

The Misjudgment of Men: Does Pluralistic Ignorance Inhibit Allyship?

Lucy De Souza and Toni Schmader
Department of Psychology, University of British Columbia

People are often reluctant to speak out publicly as allies to marginalized groups. We conducted three preregistered studies examining whether *pluralistic ignorance* (Miller & McFarland, 1991; Prentice, 2007; Prentice & Miller, 1993) inhibits allyship. We first hypothesized that, if men rarely enact allyship toward women (e.g., in science, technology, engineering, and mathematics [STEM] fields), people will underestimate men's beliefs that sexism is problematic. Second, these misperceptions might then predict men's (and women's) own inaction, despite their private beliefs about gender bias. Additionally, men with higher masculinity concerns might be particularly inhibited from enacting allyship by their belief that other men are unconcerned with gender bias. All three studies yielded evidence that men and women underestimate men's privately expressed concerns about gender bias in STEM contexts. In correlational analyses, Studies 1 and 2 also revealed that among men high in precarious masculinity concerns, the belief that other men do not see bias as a problem predicted lower allyship intentions, controlling for their own beliefs about gender bias. Although experimentally correcting these beliefs with data changed perceptions (Studies 2 and 3), this was insufficient to increase allyship. Rather, in an ecologically valid behavioral paradigm (Study 3), allyship behavior was elevated when participants observed others confronting versus not confronting sexism. These findings suggest that perceptions of men's average beliefs inhibit allyship intentions; however, merely correcting these misperceptions might not be enough to motivate actual confrontation. We discuss the implications of these findings for a pluralistic ignorance account of allyship inhibition and for practical interventions aimed at promoting allyship.

Keywords: allyship, confrontation, pluralistic ignorance, sexism, social norms

Supplemental materials: <https://doi.org/10.1037/pspi0000362.supp>

In the series *How We'll Win: The Other Half* (Fessler, 2018), 50 industry-leading men discussed their roles in pushing for gender equity and addressing gender bias in male-dominated fields. For instance, journalist Adam Baiwadi expressed, "I do not think supporting women ought to be a particularly difficult or controversial thing to do." Baiwadi's sentiment reflects a reoccurring theme in these interviews: many men desire to enact *allyship*—behaviors that actively support and aim to improve the status of marginalized individuals and groups (Brown & Ostrove, 2013; Ostrove & Brown, 2018; PeerNetBC, 2016)—but often find that it is a difficult and contentious to do. In the present work, we examine processes involving *pluralistic ignorance* (the misperception of group attitudes) as a factor that might prevent men

(and women) from enacting allyship, even if they are personally motivated to do so.

The Continued Need for Allies to Gender Equality

Research points toward progress in achieving gender equality across the world. The Global Institute for Women's Leadership (Ipsos & Global Institute for Women's Leadership, 2019) surveyed adults across 27 countries, finding that 50% of respondents believe that young women today will have a better life than women from their parents' generation. Moreover, in a survey of more than 30,000 people internationally, 68% of people claimed that gender equality has improved over the past 20 years (Pew Research Center, 2019). Nevertheless, people recognize the prevalence of gender inequality; when asked whether their society has gone far enough in giving women equal rights to men, more people disagree than agree (Ipsos & Global Institute for Women's Leadership, 2019).

These data imply that although gender equality has improved, women are still seen as facing gender biases (Pew Research Center, 2017). These biases and their consequences are often prevalent in highly male-dominated fields such as science, technology, engineering, and mathematics (STEM), where according to a Pew Research Center's (2018) survey of 2,344 STEM employees, approximately 50% of female STEM professionals reported that

This article was published Online First April 19, 2021.

Lucy De Souza  <https://orcid.org/0000-0002-8631-1912>

This work was partially supported by Grant 895-2017-1025 awarded to Toni Schmader by the Social Sciences and Humanities Research Council of Canada. Preregistrations for this research can be found at <http://osf.io/a3ft6>.

Correspondence concerning this article should be addressed to Lucy De Souza, Department of Psychology, University of British Columbia, 2156 West Mall, Vancouver, BC V6T 1Z4, Canada. Email: ldesouza@psych.ubc.ca

they have experienced gender-based discrimination at work. Consequentially, interactions with sexist men predict women's poorer performance on STEM-related tasks (Logel et al., 2009). Women in STEM who observe sexist behavior in their workplace are less satisfied with their jobs (AAUW, 2015). Likewise, women who feel socially excluded and judged because of their gender (i.e., social identity threat) are less engaged in STEM and experience stronger burnout (Hall et al., 2015, 2018; Moss-Racusin et al., 2018). Thus, attempts to challenge subtle and explicit bias when they happen or more proactively foster inclusion could have benefits for women's experiences in STEM.

Yet confronting bias is risky for women and other targeted groups (Kaiser & Miller, 2001; 2003); targets who confront bias are often viewed as overreactive (Czopp & Monteith, 2003; Rasinski & Czopp, 2010) and complainers even when discrimination is a clear cause of differential treatment (Kaiser & Miller, 2001, 2003). Given these negative consequences and the burden they place on targets, there is growing interest in the unique effectiveness of majority group allies (e.g., Cheng et al., 2018; Drury & Kaiser, 2014; Radke et al., 2020). When prejudice occurs, majority group confronters (i.e., those who are members of the advantaged group) are more persuasive (Rasinski & Czopp, 2010), able to elicit guilt from the confronted (Czopp & Monteith, 2003), and influence observers to perceive the confronted as prejudiced (Rasinski & Czopp, 2010). For sexism specifically, women who confront prejudice against other women are derogated more than men who do the same (Eliezer & Major, 2012). Men can be effective allies because they are not perceived as acting in their own self-interest (Drury & Kaiser, 2014).

Together, the above evidence suggests that men (and other advantaged groups) play an important role in enacting what we define here as *reactive allyship*—behaviors aimed at decreasing or counteracting bias when it occurs. Although our conceptualization of reactive allyship expands beyond interpersonal interactions and can be directed at controlling one's own biases (e.g., Burgess et al., 2007; Monteith, 1993; Plant & Devine, 1998) or collective action to change systemic biases in institutional policies and procedures (e.g., Curtin & McGarty, 2016; Radke et al., 2020); in this current work we focus on interpersonal confrontation as an effective means of dismantling the aforementioned interpersonal barriers to women's inclusion in STEM. Those who are confronted for prejudice feel compunction, a negative emotional state that encourages behavioral change (e.g., making fewer stereotypic inferences, finding prejudiced jokes less funny; Czopp et al., 2006). Moreover, people who are held accountable for sexist behavior are better at detecting future instances of sexism (Mallett & Wagner, 2011).

We distinguish *reactive allyship* from what we define as *proactive allyship*: behaviors that do not need to follow a bias event but are nonetheless aimed at fostering feelings of inclusion for those at risk of feeling marginalized. Thus, whereas reactive allyship aims to counteract or decrease bias by directing action toward oneself, other people, or institutional structures that express or afford biases, proactive allyship's aim is to foster inclusion by directing actions toward those who stand to benefit from them. Although the means to this end can include proactive efforts to expand one's own appreciation for diversity or lobbying for inclusive policies and practices, here we again focus on proactive allyship at the

interpersonal level. These actions can include any effort to signal one's respect and inclusion for an individual who might feel marginalized. Proactive actions are not passive, but can range from broad efforts (e.g., consistently ensuring women's ideas are heard during team meetings) to specific opportunities (e.g., signing up for a women in STEM mentorship program). Research highlights the effectiveness of these behaviors. People of color emphasize that White allies who show an interest in and respect for their experiences are affirming (Brown & Ostrove, 2013; Ostrove & Brown, 2018). Similarly, in male-dominated contexts where women can often feel excluded, men who signal women's inclusion in the culture play a unique role in predicting lower social identity threat and burnout for their women colleagues (Hall et al., 2015; Hall, Schmader, Aday, & Croft, 2018; Hall, Schmader, Aday, Inness, et al., 2018).

Barriers to Men Enacting Allyship: How Could Pluralistic Ignorance Play a Role?

Given the above evidence suggesting that allyship from members of the majority can be particularly beneficial, we might expect that men commonly act as allies for gender equality. However, as suggested in the opening, this might not be the case. On the one hand, there is evidence that most majority group members disdain social prejudices (Dickter, 2012), endorse egalitarian beliefs (Katz & Hass, 1988), and are internally motivated to act in a nonprejudicial way (Plant & Devine, 1998). With respect to gender, most men endorse gender egalitarian views and recognize the importance of men's allyship; 62% of men in an international survey indicated that achieving gender equality is important to them personally and 61% of men agree that women will not achieve equality in their country unless men act to support women's rights (Ipsos and Global Institute for Women's Leadership, 2019). These data suggest that men may desire to take action because they are genuinely interested in improving the status of women or because doing so aligns with their moral beliefs (Radke et al., 2020).

Despite these egalitarian intentions, those in advantaged positions might often be reluctant to openly speak out for equality. People generally avoid confronting identity-based biases when given the opportunity to do so (e.g., Ayres et al., 2009; Brinkman et al., 2011; Crosby & Wilson, 2015; Dickter, 2012; Dickter & Newton, 2013; Kawakami et al., 2009; Rasinski et al., 2013; Swim & Hyers, 1999; Woodzicka & LaFrance, 2001). Relatively negative and unchanging stereotypes about men (compared with those about women; Diekmann & Eagly, 2000; Eagly & Mladinic, 1989; Prentice & Carranza, 2002) may reflect men's general avoidance of confronting gender-based biases. Most relevantly, people perceive men as being more prejudiced and sexist than women, a stereotype that (even if true on average) might give the impression that men care less about gender equality than they actually do (Glick et al., 2004; Glick & Fiske, 1999; Prentice & Carranza, 2002). In data from our own lab collected from 1,259 STEM professionals, even though women estimate that under 60% of their male colleagues act as allies, 85% of men sampled reported being positively motivated to act as allies to female scientists and engineers (Dennehy et al., 2018). These data allude to a potential disconnect between men's aspirations to support women and their actual allyship behavior. We suggest that pluralistic ignorance might be one factor that constrains majority group members

in general, and men in particular, from acting as an ally to women in spite of their personal beliefs that bias is a problem.

