)	2.90 (.91)	3.47	.001
Personal salary	7.35 (2.10)	8.18 (2.47)	-1.75	.083
Gross household income	5.33 (1.42)	5.43 (1.28)	-0.38	.708
Proportion unmarried <sup>1</sup>	.14	.05	2.91	.088
# of children	.37 (.79)	.77 (.87)	-2.38	.019
Stigma consciousness	4.29 (1.09)	3.48 (1.01)	3.74	<.001

Note. The range of values on the following variables were: "Education" (1 = Technical certificate to 9 = PhD); "Status of position" (1 = Engineer in training to 5 = Executive director); "Personal salary" (1 = US\$0-US\$9,999 to 11 = US\$100,000 or more); "Gross household income" (1 = Less than US\$20,000 to 7 = US\$150,000 or more); and "Stigma consciousness" (1 = Strongly disagree to 7 = Strongly agree).

<sup>a</sup> Proportion unmarried was tested with a chi-square test.

Stigma consciousness was used as a covariate to control for the possibility that a greater dispositional tendency to be aware of gender as a source of negative evaluation could account for women's daily susceptibility to experience social identity threat.

## Results

### Testing for Gender Differences on Potential Covariates

We first conducted independent samples *t*-tests to test for gender differences in demographic variables. As summarized in Table 1, we were successful in matching our male and female samples on age, education, and number of prior career positions. However, men occupied higher status positions on average, reported marginally higher salaries, and had significantly more children than their female peers. Because these general status differences could create a confound between gender of participant and relative status within conversations with men, we used multilevel modeling to estimate mean relative status ratings for participants' conversation partners. These analyses confirmed that male conversation partners were more likely to be of higher status than were female conversation partners, ( $M_{\text{male partners}} = 4.90$ , confidence interval [CI] = 4.80, 5.01;  $M_{\text{female partners}} = 3.88$ , CI = 3.71, 4.04). However, within each gender of conversation partner, men and women were equally likely to be talking to someone of higher status,  $ps > .10$ . Nonetheless, to control for the possible confounding nature of status, participants' relative status to the conversation partner was included as a covariate in all analyses. In addition, women scored higher than men on stigma consciousness (see Table 1), and thus this variable was also included as a covariate in all of our subsequent multilevel analyses. However, the conclusions from these analyses are unchanged when these covariates are excluded.

### Testing for Gender Differences on Main Study Variables

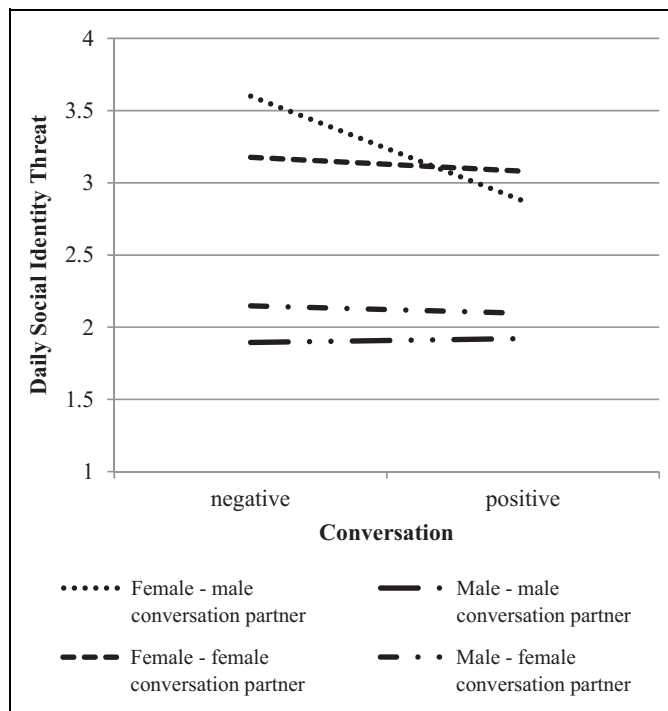
Gender differences on the measure of social identity threat were examined using multilevel modeling. Data were structured hierarchically with day nested within person. To analyze the data a series of multilevel modeling equations were constructed. Gender (0 = female; 1 = male) was entered in the model as a predictor of social identity threat. Consistent with hypotheses, women reported experiencing more daily social identity threat ( $M = 3.26$ ) than did their male colleagues ( $M = 2.02$ ),  $b = -1.24$ , CI [-1.78, -.70],  $p < .001$ . This effect of gender remained significant ( $b = .86$ , CI [-1.37, -.34],  $p < .001$ ) when controlling for both stigma consciousness (grand mean centered) which was a significant covariate ( $b = .56$ , CI [.33, .79],  $p < .001$ ) and relative status differences between conversation partners (group mean centered) which was not ( $b = .01$ , CI [-.08, .06],  $p = .86$ ).