How Pluralistic Ignorance Affects Behavior

Pluralistic ignorance is the widespread misperception of a group's beliefs and the resulting effect this can have in perpetuating behaviors that are not consistent with individual attitudes (Prentice & Miller, 1993). When multiple individuals act inconsistently with their private beliefs but consistently with what is believed to be the majority's beliefs, social norms that do not accurately reflect the majority's views can persist (Miller & McFarland, 1991; Prentice, 2007; Prentice & Miller, 1993). The effects are especially pronounced if people misperceive what other people's true beliefs or behaviors are. For example, college students engage in more excessive drinking to the degree that they believe that other students are engaging in excessive drinking. If these students overestimate how much the average college student drinks, then their misperception of the descriptive norm drives their drinking behavior over and above the influence of their own motivation to drink (Miller & McFarland, 1991).

If one has the belief that men are less concerned with gender equality than are women (perhaps a result of stereotypes about men primarily as perpetrators and enablers of sexism), pluralistic ignorance might inhibit allyship behavior. A pluralistic ignorance model proposes that if men rarely enact allyship in male-dominated fields, there is a general underestimation of men's average concerns about gender bias as a problem. Distinct from their private beliefs, men's (mis)perceptions that other men are relatively unconcerned with gender bias have the power to guide their own inaction. Men's inaction despite their private concerns thus sustains the social norm that men do not enact allyship and the misperception that men are unconcerned about bias. This is a self-perpetuating process that reflects pluralistic ignorance (Geiger & Swim, 2016; Prentice, 2007; Prentice & Miller, 1993). People's avoidance of discussing and solving social issues fuels the general misperception of average beliefs that causes avoidance in the first place.

This process fits within previous conceptual work on constraints to allyship modeled after bystander approaches to helping (Ashburn-Nardo et al., 2008; Latané & Darley, 1970). According to Ashburn-Nardo's Confronting Prejudiced Responses (CPR) model, reactive allyship—specifically interpersonal confrontation—is a multistep process whereby people must (a) detect discrimination, (b) interpret the event as an emergency, (c) take responsibility to act, (d) know how to act, and (e) after engaging in a decision making process, ultimately choose to confront. From this model, people can fail to take action by getting stuck at any one of these steps. In the helping literature more broadly (Darley & Latane, 1968), pluralistic ignorance is often viewed as a barrier to interpretation when threatening cues are ambiguous (Step 2 of the CPR model; e.g., Burn, 2009; Casey & Ohler, 2012); however, we also believe that even if people personally view bias as a problem that they should and can take action against, pluralistic ignorance can intervene in the final, fifth step to inhibit taking action viewed as counternormative for one's group.

The Constraints of Male Gender Norms

Gender is an identity that constrains both men's and women's behavior (Eagly & Wood, 2016), but theory and evidence suggest that dominant views of masculinity place unique constraints on men (Vandello & Bosson, 2013). Specifically, precarious manhood theory suggests masculinity can be lost if men are seen engaging in stereotypically feminine actions (Bosson et al., 2009; Bosson & Vandello, 2011; Vandello et al., 2008; Vandello & Bosson, 2013). For example, gender egalitarian men are perceived as effeminate, weak, and likely to be gay when they align themselves with women's interests (Rudman et al., 2013). These constraints can be felt more strongly for some individuals and in some situations. Thus, a secondary goal was to examine if men's perceptions of other men's beliefs are especially likely to inhibit allyship intentions when men feel more constrained by male gender norms.

We reasoned that these constraints might feel more powerful for men high in *precarious masculinity*, a moderator derived from work on precarious manhood. Past research by Good et al. (2018) has revealed that men's beliefs about masculinity predict their intentions to confront sexism against close others for whom they feel a paternalistic duty to protect. Although Good et al. did not find that masculinity beliefs predicted intentions to confront sexism among strangers, it is important to note that our measure was constructed to more specifically assess attentiveness to masculinity judgments and not adherence to masculine gender roles (beliefs about men's responsibilities; Eagly, 2009). We also expected that men high in precarious masculinity would be more sensitive to the judgments of other men given that ingroup members generally have stronger normative influence (Lewis & Neighbors, 2004; Miller et al., 2000; Suls & Green, 2003).

In addition to examining the moderating role of precarious masculinity in men's sensitivity to other men's judgments in Studies 1 and 2, we also reasoned that male-dominated contexts are likely raise men's sensitivity to male gender norms in general. Thus, in Study 3, we tested hypotheses in an ecologically valid male-dominated situation where the constraints of gender norms might feel more acute.

Exploring the Effect of Normative Beliefs and Behavior

Although past research has not directly tested how pluralistic ignorance constrains men's allyship, our hypotheses are derived from general evidence that social norms, the perceptions of what other people believe and do, shape individuals' behaviors above and beyond private views (Asch, 1951; Cialdini, 2012; Cialdini et al., 1990; Miller et al., 2000). For example, past research has shown that hearing just one other person condemn or condone prejudice leads people to publicly express more or fewer anti-discrimination beliefs, respectively (Blanchard et al., 1991, 1994; Zitek & Hebl, 2007), even though people generally report a desire to confront prejudice when they see it (LeMaire & Oswald, 2016).

Importantly, norms are not only communicated by observed behavior but also by the beliefs we assume that others hold (Vial et al., 2019). Thus, a misperception of other men's gender-based beliefs might produce pluralistic ignorance that itself constrains allyship behavior. For example, men *overestimate* other men's sexist beliefs, comfort with sexism, and acceptance of rape myths

(Brown & Messman-Moore, 2010; Fabiano et al., 2003; Kilmartin et al., 2008, 2015). Furthermore, men's (mis)perceptions of other men's support for sexual aggression and intervention predicts men's self-reported willingness to prevent sexual assault (Brown & Messman-Moore, 2010; Fabiano et al., 2003; Murphy Austin et al., 2016), and efforts to debias these beliefs increases their commitment to this cause (Zounlome & Wong, 2018). However, to our knowledge, our research is the first to test how pluralistic ignorance constrains less-extreme forms of gender bias (i.e., those that may occur in everyday contexts). Moreover, Study 3 is the first preregistered experiment to examine whether or not pluralistic ignorance impacts actual confrontation behavior rather than self-reported intention or frequency.

The Present Research

We conducted three preregistered studies to test our research questions. First, we hypothesized that men (and perhaps also women) will underestimate men's average concerns for gender bias (Studies 1 and 2). We explored whether these perceptions that other men do not perceive gender bias as a problem (measured in Study 1, manipulated in Studies 2 and 3) will negatively predict men's own willingness to enact allyship, independent of their own personal beliefs about bias. In Studies 1 and 2, we tested *precarious masculinity* as a moderator that amplifies the relationship between men's underestimation of concern for gender bias and willingness to enact allyship. Finally, given the pluralistic ignorance model's focus on public behavior (or lack thereof), we tested differences in reactive and proactive allyship intentions for actions done in *public* (among other men) versus *private* (without other men observing). We hypothesized (preregistered in Study 2, exploratory in Study 1) that men would be least likely to enact public reactive allyship, given that the negative nature of public confrontation (compared with other forms of allyship) might seem more inconsistent with male gender norms.

In Study 1, we compared men's and women's perceptions of men's average beliefs and how these perceptions predicted allyship intentions, examining whether precarious masculinity beliefs (as a moderator) strengthens this relationship. We also compared men and women's reactive and proactive allyship intentions, done publicly or privately. In Study 2, we manipulated men's perceptions of other men's beliefs to test the hypothesis that correcting these perceptions would increase men's allyship intentions. Study 3 then tested our hypothesis that manipulating perceptions of men's concerns with gender bias changes men's (and/or women's) actual public reactive allyship behavior, using a real-time ecologically valid paradigm (loosely modeled after Swim & Hyers, 1999). All studies were preregistered on the Open Science Framework (<http://osf.io/a3ft6>). Deviations from the preregistration (e.g., exploratory and posthoc analyses) are noted. Full instructions and measures can be found in our OSF preregistration. All studies received approval from the authors' institution's Behavioral Research Ethics Board.

Study 1

The goal of Study 1 was to test two primary hypotheses. First, we hypothesized that men would underestimate other men's perceptions that gender bias is a problem. Second, we hypothesized

that perceptions that other men are unconcerned about bias, as distinct from men's own concerns about gender bias, would predict men's lower allyship intentions (specifically public reactive allyship).¹ As an exploratory question, we tested whether men have fewer intentions to enact reactive over proactive allyship in public and private contexts. We were interested in contrasting different allyship intentions given the negative nature of publicly identifying someone's biases (public reactive allyship) versus the positive nature of actions aimed at fostering inclusion or respect and/or approaching someone in private. Finally, we measured men's *precarious masculinity*, an adaptation of Vandello et al.'s (2008) precarious manhood scale. We explored whether *precarious masculinity* moderates the relationship between *perceptions of other men's beliefs* and *allyship intentions*. Although our hypotheses center on men, we included women in our sample to assess whether the hypothesized effects are specific to men.

Method

Participants

Participants who identified as a man or woman and who held at least a four-year degree and work full-time in a STEM profession were recruited via Mechanical Turk Prime. Power analyses (using G*power) suggested a sample of at least 164 to achieve 80% power to detect $\beta = .30$ in a linear regression model (an effect size similar to the effect of other men's sexual assault beliefs predicting men's own willingness to intervene; Brown & Messman-Moore, 2010). We thus preregistered a sample size of 200 to account for participants who would fail attention checks. Of the 211 participants initially recruited, we excluded (as preregistered) participants who failed attention check questions ($n = 21$), reported paying little attention ($n = 2$), and who did not complete the survey ($n = 16$).² Although not explicitly a preregistered exclusion criterion, we additionally excluded those who reported non-STEM careers (e.g., school teaching; $n = 9$) to be consistent with our preregistered inclusion criteria. The final sample included 163 participants (84 men, 79 women; $M_{\text{age}} = 34.06$, $SD_{\text{age}} = 9.27$; 63% White/European American, 13% Black/African American, 9% East or South [Pacific] Asian, 7% Latinx, 4% Mixed Ethnicity, 3% Middle Eastern, 1% Indigenous, 1% Other Category). Participants reported employment in the computer sciences (36%), mathematical/statistical sciences (18%), biological sciences (18%), engineering (12%), physical sciences (4%), or a combination of these fields (12%). All participants were compensated \$1.00 for the online survey.

¹ Although our preregistered hypotheses focused on the relationship between perceptions of other men's beliefs and public reactive allyship (as effects are most theoretically relevant for this form of action), we do not argue that the pluralistic ignorance model is necessarily restricted to public reactive (or generally reactive) behavior.

² We included attention checks throughout the survey to identify participants who were paying inadequate attention to the study's instructions (i.e., "To indicate you are reading this question, please select two"). Three of these attention check questions were embedded among survey items. At the end of the survey, participants reported the extent to which they were attentive to questions and answered honestly.

Procedure

After completing demographics information, participants answered a series of questions about their attitudes toward diversity and inclusion in STEM. First, they rated the *perception of gender bias* from the point of view of themselves, other men, and other women. Second, to assess *allyship intentions*, participants read and rated their likely response to eight vignettes. The final part of the survey measured *precarious masculinity* and attention checks. A complete list of measures used in this research can be found in the [supplemental online materials](#) (SOM), in addition to supplemental analyses of non-key outcome variables.

Measures

Gender Bias Beliefs. Participants rated a total of 18 items assessing gender bias beliefs. First, they read brief definitions of explicit bias (i.e., “overt or explicit negative beliefs about women in science, technology, engineering, and mathematics”) and implicit bias (i.e., “subtle, and often unintentional tendencies to associate STEM with men more than with women”). They then rated the extent to which each (explicit and implicit) is prevalent, a problem, and should be a priority to reduce on a scale from 1 (*Not at All*) to 9 (*Very Much*). Participants rated these six items three times reflecting: (a) their *own beliefs about bias* ($\alpha = .92$), (b) the beliefs about bias held by *other men in STEM* taking this same survey on MTurk ($\alpha = .89$), and (c) the beliefs about bias held by *other women in STEM* taking this same survey ($\alpha = .87$). The interest in distinguishing implicit and explicit bias was exploratory; there was no indication that people rated these in distinct ways and thus ratings across bias type were combined.

Allyship Intentions. Participants read eight vignettes: four vignettes depicted an opportunity for reactive allyship (e.g., a man makes a comment stereotyping or objectifying a female co-worker’s body) and four focused on proactive allyship (e.g., there is an opportunity to be a mentor or invite female coworkers to a social event). For each vignette, participants reported their likelihood of enacting three behaviors on a scale ranging from 1 (*I would definitely not do this*) and 9 (*I would definitely do this*): (a) public allyship (e.g., speaking out against sexism/promoting women while among other men), (b) private allyship (e.g., speaking out against sexism/promoting women in private), and (c) a disinterested or inactive behavior (e.g., changing the topic, passing on opportunities to invite women to social events). To make comparisons between allyship types, we created four allyship composites: *public reactive* (four items; $\alpha = .85$), *private reactive* (four items; $\alpha = .81$), *public proactive* (four items; $\alpha = .74$), and *private proactive* (four items; $\alpha = .72$).³ However, we also aggregated the 16 items making up these different subtypes into an *allyship intentions* composite score ($\alpha = .88$).

Precarious Masculinity. We included a modified version of the precarious manhood beliefs scale (Vandello et al., 2008). Because we were specifically interested in the threat men might feel for how they are perceived, items from the original scale were modified to reference one’s social image as a man (e.g., *Manhood is not assured—it can be lost* modified to *One’s masculinity in the eyes of others is not assured—it can be lost*). Responses to seven items ranged from 1 (*Strongly Disagree*) to 9 (*Strongly Agree*) and were averaged to create a *precarious masculinity* composite ($\alpha = .88$).

Perceptions of Other MTurk Participants. As a check on participants’ perceived similarity to other STEM workers on MTurk, we assessed the extent to which participants believe that other men and women in STEM recruited through MTurk are different/similar to themselves on a scale from 1 (*Very Different*) to 9 (*Very Similar*) and representative of workers in STEM on a scale from 1 (*Not at all Representative*) to 9 (*Very Representative*). One-sample *t* tests revealed the average ratings for similarity ($M = 5.71$, $SD = 1.84$; $t[162] = 4.90$, $p < .001$) and representativeness ($M = 6.18$, $SD = 1.92$; $t[162] = 7.88$, $p < .001$) were both above midpoint of 5. Thus, we confirmed that participants did not perceive themselves to be dissimilar from other STEM MTurk participants, facilitating comparisons between how they view themselves and their estimates of other participants’ beliefs.

Results

Gender Bias Beliefs

Our first primary preregistered hypothesis was that men will report that they, compared with other men, see gender bias in STEM as more of a problem, prevalent, and a priority concern. We preregistered conducting within-subject *t* tests on each item separately as our primary analytic strategy. However, to more parsimoniously account for both these primary and exploratory gender comparisons, we focus on the composite scores and our preregistered exploratory analysis: comparing men and women’s *own beliefs* to their *perceptions of other men’s and other women’s beliefs* using a 2 (participant Gender: Male/Female) \times 3 (Perspective: Own/Other Men/Other Women) Mixed ANOVA on *perceptions of bias as a problem*. Following our analysis plan, we followed up significant interactions with Bonferroni corrected pairwise comparisons. Descriptive statistics for this analysis are reported in [Tables 1 and 2](#).

There was a main effect of perspective, $F(1.83, 293.78) = 192.83$, $p < .001$, $\eta_p^2 = .545$,⁴ that was moderated by gender, $F(1.83, 293.78) = 24.68$, $p < .001$, $\eta_p^2 = .133$. There was no main effect of gender, $F(1, 161) = .11$, $p = .740$. Pairwise comparisons revealed support for our preregistered hypothesis: On average, men’s *own perceptions of bias* were significantly higher than their *perceptions of other men’s beliefs* ($p < .001$; $d = .50$, 95% CI [.28, .73]). Men’s *own perceptions of bias* scores were also significantly higher than women’s *perceptions of other men’s beliefs* ($p < .001$; $d = .90$, 95% CI [.58, 1.23]). These effects were not found for women’s *own perceptions*, which did not significantly differ from either men’s or women’s *perceptions of other women’s beliefs* ($ps > .10$). Thus, men and women underestimated what men themselves report to be their true attitudes about gender bias. People were, however, otherwise accurate about other women’s average beliefs.

Allyship Intentions

To explore whether men are more or less likely to engage in certain allyship behaviors, we preregistered a 2 (Allyship Type:

³ Inactive scores are not used in primary analyses or included in the general allyship composite.

⁴ Given a violation of sphericity ($p < .001$), we report the Greenhouse-Geisser derived degrees of freedom.

Table 1
Study 1 Correlations Within Gender of Main Study Variables

Variable	1	2	3	4	5	6	7	8	9
1. Own beliefs		.23*	.72**	-.05	.09	.10	.29*	.26*	.26*
2. Other men's beliefs	.51**		.08	.22	.06	.12	.08	-.03	.09
3. Other women's beliefs	.49**	.17		-.10	.13	.04	.20	.17	.19
4. PMS	-.09	.18	.06		-.004	.16	.002	.23*	.15
5. Public reactive	.40**	.16	.17	-.27*		.16	.29*	.21	.67**
6. Private reactive	.42**	.36**	.14	-.05	.53**		.01	.52**	.68**
7. Public proactive	.43**	.27*	.15	-.31**	.55**	.66**		.31**	.52**
8. Private proactive	.31**	.18	.07	-.30**	.56**	.53**	.79**		.76**
9. Allyship (All)	.47**	.29**	.16	-.27*	.79**	.82**	.89**	.85**	

Note. Correlations for men are below the diagonal. Correlations for women are above the diagonal. PMS = Precarious Masculinity Scale.

* Correlation is significant at the .05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Reactive/Proactive) \times 2 (Context: Public/Private) repeated measures on men's reports. However, we decided to add participant gender to this model to simultaneously examine differences in the types of allyship reported by men and women (see Table 3 for descriptive statistics). This 2 (Allyship Type) \times 2 (Context) \times 2 (Gender) Mixed ANOVA revealed significant main effects of allyship type, $F(1, 161) = 31.78, p < .001, \eta_p^2 = .165$, and context, $F(1, 161) = 12.63, p < .001, \eta_p^2 = .073$; that were both qualified by a significant three-way interaction, $F(1, 161) = 6.39, p = .012, \eta_p^2 = .038$. A series of Bonferroni corrected pairwise comparisons showed that, as hypothesized, men were significantly less inclined to enact public reactive than public proactive allyship ($p < .001; d = .61, 95\% \text{ CI } [.39, .83]$), but equally inclined in private ($p > .999$). For both reactive ($p = .301$) and proactive ($p = .075$) allyship, there were no significant differences comparing men's intentions in private versus public contexts. Similarly, women were significantly less willing to enact reactive than proactive allyship in public ($p = .004; d = .45; 95\% \text{ CI } [.17, .73]$), but equally inclined in private ($p = .094$). However, women report stronger willingness to enact proactive allyship ($p = .002; d = .56; 95\% \text{ CI } [.28, .84]$) and reactive allyship (although nonsignificantly; $p = .056, d = .33, 95\% \text{ CI } [.04, .63]$) publicly than privately. Comparing gender groups, men were less inclined than women to enact public reactive allyship ($p = .001; d = .58; 95\% \text{ CI } [.27, .90]$), but paralleled women in private reactive ($p > .999$), public proactive ($p = .062$) and private proactive ($p = .637$) allyship intentions.