Additional analyses revealed no evidence that conversations with male colleagues were experienced as more negative for women than for men,  $b = .11$ , CI [-.16, .39],  $p > .40$ , or that women experienced higher levels of psychological burnout over the 2 weeks of testing,  $b = -.11$ , CI [-.45, .23],  $p > .50$ . There was only a trend such that, collapsed across participant gender, conversations with men generated less positive thoughts ( $M = 5.82$ , CI [5.68, 5.95]) than did conversations with women ( $M = 6.08$ , CI [5.94, 6.22]). Importantly, all of these variables showed substantial variation across the 10-day testing period.

### Analysis of Within-Person Variation Across Days

Using multilevel modeling, we next tested the core hypothesis that women (but not men) would experience greater social identity threat on those days that their conversations with male (but not female) colleagues engender feelings of incompetence and a lack of belonging (i.e., negative conversational reactions). We also tested that this daily variation in social identity threat would predict greater daily psychological burnout for women (but not for men). Finally, we tested the indirect effect of conversations on burnout as mediated by social identity threat.

*Do negative work conversations predict daily fluctuation in social identity threat for women?* Our first hypothesis was that negative conversations with male (but not female) colleagues would be a trigger of women's experience of social identity threat. We tested two separate multilevel models assessing the predictive effect of positivity of conversations with men (Model 1) or with women (Model 2) on daily reports of social identity threat. Group mean-centered positivity of work conversations, gender (female = 0; male = 1), and the interaction terms were entered into a multilevel model predicting social identity threat. Analysis of the first model examining conversations with men revealed main effects of participant gender,  $b = -1.33$ , CI [-1.86, -.80],  $t(94) = 5.02$ ,  $p < .001$ , and positivity of work conversations with men,  $b = -.37$ , CI [-.55, -.19],  $t(43) = 4.19$ ,  $p < .001$ , that were qualified by a significant interaction



**Figure 1.** The simple slopes for work conversations predicting daily stereotype threat.

between the two,  $b = .31$ , CI [.01, .61],  $t(51) = 2.11$ ,  $p = .040$ . Among women, more negative work conversations with men predicted significantly greater social identity threat,  $b = -.42$ , CI [-.57, -.26],  $t(43) = -5.36$ ,  $p < .001$ , but this relationship was not significant among men,  $b = .01$ , CI [-.24, .27],  $t(58) = -.11$ ,  $p = .914$ .

The parallel test of positivity of work conversations with female colleagues yielded no significant main effect of this variable,  $b = .06$ , CI [-.20, .33],  $t(178) = .47$ ,  $p = .639$ , and no significant interaction with participant gender,  $b = -.10$ , CI [-.48, .29],  $t(178) = -.49$ ,  $p = .623$  (see Figure 1). All effects remain significant even when controlling for the relative status of conversation partner ( $b = -.04$ , CI [-.09, .03],  $p = .318$ ) and stigma consciousness ( $b = .56$ , CI [.33, .79],  $p < .001$ ). Thus, consistent with hypotheses, only on days when conversations with male colleagues cued feelings of incompetence and a lack of belonging did women but not men experience higher levels of social identity threat.