Predicting Men's Allyship Intentions

The results above suggest that men and women underestimate men's average beliefs that gender bias is a problem. Our second primary preregistered hypothesis was that these (mis)perceptions of men's average beliefs may predict men's willingness to enact

allyship. Although our preregistered hypothesis focused on public reactive allyship specifically, we report analyses on the allyship composite.⁵ Because we also preregistered *precarious masculinity* as an exploratory moderator, we conducted a moderated linear regression, regressing *allyship intentions* (allyship composite) on *perceptions of other men's beliefs*, including *precarious masculinity* as a moderator and controlling for *own beliefs about bias*.⁶ We conducted a sensitivity analysis to determine the minimal detectable effect for this analysis: G*Power revealed with our male sample size ($n = 84$) and predetermined power (80%) and alpha (.05), we could reasonably detect Cohen's $f = .31 (R^2 = .09)$. As preregistered, this analysis focused on men only, but analyses including gender as a moderator reported in the SOM reveal that the effects reported here are only apparent for men and not for women. Results are summarized in Table 4.

Unsurprisingly, men's *own perceptions of bias* were the strongest predictor of their allyship intentions. Nevertheless, controlling for this relationship, men who reported stronger *precarious masculinity* beliefs were significantly less likely to anticipate acting as an ally. Although we found only marginal support for our modified preregistered prediction that perceptions of other men's beliefs would uniquely predict allyship intentions, this relationship was significantly moderated by *precarious masculinity* beliefs. As can be seen in Figure 1, *perceptions of other men's beliefs* did not significantly predict *allyship intentions* for men lowest in *precarious masculinity* ($-1 \text{ SD}; \beta = .01, SE = .12, t = .06, p = .952$). However, this relationship was significantly positive for men highest in *precarious masculinity* ($+1 \text{ SD}; \beta = .40, SE = .15, t = 2.75, p = .007$).

⁵ Our preregistered plan was to conduct analyses on each allyship type separately, with our hypothesis focused on a negative relationship between other men's beliefs and *public reactive allyship* specifically. However, we opted to report analyses on the allyship intentions composite, given moderate to strong correlations between the four subscales for men ($.52 < rs < .79; ps < .001$) and similar results for the subscales. Parallel analyses on the separate subscales can be found in the SOM.

⁶ In addition, this hypothesis focused on predicting allyship from the difference score created by subtracting perceptions of other men's beliefs from men's own beliefs. However, the high overlap between this difference score and own beliefs about bias ($r = .69, p < .001$) led to multicollinearity in the analysis. We instead tested the predictive effects of men's *perceptions of other men's beliefs* using multiple regression and controlling for men's own beliefs, testing how perceptions beliefs predict allyship intentions *above and beyond* participants' own beliefs.

Table 2
Study 1 Means and Standard Deviations by Gender and Condition for Gender Bias Beliefs

Gender	Own		Other men		Other women	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Men	5.41 _a	1.94	4.55 _c	1.35	6.94 _b	1.45
Women	6.56 _b	1.55	3.78 _d	1.66	6.75 _b	1.45

Note. Within each row and column, means with the same subscript do not differ significantly, $p > .05$, in pairwise comparisons.

Table 3
Study 1 Descriptive Statistics for Different Types of Allyship Intentions by Gender

Intention	Men		Women	
	<i>M</i> [95% CI]	<i>SD</i>	<i>M</i> [95% CI]	<i>SD</i>
Reactive allyship	5.16 [4.78, 5.54]	1.75	5.75 [5.39, 6.11]	1.62
Public	4.88 [4.45, 5.31]	1.97	6.10 [5.60, 6.60]	2.22
Private	5.44 [5.00, 5.88]	2.04	5.40 [4.95, 5.85]	2.02
Proactive allyship	5.70 [5.34, 6.07]	1.69	6.50 [6.21, 6.78]	1.27
Public	6.03 [5.64, 6.43]	1.82	6.94 [6.64, 7.25]	1.36
Private	5.37 [4.99, 5.75]	1.75	6.05 [5.65, 6.45]	1.78
Public allyship	5.46 [5.10, 5.82]	1.66	6.52 [6.20, 6.85]	1.46
Private allyship	5.41 [5.05, 5.77]	1.66	5.72 [5.35, 6.09]	1.66
Allyship composite	5.43 [5.09, 5.78]	1.58	6.12 [5.85, 6.40]	1.23

Discussion

This initial study provides support for several key hypotheses derived from our pluralistic ignorance model of men's allyship intentions. Confirming our first primary preregistered hypothesis, men's *estimates* of other men's average concerns for gender bias in STEM were significantly lower than men's *actual* average concerns. Preregistered exploratory analyses revealed that women also underestimated men's bias beliefs. One alternative interpretation of these effects is that men are more likely to overreport their true concerns about gender bias, perhaps owing to social desirability concerns. However, the fact that both men and women were accurate in their estimations of women's beliefs speaks against a general tendency for participants to be overreporting their own bias concern.

In addition, men (but not women) reported the weakest intentions to publicly confront instances of sexism among other men. In fact, exploratory comparisons revealed that men were as likely to report remaining inactive as they were to publicly confront sexism.⁷ This pattern would not be expected if men in this study were highly motivated to exaggerate their personal concerns with gender bias or allyship. Instead, this pattern is consistent with our assumption that men might find it especially difficult to express public support for gender equality.

Finally, we also found some support for our view that men's misperceptions of other men's beliefs might constrain their own intentions to act as an ally to gender equality; however, this effect was moderated by precarious masculinity concerns. Specifically, preregistered exploratory analyses revealed that men with stronger *precarious masculinity* beliefs reported lower intentions to be ally. In contrast, men low in *precarious masculinity* concerns showed no relationship between their perceptions of other men's beliefs and their allyship intentions. These patterns imply that *precarious masculinity* beliefs may represent a sensitivity to male social norms and other men's judgments.

Study 2

The findings from Study 1 are consistent with our model, but the correlational design constrains clear causal conclusions. In Study 2, we aimed to replicate the finding that men underestimate other men's average beliefs about bias and manipulate these beliefs to test whether doing so would causally elevate men's

allyship intentions. Thus, using a similar sample and methods as in Study 1, we first asked men to report their own and perceptions of other men's beliefs about gender bias. However, in this study we subsequently informed participants that other men have either *high* or *low concern* for gender bias in STEM, before having them complete the same allyship scenarios.

We preregistered the following primary hypotheses. First, we hypothesized that paralleling Study 1, men would underestimate men's actual average beliefs that gender bias is a problem. Second, we hypothesized that the *high* (vs. *low*) *concern* manipulation would increase perceptions of men's average concerns about gender bias in STEM. Third, we hypothesized that men in the *high concern* condition would report stronger intentions to enact allyship than men in the *low concern* condition. As we preregistered precarious masculinity as a moderator, we report analyses examining it as a moderator of key effects.

Method

Participants

Across two samples,⁸ we recruited 548 male participants through Turk Prime, all of whom reported holding at least a four-year degree and being fully employed in a STEM field. As preregistered, Sample 2.1 was powered to have 100 per condition to achieve 80% power ($\alpha = .05$) for an effect size of .40 (two-group *t* test, cross-condition comparisons of other men's beliefs) plus 36 based on the percentage of men excluded in Study 1. Because it was inappropriate to power Study 2's experimental design based on Study 1's effect sizes (a correlational design) and we were unaware of similar paradigms to base our effect size on, we opted to power for a small/medium effect size by Cohen's (1988) standards. This effect size parallels the mean effect size ($d = .37$) of gender role research in social psychology (Richard et al., 2003). For each sample, we stopped data collection at 236 survey completions according to Turk Prime. After preregistered exclusions (39 who completed less than 90% of the survey, 20 who reported low quality responses, and 74 who failed two or more attention checks), the final combined sample size was 415 participants ($M_{\text{age}} = 33.44$, $SD_{\text{age}} = 8.38$; 60% White/European American, 15% Black/African American, 14% East or South [Pacific] Asian, 5%

⁷ A repeated-measures ANOVA comparing all four allyship subscales (public reactive, private reactive, public proactive, and private proactive) along with inactivity ($M = 4.93$, $SD = 1.28$) for men revealed a significant effect of allyship type, $F(4, 322) = 8.87$, $p < .001$, $\eta_p^2 = 0.097$. In Bonferroni pairwise comparisons, men only reported stronger intentions to enact public proactive allyship compared with inactivity ($p < .001$). There were no significant differences between self-reported inactivity and public reactive, private reactive, and private proactive intentions ($ps > .20$).

⁸ The first sample (labeled here as Sample 2.1) corresponds to what is labeled Study 2A in the posted preregistration; Study 2B in the preregistration was not conducted. Instead, we carried out a replication (labeled sample 2.2) that differed in only two ways. In Sample 2.1, we did not include *perceptions of other women's beliefs* and the order of measures varied from that of Study 1 (as noted in the methods). In Sample 2.2, we more closely replicated the measures and procedure in Study 1. Sample 2.1 and 2.2's patterns of results were nearly identical, with the notable exception of the underestimation effect was significant in the latter but not the former study (see SOM for detail). For parsimony and added power, the samples were combined and analyzed in aggregate. A limitation of this combination is variation in participants' baseline ratings of perceptions of other men's beliefs (slightly higher in Sample 2.1 than Sample 2.2, $M_{s1} = 5.44$, $M_{s2} = 5.13$); however, we account for this by controlling for sample in our analyses.

Table 4

Regression Model Predicting Men's Allyship Intentions From Beliefs About Bias, Precarious Masculinity, and Their Interaction

Belief	β	SE	<i>t</i>	<i>p</i>	B	SE	<i>t</i>	<i>p</i>
Own beliefs about bias	.47	.10	4.81	<.001	.32	.11	2.91	.005
Other men's beliefs about bias					.21	.11	1.84	.069
Precarious masculinity					-.25	.10	-2.67	.009
Other men's beliefs * Precarious masculinity					.20	.08	2.55	.013
	<i>R</i> ²	<i>F</i> (<i>df</i>)		<i>p</i>	<i>R</i> ²	<i>F</i> (<i>df</i>)		<i>p</i>
Model summary	.21	23.15 (1, 82)		<.001	.31	10.35 (4, 79)		<.001

Note. Bold text indicates the variable is significant in the regression model.

Latinx, 4% Mixed, .7% Middle Eastern, .7% Indigenous, .9% Other Category). Participants reported employment in the computer sciences (47%), engineering (15%), mathematical/statistical sciences (11%), biological sciences (8%), physical sciences (5%), a combination of these fields (10%), or another field (4%, e.g., data management and visualization, pharmaceuticals). Participants received \$1.00 for completing the survey.

Procedure

As in Study 1, participants completed a demographics questionnaire and subsequently rated the same beliefs about gender bias from their *own perspective*, *other men's perspective*, and *other women's perspective* (Sample 2.2 only). Following these ratings, participants were then randomly assigned to one of two conditions designed to manipulate *perceptions of other men's beliefs* about bias. We did this by presenting participants with the actual averages obtained in Study 1 (to avoid using deception in an online study where verbal debriefing is not possible). We varied the meaning of these actual data by providing comparisons to prime the perception that other men's bias beliefs reflect a *high concern* (i.e., higher than they might have estimated) or a *low concern* (i.e.,

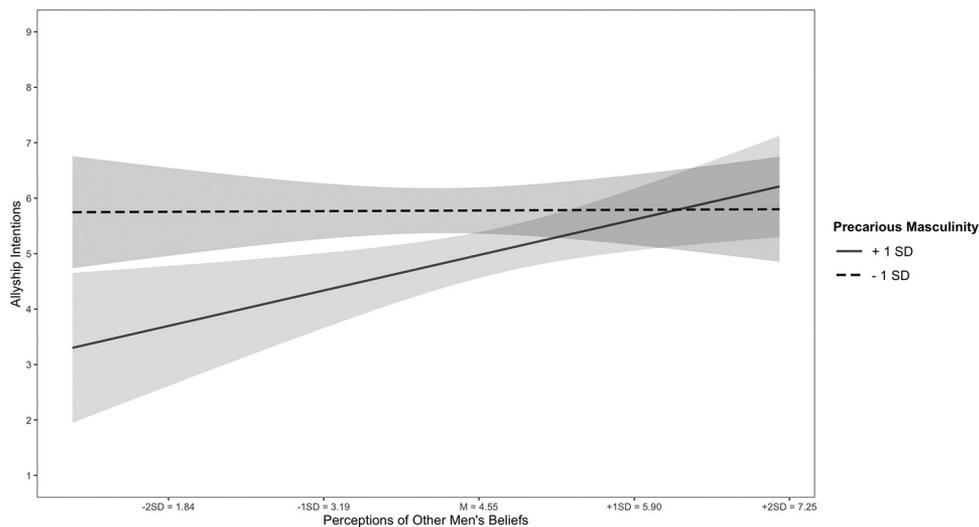
lower than what other women report). In the *high concern* condition, participants saw data reporting men's actual bias beliefs compared with men's *perceptions of other men's beliefs* and read the following interpretation:

Generally, men think that *other men* do not see gender bias as much of a problem in STEM (below midpoint), ...but on average men *do* report seeing gender bias as a problem in STEM (above midpoint; Slides 1–5). Men also underestimate how much *other men* believe that gender bias in STEM is a priority concern (Slide 6). Men additionally underestimate how much *other men* believe that gender diversity in STEM is important (Slide 7).

In the *low concern* condition, participants saw men's actual bias beliefs compared with women's actual bias beliefs with the following interpretation:

Generally, men believe that gender bias in STEM is not a large problem. This is apparent in comparison with women's beliefs that bias is a larger problem (Slides 1–3). Men also believe that gender bias in STEM is less of a priority concern (Slide 4). Men additionally see gender diversity in STEM as less important (Slide 5).

Figure 1
Predicting Men's Allyship Intentions (Study 1)



Note. Perceptions of other men's beliefs predicting allyship intentions estimated at $\pm 1 SD$ from the mean of precarious masculinity, controlling for own beliefs. Error bars denote 95% CIs.

This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

All slides in this presentation appeared for at least five seconds before the participants could move forward (15 seconds was the longest duration for the slide with most data). Men subsequently read the eight vignettes and reported their *allyship intentions* (items identical to those in Study 1). As in Study 1, participants also completed measures of *precarious masculinity* (before the manipulation in Sample 1, after *allyship intentions* in Sample 2). After the manipulation, participants once again provided their *own beliefs* and *perceptions of other men's beliefs about gender bias*. Participants then completed manipulation checks and reported their perceptions of MTurk workers and attention to the study.

Measures

We describe the most relevant dependent measures and provide a complete list of measures in the SOM.

Gender Bias Beliefs. Participants completed measures of *own* and *perceptions of other men's beliefs* about gender bias in STEM, identical to those of Study 1 (i.e., to what extent is explicit/implicit bias a problem, prevalent, and a priority concern). Taking the average of the six items from each perspective, we created *own perceptions of bias as a problem* (six items, $\alpha = .91$) and *other men's perceptions of bias as a problem* (six items, $\alpha = .91$) scores. We likewise asked participants postmanipulation to report their *own* and *perceptions of other men's beliefs* that bias is a problem (one item each), on scales from 1 (*Not at all a Problem*) to 9 (*Very Much a Problem*). Sample 2.2 also included ratings for other women's perceptions.

Allyship Intentions. We used identical vignettes and measures in Study 1 to capture participants' intentions to enact public reactive allyship (four items, $\alpha = .88$), private reactive allyship (four items, $\alpha = .88$), public proactive (four items, $\alpha = .76$), and private proactive (four items, $\alpha = .78$) allyship, as well as allyship behaviors generally (16 items, $\alpha = .93$).

Precarious Masculinity. Participants completed the modified seven-item precarious manhood scale (Vandello et al., 2008) used in Study 1. Averaged ratings reflect *precarious masculinity* ($\alpha = .87$).

Manipulation Checks. To verify participants' understanding of the data, participants rated the extent to which the data suggest that men in general perceive gender bias as a problem on a scale from 1 (*Not at All a Problem*) to 9 (*Very Much a Problem*). Moreover, to ensure that participants perceived the content in the two conditions as equally believable, participants rated how much they thought the finding they were shown is likely, believable, and accurate on scales from 1 (*Not at All*) to 9 (*Extremely*). A composite score for believability was created from these three items for the *high concern* condition ($\alpha = .90$) and the *low concern* condition ($\alpha = .93$).

Results

All analyses reported below included Sample (i.e., 2.1/2.2) as a covariate. Between-sample comparisons of results can be found in the SOM.

Manipulation Checks and Comparison With MTurk Sample

Univariate ANCOVAs with study (i.e., Sample 2.1/2.2) as a covariate compared perceptions of the manipulation across conditions. Confirming the validity of the manipulation, participants' reports of how much men perceive bias as a problem based on the data were significantly higher for those in *high concern* condition ($M = 6.20, SD = 1.46$) than in the *low concern* condition ($M = 5.24, SD = 1.83$), $F(1, 412) = 35.40, p < .001, \eta_p^2 = .079$. Participants in the *high* ($M = 6.59, SD = 1.66$) and *low concern* condition ($M = 6.85, SD = 1.66$) perceived the data as similarly believable, $F(1, 412) = 2.57, p = .110, \eta_p^2 = .006$.

As in Study 1, participants also rated their perceptions of other MTurk workers (i.e., similarity, representative of men). One-sample *t*-tests demonstrated that the average rating for similarity ($M = 6.02; SD = 1.76$) and representativeness ($M = 6.27, SD = 1.68$) were both above midpoint of five ($ps < .001$). Participants in this study believed that other people taking the survey on MTurk are fairly similar to them and representative of employees in STEM.

Condition Effect on Bias Beliefs

A primary hypothesis was that the *high concern* manipulation would increase men's perceptions of other men's beliefs about bias. We originally preregistered testing condition differences of *other men's beliefs* using between-subjects *t* tests; however, we also planned to explore change in men's *own beliefs* as well. Thus, here we report a 2 (Time: Pre/Postmanipulation) \times 2 (Condition: High/Low Concern) \times 2 (Perspective: Self/Other Men) Mixed ANCOVA, controlling for sample. Descriptive statistics and correlations between variables are reported in Tables 5 and 6, respectively.