*Does daily fluctuation in social identity threat predict psychological burnout for women?* Next we employed the same analytic strategy to test the hypothesis that daily fluctuations in social identity threat predict daily fluctuations in psychological burnout, more so for women than for men. This analysis revealed a significant relationship between social identity threat and burnout,  $b = .22$ , CI [.14, .31],  $t(28) = 5.39$ ,  $p < .001$ , that was qualified by a significant gender by social identity threat interaction,  $b = -.20$ , CI [-.36, -.04],  $t(46) = -2.49$ ,  $p = .016$ . Follow-up analyses revealed that daily fluctuation in social identity threat

predicted significantly greater burnout among women,  $b = .22$ , CI [.13, .31],  $t(307) = 5.17$ ,  $p < .001$ , but not among men,  $b = .02$ , CI [-.1, .15],  $t(523) = .40$ ,  $p = .686$ . Again, all significant effects remain even when controlling for the relative status of conversation partner ( $b = .07$ , CI [.01, .12],  $p = .016$ ) and stigma consciousness ( $b = .12$ , CI [-.05, .28],  $p = .155$ ). Thus, for women, on days in which they reported feeling social identity threat, they also experienced more psychological burnout.

*Does social identity threat mediate the relationship between negative work conversations and psychological burnout?* Finally, we tested for mediation with nested data using the Monte Carlo method described in Bauer, Preacher, and Gil (2006). In these analyses, we both tested the indirect (i.e., mediated) effect separately for men and for women and tested the omnibus-moderated mediation analysis. When testing our precise prediction concerning mediation by social identity threat among women in the sample, these analyses revealed a significant path between the positivity of conversations with men and social identity threat (path a:  $b = -.36$ , CI [-.52, -.17]), a significant path between social identity threat and burnout (path b:  $b = .14$ , CI [0.07, 0.25]), and a significant indirect effect ( $ab = -.06$ , CI [-.11, -.02]). The same model estimated for men yielded nonsignificant paths (path a:  $b = -.06$ , CI [-.28, 0.18]; path b:  $b = .01$ , CI [-.15, 0.14]), and the total indirect effect was nonsignificant, ( $ab = 0.0004$ , CI [-.02, 0.02]). These results are consistent with the hypothesis that social identity threat is a mechanism by which cross-sex conversations for women in engineering elicit greater psychological burnout. However, it should be noted that the test of the full moderated mediation model did not yield a significant moderation of the indirect effect by gender of participant,  $ab = -0.05$ , CI [-.14, 0.003], perhaps due to a lack of statistical power.

### Dealing with Company-Level Dependencies in the Data

Finally, in all of the previous analyses our data were structured with day nested within person, and a series of multilevel models were used to account for dependencies. However, some participants in our sample (about 50% of the sample) shared a company affiliation with at least one other participant, although the number of participants in each of these companies was very small (range 2–12). To ensure that any possible dependencies between participants from the same companies were addressed, we conducted supplementary analyses demonstrating that including company as a level 3 clustering variable did not change the significance level of any of the results.

### General Discussion

This study is the first of its kind to demonstrate that social identity threat is experienced among female working engineers, is cued by negative conversations with male colleagues, and predicts psychological burnout. By employing this within-person methodology, results revealed that women (but not men) experience greater social identity threat on days when their

conversations with men (but not women) engender feelings of incompetence and a lack of acceptance. In addition, for women only, these daily fluctuations in social identity threat significantly predict day-to-day variability in feelings of mental burnout. This finding is consistent with other experimental evidence that cues to social identity threat impair working memory capacity (Schmader et al., 2008) and promote ego depletion (Inzlicht, Tullett, Legault, & Kang, 2011). Thus, the present findings extend this prior laboratory evidence by showing convergent support in women's self-reported experiences in a field-based setting.