This analysis revealed a main effect of perspective, $F(1, 408) = 7.42, p = .007, \eta_p^2 = .018$, a Time \times Perspective interaction, $F(1, 408) = 8.52, p = .004, \eta_p^2 = .020$, and a Condition \times Time interaction, $F(1, 408) = 15.57, p < .001, \eta_p^2 = .037$. There was a significant Sample \times Perspective interaction, $F(1, 408) = 6.96, p = .009, \eta_p^2 = .017$, that occurred because men's own beliefs did not significantly differ from their perceptions of other men's beliefs premanipulation in Sample 2.1 ($p = .329$), as they did in Sample 2.2 ($p < .001$). No other effects were significant, $.960 \geq ps \geq .061$. We decomposed significant interactions using Bonferroni corrected

Table 5
Study 2 Means and SDs for Men's Own and Other Men's Gender Bias Beliefs by Condition

Belief	Time	High concern		Low concern		Comparison at post
		M	SD	M	SD	
Own beliefs	Pre	5.53	1.85	5.63	1.79	
	Post	6.06	1.99	5.85	2.18	
Other men's beliefs	Pre	5.29	1.63	5.30	1.53	$p = .310; d = 0.10; 95\% \text{ CI } [-0.09, 0.29]$
	Post	5.65	1.69	5.11	1.79	

Table 6
Study 2 Bivariate Correlations Between Main Study Variables

Variable	1	2	3	4	5	6	7
1. Own beliefs							
2. Other men's beliefs	.65**						
3. PMS	.03	.24**					
4. Public reactive	.40**	.41**	.10*				
5. Private reactive	.44**	.44**	.15**	.68**			
6. Public proactive	.46**	.36**	.14**	.53**	.59**		
7. Private proactive	.47**	.43**	.18**	.56**	.66**	.80**	
8. Allyship (All)	.51**	.48**	.17**	.83**	.87**	.83**	.87**

Note. PMS refers to Precarious Masculinity Scale.

*Correlation is significant at the .05 level (2-tailed). **Correlation is significant at the .01 level (2-tailed).

pairwise comparisons and report the most relevant comparisons below.

Because we had preregistered the hypothesis that men's own bias beliefs would be higher than their perceptions of other men's beliefs, we first looked more specifically at the premanipulation comparison of *own* and *other men's beliefs*. Replicating Study 1, men's *own beliefs* ($M = 5.58$, $SD = 1.82$) were significantly higher than their *perceptions of other men's beliefs* ($M = 5.29$, $SD = 1.58$) premanipulation ($p = .002$; $d = .17$; 95% CI [.09, .25]). The significant time by perspective interaction revealed that the difference between *own beliefs* ($M = 5.95$, $SD = 2.09$) and *perceptions of other men's beliefs* ($M = 5.38$, $SD = 1.76$) was even larger after the manipulation ($p < .001$; $d = .29$; 95% CI [.20, .38]).

The significant time by condition interaction suggested that men's ratings of bias as a problem (collapsing across *own* and *other men's beliefs*) increased from pre to post in the *high concern* condition ($M_{pre} = 5.41$; $M_{post} = 5.86$; $p < .001$; $d = .28$; 95% CI [.18, .37]), but not in the *low concern* condition ($M_{pre} = 5.47$; $M_{post} = 5.48$; $p = .851$). For men in the *high concern* condition, both *perceptions of other men's beliefs* ($p < .001$; $d = .21$; 95% CI [.08, .34]), and *own beliefs* ($p < .001$; $d = .27$, 95% CI [.18, .37]), significantly increased. Men in the *high concern* condition still underestimated men's beliefs postmanipulation ($p = .001$; $d = .22$; 95% CI [.10, .33]), however, suggesting that the manipulation did not completely eliminate this tendency.

Condition Effects on Allyship Intentions

Our primary hypothesis was that men in the *high concern* condition would report stronger allyship intentions, both for public reactive allyship specifically and allyship generally. We conducted a 2 (Allyship Type: Reactive/Proactive) \times 2 (Context: Public/Private) \times 2 (Condition: High/Low Concern) ANCOVA analysis controlling for sample (which showed no significant effects in this analysis). There was a significant main effect of *allyship type*, $F(1, 412) = 45.40$, $p < .001$, $\eta_p^2 = .099$, that was significantly moderated by public versus private context, $F(1, 412) = 23.54$, $p < .001$, $\eta_p^2 = .054$. No other effects were significant, $.932 \geq ps \geq .169$. Contrary to our primary hypothesis, condition did not have any effect on allyship intentions, either generally or for public reactive allyship specifically. Thus, even though the manipulation was effective in changing participants' perceptions of other men's beliefs, this did not have a causal effect on their allyship ratings. We did however replicate Study 1 in that men reported less intention to enact public reactive ($M = 4.88$, 95% CI [4.67, 5.10], $SD = 2.22$) than public proactive allyship ($M = 5.90$,

95% CI [5.73, 6.06], $SD = 1.71$), $p < .001$; $d = .50$; 95% CI [.40, .60]. Dissimilarly to Study 1, men reported *less* intent to enact private reactive allyship ($M = 5.14$, 95% CI [4.92, 5.35], $SD = 2.21$) than private proactive allyship ($M = 5.61$, 95% CI [5.43, 5.79], $SD = 1.83$), $p < .001$, $d = .23$; 95% CI [.15, .31].

Effects of Precarious Masculinity

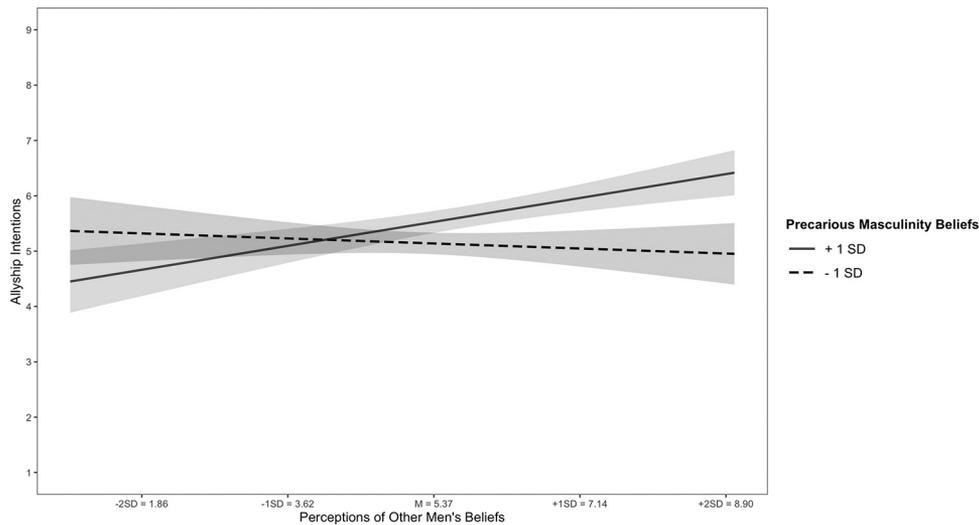
Given that in Study 1, precarious masculinity significant moderated the effect of belief perceptions on allyship intentions, our final two analyses tested whether there was any evidence of these moderated effects in Study 2. First, when we tested whether *precarious masculinity* moderated the effect of the manipulation, controlling for men's *own beliefs* measured at baseline, the predicted interaction was not significant, $\beta = .03$, $SE = .04$, $t(410) = .81$, $p = .416$. However, when we collapsed across condition and analyzed *perceptions of other men's beliefs* (postmanipulation) as a continuous predictor (replicating the analysis in Study 1), results of this exploratory analysis paralleled those of Study 1. A sensitivity analysis determined the minimal detectable effect for this analysis: G*Power revealed with our sample size ($N = 415$) and predetermined power (80%) and alpha (.05), we can reasonably detect Cohen's $f = .14$ ($R^2 = .02$). This model was significant; $R^2 = .32$, $F(4, 406) = 49.13$, $p < .001$. Controlling for *own beliefs* ($\beta = .43$, $SE = .05$, $t[406] = 8.72$, $p < .001$), there were significant main effects of *other men's beliefs* ($\beta = .10$, $SE = .05$, $t[406] = 1.99$, $p = .047$) and *precarious masculinity* ($\beta = .12$, $SE = .04$, $t[406] = 2.74$, $p = .007$) qualified by an interaction between the two ($\beta = .15$, $SE = .04$, $t[406] = 3.63$, $p < .001$). As displayed in Figure 2, *perceptions of other men's beliefs* positively predicted *allyship intentions* for those highest (+1 SD , $\beta = .26$, $SE = .06$, $t = 4.35$, $p < .001$) but not lowest (-1 SD , $\beta = -.05$, $SE = .07$, $t = -.74$, $p = .461$) in *precarious masculinity*.

Considering this two-way interaction differently, *precarious masculinity* positively predicted *allyship intentions* among men who *most* (+1 SD) believed men are concerned about bias ($\beta = .27$, $SE = .06$, $t = 4.81$, $p < .001$). However, this relationship was not significant for men who *least* (-1 SD) believe men are concerned about bias ($\beta = -.04$, $SE = .06$, $t = -.62$, $p = .533$). Although post hoc, this finding raises the intriguing possibility that if the male gender norm is to care about gender bias (i.e., perceive that other men are concerned about gender bias), concern about masculine image might actually predict greater allyship intentions.

Discussion

Results from Study 2 replicated two key findings from Study 1 but failed to provide evidence that manipulating the perceptions of men's beliefs has a direct effect on men's allyship behavior. First, replicating Study 1, we found that premanipulation, men again underestimated other men's actual concerns for gender bias in STEM. Additionally, in analyses comparing Sample 2.1 with Sample 2.2, we discovered that this effect may be contingent on drawing attention to how men's beliefs might be different than women's beliefs. Given that the tendency to underestimate men's gender inclusive attitude is itself likely a reflection of a negative stereotype people have about men as a group, perhaps it is not surprising that making gender salient may be key to revealing these effects. This difference between subsamples suggests that intergroup comparison is needed to activate a stereotype that men are

Figure 2
Predicting Men's Allyship Intentions (Study 2)



Note. Perceptions of other men's beliefs predicting allyship intentions estimated at ± 1 SD from the mean of precarious masculinity, controlling for own beliefs. Error bars denote 95% CIs.

unconcerned about bias, key for cuing the pluralistic ignorance effect.

In addition, as hypothesized, the manipulation of other men's beliefs influenced men's perceptions of other men's beliefs about bias in the expected way. Men who were told that men perceive bias as less of a problem had significantly lower perceptions of other men's beliefs postmanipulation compared with premanipulation. In the *high concern* condition, the manipulation significantly *increased* the perceptions that other men believe that bias is a problem, although an underestimation of men's average beliefs maintained. Additionally, and similarly to Study 1, men across conditions reported being less likely to enact public reactive (compared with proactive) allyship. Paralleling Study 1, men reported they are *more* likely to do nothing at all than to confront sexism, suggesting results reflect perceived difficulty of confronting sexism.⁹

In an additional exploratory analysis, we also replicated Study 1's finding in this much larger sample that for men high in precarious masculinity, the less they perceived other men to believe that gender bias is a problem (self-reported after the manipulation), the lower their allyship intentions. Among those low in precarious masculinity, this relationship was not significant. This pattern suggests that precarious masculinity might represent a sensitivity to other men's judgments.

However, contrary to our core hypothesis, condition did not influence men's likelihood of enacting allyship either directly or as moderated by precarious masculinity. The lack of causal effect on allyship intentions in this fairly large and preregistered study was especially striking given that the manipulation was effective in reducing (if not eliminating) the tendency to underestimate men's concerns about bias. One core limitation to this study (and to Study 1) is the use of self-reported allyship intentions to fictitious scenarios. Although these methods can be revealing, they might not provide the most valid test of our hypotheses. First, it is

important to examine actual confrontation behavior, given people's hesitance to confront sexism in real-time (Swim & Hyers, 1999). Moreover, social norms are powerful in directing behavior, but they must be salient to influence people's actions (Cialdini, 1993; Cialdini et al., 1990). We argue that social norms related to men's concerns for bias may be most salient in a real-life situation where both men's beliefs are known *and* men's behavior is seen. Additionally, social norms are often more impactful when one is among peers who form a relevant reference group (Neighbors et al., 2008). Our goal in Study 3 was to design a more ecologically valid paradigm to test the role of norms in inhibiting actual allyship behavior in a male-dominated setting, which itself might make male gender norms more salient.

Study 3

Given Study 1 and 2's findings that men's perceptions of other men's beliefs predict their own allyship intentions and these perceptions can be changed, Study 3 examined whether manipulating perceptions through both information and observed behavior impacts actual allyship behavior. In Study 3, we developed an in-lab paradigm where participants (both men and women) had two opportunities to confront sexist comments made by another male participant (actually a confederate) during a group discussion about gender equality in STEM. Thus, allyship behavior in Study

⁹ A repeated-measures ANOVA comparing all four allyship subscales and inactivity ($M = 4.93$, $SD = 1.28$) for men (collapsed across condition) revealed a significant effect of allyship type, $F(4, 1656) = 31.70$, $p < .001$, $\eta_p^2 = 0.071$. Bonferroni pairwise comparisons revealed men reported weaker intentions to enact public reactive allyship ($p < .001$) than inactivity. In contrast, men reported stronger intentions to enact public proactive allyship ($p < .001$). There were no significant differences between inactivity and private reactive and private proactive behaviors ($ps > .10$).

3 was operationalized as public reactive allyship (i.e., interpersonal confrontation), because it was the type of allyship men were most reluctant to enact in the prior two studies and most relevant to the lab context (i.e., having interactions with peers). As in Study 2, we tested the hypothesis that men (and perhaps even women) would be more likely to confront when norms in the setting are manipulated to suggest high concern rather than low concern for gender bias. However, given that Study 2 failed to find evidence that merely manipulating beliefs affected allyship intentions, we designed Study 3 to assess the effect of manipulating both beliefs and behavior as two distinct signals of social norms in a repeated-measures yoked design.

Specifically, participants either (a) learned that other men in the session are concerned about gender bias and later observed one man confront a sexist comment during the session (*high concern condition*) or (b) learned that other men in the session are unconcerned about gender bias and later observed that none of the men confronted a sexist comment during the session (*low concern condition*). Participants had the opportunity to enact allyship after each component, enabling us to glean information about the relative effectiveness of manipulating only perceived beliefs (as we did in Study 2 with no significant effect) or pairing this with observable behavior (which we hypothesized might have a stronger effect on allyship).

We included both male and female participants in Study 3 for two reasons. First, given that women also tended to underestimate men's support for gender equality in Study 1 and evidence that both men and women act in a biased ways based on their beliefs about others' biases (Vial et al., 2019), it is likely that women will also be susceptible to the normative pressures of men's inaction. Second, we wanted participants to believe they were participating in mixed gender sessions given evidence that gender salience seemed to heighten effects in Study 2. Thus, although our primary hypotheses focused on men's responses, we also preregistered to test gender as a moderator and to test exploratory effects for women.

We preregistered the hypothesis that men (exploratory for women) would be more confrontational in the *high concern* condition (i.e., they observe other men who are highly concerned) than in the *low concern* condition and explored whether this was true after manipulating the information provided about the other men's beliefs and behavior. We also added measures of hesitancy (measured as retrospective ratings at the end of session) and predicted that these would be lower for men in the *high* versus *low concern* condition. Finally, given effects in Study 2, we also preregistered the hypotheses that the manipulation would change both perceptions of other men's beliefs as well as participants' own beliefs during the session. More specifically, we hypothesized that in the *low concern* condition, men's own beliefs about bias would be significantly higher than their perceptions of other men's beliefs following the manipulation, but this underestimation of men's beliefs might be smaller or eliminated in the *high concern* condition.

In Study 3, we did not focus on *precarious masculinity* as a moderator between perceptions of men's beliefs and allyship behavior, in part because of the difficulty of recruiting a large sample for a study of this kind. Rather than measuring sensitivity to masculine norms as a self-reported individual difference measure, we opted to create an environment in the lab in which participants would be highly attuned to men's judgments and

behaviors. Our rationale is that in "strong situations," where there are clear cues about normative behavior, individual differences are less important in shaping behavior (Mischel, 1977). We therefore prioritized creating a strong male-focused situation over measuring individuals' beliefs, constructing a setting in which (a) men's beliefs are highlighted, (b) men's responses to dialogue questions are broadcasted, and (c) men reply to another man's sexist comment.

Method

Participants

We preregistered the goal to collect a sample of at least 100 participants per condition and approximately equal numbers of men and women from a psychology participant pool. This sample of 200 would provide 80% power to detect an effect size of .40 (standardized regression slope; based on the effect size for men's postmanipulation *perceptions of other men's beliefs* comparing the *high concern* vs. *low concern* condition in Study 2). We aimed to oversample by 36 to account for unusable data after exclusions (based on the percentage of men excluded in previous studies). Using preregistered criteria, we excluded 32 participants who were accurately suspicious about two or more deceptions (i.e., did not believe the confederates were true participants giving their own responses and that interactions in the study were real). We also excluded eight participants whose suspicion levels were unknown (i.e., missing researchers' coding in first term of collection) and excluded one participant with missing gender information. We retained the remaining 213 participants (87 men, 125 women, one nonbinary person) in data analyses even if they expressed other mild suspicions, as they believed their responses to sexism were evaluated by a real group of participants.¹⁰ Among the 62% of participants who completed an optional subject pool prescreening survey, the mean age was 20.45 years old ($SD = 3.61$). Participants self-reported their cultural background as East or South(East) Asian (58%), European (27%), Middle Eastern (5%), Latinx (2%), African (.8%), or another culture (8%). Students received one course credit for their participation.

Design and Procedures

The design of the experiment was a two-cell between-subjects design (High Concern/Low Concern), including participant gender as a key moderator. Some variables (i.e., confrontation) were measured twice, adding a second, within-subjects factor to those analyses. Each session included one to three participants and two male confederates in an ostensible study about whether structured conversations about gender bias function better online or in person. Participants never had any real interaction with each other; all responses were prerecorded to seem like live reactions to the conversation.¹¹

¹⁰ Preliminary data were analyzed for an author's master's thesis with a partial sample ($n = 118$). However, regardless of preliminary results, we followed our preregistered collection plan and stopping point.

¹¹ While waiting together for the study to begin, the sexist confederate asked a neutral question (i.e., "Is this the Lab Dialogue study?" "How long will this study go?") so that his recorded voice was recognizable. This procedural element was added to reduce suspicion rates after we ran the

Before the dialogue began, participants made the same ratings of bias beliefs used in Studies 1 and 2. Subsequently, the survey program randomly assigned participants to either the *high concern* or *low concern* condition, a manipulation that included both belief and behavioral components. The *belief manipulation* (as in Study 2) conveyed the comparison of men's *perceptions of other men's beliefs* either to *men's actual beliefs (high concern)* or to *women's actual beliefs (low concern)*. This information also included "aggregate" data from the present participant group to convey that these general norms are true of the participants in the session: In the *low concern* and *high concern* conditions, participants learned that men's actual scores are lower than women's or higher than what they might have expected, respectively.

Following this information, the online dialogue took place for three rounds. Each round proceeded in the following order: (a) Participants read a question about gender bias in STEM and recorded a response using a headset microphone; (b) Participants were then (falsely) told that the *second* participant who submitted their recording would have it played to the entire group; (c) The confederate's recorded response was "chosen" and played; (d) Participants had the chance to text reply to the confederate's response, knowing that their reply would be shown to the entire group. Participants were instructed to type "NO RESPONSE" if they preferred not to reply; (e) Among their own text reply, participants viewed "other participants' replies," which were, in fact, prescribed and matched to the number of people in the present session.

On the first and third round, one confederate made the following sexist comment (that is, Round 1: *The sciences have been progressing all of this time with more men than women. So, I do not see why it's necessary to talk about gender diverse teams*; Round 3: *When it comes to talking about gender bias, we should be focusing on the work, not people's feelings. Anyway, these complaints might be exaggerations*). Participants' replies to these two rounds of sexist comments constitute time 1 and time 2 opportunities for reactive allyship.