This research makes a number of conceptual advances to the literature on social identity threat. First, it shows that social identity threat as experienced by women in STEM is not something that is unique to student populations still seeking to establish their identity in a career. Professional engineers have presumably achieved academic success yet continue to experience social identity threat. Although we were only able to track these experiences over 10 days, one might suspect that the cumulative effects of daily social identity threat could play a role in the distinctly high attrition rates seen among women in engineering (Hunt, 2010). Conceptually, these findings suggest that academic success or entry into a profession does not inoculate people against social identity threat. Just as highly successful African American students at elite educational institutions still face a burden of being seen stereotypically (Steele & Aronson, 1995), professional women in STEM continue to experience this phenomenon as well.

In addition to documenting the experience of social identity threat among an expert population, here we also show that social identity threat can be cued in an interpersonal workplace context. In fact, this study is the first investigation of daily experiences in a workplace context that predicts social identity threat. Although some prior evidence suggests that social identity threat can be felt in the workplace and that cross-sex conversations or social comparisons can trigger social identity threat-like processes among women (Holleran et al., 2011; Logel et al., 2009; Von Hippel, Issa, Ma, & Stokes, 2011), the present findings integrate and extend this past work by showing more directly that daily conversations with men in a workplace have the potential to *situationally cue* threat for women in ways that might limit their productivity and well-being. When these conversations elicit feelings of incompetence and nonacceptance, women become more aware of their gender and feel more mentally burned out. Put more positively, these cross-sex conversations also have the distinct power to engender identity safe experiences for women in engineering. These findings highlight the importance of workplace interventions that promote positive interpersonal norms.

### Limitations and Future Directions

This research constitutes a novel practical, methodological, and theoretical advance to the literature on social identity threat, but there are several limitations to acknowledge. First, because the data are correlational, it is not possible to draw strong

conclusions about the directionality of our findings. For example, building on past theory and research (Inzlicht et al., 2011; Steele, 1999), the data are consistent with a causal model where social identity threat promotes burnout. However, we cannot rule out the possibility that feeling burned out could cause women to perceive that others evaluate them through the lens of gender. Another alternative interpretation is that on days when women become more conscious of their gender, they perceive their conversations with male colleagues to be more negative. We covaried out stigma consciousness to minimize the influence of individual differences, but future laboratory studies are needed to experimentally test whether effects found here are driven by men's behavior during the conversations, women's interpretations, or some dynamic combination of both. Such research might employ nonobtrusive observational techniques to isolate both implicit and explicit channels of behavior that predict these interpersonal dynamics. Such methods could also allow for greater insight into the content of conversations that might predict social identity threat. Future research could assess daily cognitive consequences of social identity threat using more performance-based measures that are predictive of productivity and less susceptible to reporting biases.

Finally, although analyses provided evidence that among women, but not men, social identity threat significantly mediated the relationship between negative conversations with male colleagues and burnout, we did not find evidence that this indirect effect was significantly moderated by gender. However, it is important to note that examining the confidence interval for this moderated mediation reveals that the model comes very close to attaining statistical significance. Second, both paths included in the indirect effect showed significant moderation by gender. Thus, a larger sample might in the future confirm the reliability of this overall moderation.

### Conclusions

Women leave engineering at a higher rate than do men and higher than that seen in other STEM professions (Hunt, 2010). Social identity threat is one potential explanation for the uniquely adverse experience that some women face in engineering. The present research documents that social identity threat is felt among professional women during conversations with their male colleagues that engender feelings of incompetence and lack of acceptance. Moreover, these experiences of social identity threat predict daily feelings of burnout. It is our hope that this research will inform workplace policy designed to foster inclusive interpersonal interactions that create identity safe environments for employees.

### Acknowledgments

The authors thank Angela Mann, Jennifer Pelletier, and participating companies and organizations who assisted with recruitment and data collection, and Tessa West and Jeremy Biesanz for the advice on analyses.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: This research was supported in part by both a Social Sciences and Humanities Research Council Insight Grant (#435-2013-1587) awarded to Toni Schmader and a Partnership Development Grant (#890-2012-0037) awarded to Elizabeth Croft.

## Note

1. We were unable to test parallel models on social conversations because 20% of the sample provided less than two such conversations and models failed to converge.

## Supplementary Material

The online data supplements are available at <http://spps.sagepub.com/supplemental>.

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