The *behavioral component of the manipulation* occurred after participants' Time 1 reply. Regardless of participants' own reply, "other participants" prescribed replies to the sexist comments accentuated the manipulated belief information earlier presented.¹² Replies were always from at least one man in the session, but replies also sometimes supposedly came from a woman if there were female participants in the session. In the *high concern* condition, after typing their own reply, participants viewed other prescribed replies to the sexist comment that were confrontational (e.g., "gender-diverse teams are important because more perspectives means more insight, and better work. So I disagree with you"). In the *low concern* condition, these other prescribed replies were either "NO RESPONSE" or neutral (e.g., "I agree that the sciences are progressing"), thus seeming to condone the sexist comment. Therefore, this new behavioral information came after participants' time 1 response but had the opportunity to influence participants' own reply to the confederate's second sexist comment (i.e., Time 2).

After the discussion, the participants rated their perceptions of the group (a manipulation check). Participants subsequently reread and reflected on their prior text replies to all three audio responses, under the guise of comparing spontaneous and reflective responses. Finally, participants rated their *own and perceptions of other male and female students' beliefs*. Researchers (including

the confederates) engaged in a careful funnel debriefing of the participants and coded for participants' suspicion of the deceptions.

Measures

We describe the most relevant dependent measures and provide a complete list of measures in the SOM.

Perceptions of Gender Bias. Before the manipulation, participants viewed a definition of gender bias and reported their *own beliefs*, as well as *perceptions of other men (in the groups)'s* and *other women (in the groups)'s beliefs* that "gender bias toward women in STEM is a problem of concern."¹³ These items were anchored at 1 (*Not at all a Problem of Concern*) and 9 (*Very Much a Problem of Concern*).

At the end of the study, participants reported their *perceptions of the current group's beliefs* about bias on a scale from 1 (*Nobody in this group perceives gender bias as a problem of concern*) to 9 (*Everybody in this group perceives gender bias as a problem of concern*). Participants additionally reported their *own and perceptions of other male and female students' beliefs* about gender bias. The scales for these three items range from 1 (*Not at all a Problem*) to 9 (*Very Much a Problem*).

Confrontations of Sexist Comments (Reactive Allyship Behavior). Participants had the opportunity to type in a reply to the confederate's sexist comments on the first and third rounds (*Time 1* and *Time 2*, respectively). Three coders blind to condition, reply time, and hypotheses independently coded these qualitative responses. The coding scheme focused on (a) whether there was a response (Yes/No) and (b) how confrontational the response was rated from 0 (*Not at all or No Response Made*), 1 (*Somewhat*), 2 (*Moderately*), or 3 (*Extremely*). Reliability across the three coders for *confrontation level* was good, with an ICC of .77 (95% CI [.59; .85]), $F(422, 26.80) = 5.65, p < .001$. The final codes are based on majority judgment (i.e., mode of three coders). In cases where there was no majority judgment, the code was discussed and agreed upon by all three coders.

Hesitancy. When presented their earlier responses at time 1 and time 2, participants rated how *hesitant* they felt when writing their replies (1 = *Not at all Hesitant* to 9 = *Very Hesitant*), to what

first 64 participants. Cis-male confederates' appearance and voice were the only indicators of gender (names were not included in the session).

¹² The number of pre-scripted replies from "other participants" that appear depended on the number of participants present in the session (ranging from 1 to 5). The experimenter entered this number at the beginning of the survey to set the proper number of "replies" from other participants. Running our analyses with number of participants in the group as a covariate does not change effects. Additionally, on the second round of discussion questions, no sexist comment is made. Instead, a second male confederate expresses having good experiences working with women (*high concern*) or someone in business (*low concern*) to further bolster the normative manipulation. Pre-programmed replies were displayed in a fixed order across sessions. However, at Time 1, participants always saw "NO RESPONSE" as the first reply. In a group of three (two confederates + one participant), this "NO RESPONSE" was the only reply other than the participant's own. If the group was larger than three, additional responses appeared (Reply 4: "I agree that the sciences are progressing," Reply 5: NO RESPONSE, Reply 6: NO RESPONSE).

¹³ Participants were told that if there were no (wo)men in the current group, to respond with their beliefs about how (fe)male participants in this study would typically answer. Whereas no-female groups were possible, no-male groups were impossible given the presence of two male confederates.

degree did they felt *free to express their thoughts and feelings* (1 = *Not at all Free to Express My Thoughts/Feelings* to 9 = *Very Much Free to Express My Thoughts/Feelings*), and how (*un*)concerned they were about others' reactions to their response (1 = *Not at all Concerned* to 9 = *Very Much Concerned*). We created composites for each set of *hesitancy* scores. Reliabilities for both Time 1 ($\alpha = .76$) and Time 2 ($\alpha = .82$) *hesitancy* composites were adequate.

Results

Analysis Strategy

In the preregistration for this study, we indicated we would test core hypotheses using a series of within and between-subjects *t*-tests. However, given that we preregistered: (a) exploring time as a within-subjects factor, (b) testing participant gender as a moderator, and (c) including participants' own beliefs about bias as a covariate, we opted to present the more parsimonious omnibus analysis (e.g., Mixed ANOVA). Given our variation from this preregistered approach, we conducted a sensitivity analysis to determine the minimal detectable effect for our core analysis: comparing confrontation behavior using a Condition \times Time \times Participant gender Mixed ANOVA. G*Power revealed with our sample size ($N = 213$) and predetermined power (80%) and alpha (.05), we can reasonably detect Cohen's $f = .13$ ($\eta_p^2 = .017$). We report focused comparison effect sizes for each gender group in Table 7.

We considered group composition as a potential source of variance in this study. We had 87 men and 69 women/nonbinary participants who were run in male-dominated groups and 51 women/nonbinary participants who were run in equal gender or female-dominated groups. Because results were similar with and without this covariate in the analyses below and given that this variable was not included in the preregistered analysis plan, it is not in our reported models.

Manipulation Checks

Perceptions of the Current Group's Beliefs. Our first analysis tested whether the manipulation was effective at changing the perceptions of the beliefs held by people in the session. We conducted a 2 (participant Gender: Male/Not-Male¹⁴) \times 2 (Condition: Low Concern/High Concern) ANCOVA on participants' perceptions of group beliefs, controlling for their own beliefs about bias. The main effect of condition was significant, $F(1, 206) = 157.93$, $p < .001$, $\eta_p^2 = .434$. Consistent with our preregistered hypothesis, participants believed the group to be more concerned about gender bias in the *high concern* condition compared with the *low concern* condition. There was also a main effect of participant gender, $F(1, 206) = 6.33$, $p = .013$, $\eta_p^2 = .030$; collapsing across condition, nonmale participants compared with male participants perceived the group as less concerned. There was no interaction between condition and participant gender, $F(1, 206) = 1.58$, $p = .210$.

Perceptions of Own and Other Men's Beliefs. Next, we conducted an analysis to compare participants' own beliefs to their perceptions of other men's beliefs as a result of the manipulation. We conducted a 2 (Perspective: Own/Other Men) \times 2 (Condition: Low Concern/High Concern) \times 2 (participant Gender: Male/Not-

Male) Mixed ANCOVA. There were main effects of both perspective, $F(1, 205) = 152.33$, $p < .001$, $\eta_p^2 = .426$, and condition, $F(1, 205) = 58.80$; $p < .001$, $\eta_p^2 = .223$, but not participant gender, $p = .909$. Qualifying main effects, there was a significant two-way interaction between condition and perspective, $F(1, 205) = 23.24$; $p < .001$, $\eta_p^2 = .102$. Although participants rated their own concerns with gender bias to be greater than other men's concerns in both conditions ($ps < .001$), Bonferroni corrected pairwise comparisons revealed that the magnitude of this difference was reduced in the *high concern* ($d = .73$; 95% CI [.44, 1.03]) compared with the *low concern condition* ($d = 1.63$; 95% CI [1.25, 2.00]), consistent with our preregistered prediction. Similarly, the manipulation of high (vs. low) concern led participants to rate both other men ($p < .001$; $d = 1.34$; 95% CI [1.03, 1.64]) and themselves ($p = .031$; $d = .34$; 95% CI [.07, .62]), albeit to a lesser degree, as being more concerned about bias. Thus, the manipulation effectively changed people's beliefs about other men's concerns, though it also elevated their own concerns as well.

In addition to the perspective by condition interaction, there was also a significant perspective by gender interaction, $F(1, 205) = 23.65$, $p < .001$, $\eta_p^2 = .103$. Pairwise comparisons revealed that compared with male participants, nonmale participants were more personally concerned about gender bias ($p = .009$; $d = .42$; 95% CI [.14, .70]) but less strongly believed other men are concerned ($p = .016$; $d = .37$; 95% CI [.09, .65]). Replicating Studies 1 and 2, *own beliefs* were significantly higher than *perceptions of other men's beliefs* ($ps < .001$) for both groups; however, the effect was stronger for nonmale ($d = 1.44$; 95% CI [1.10, 1.77]) compared with male ($d = .61$; 95% CI [.37, .86]) participants. Neither the Condition \times Participant Gender ($p = .271$) nor the three-way interactions ($p = .764$) were significant.

Confrontations of Sexist Comments (Reactive Allyship Behavior)

Descriptively, just over 50% of the sample confronted at least somewhat (coded above 0 for confrontation) after the belief component and this did not seem to vary by condition. However, after the behavioral component, an additional 15.2% confronted the second remark in the high concern condition in contrast to a 14.5% decrease in confrontation in the *low concern* condition.

We tested how each element of the manipulation impacted the degree of allyship behavior using a Mixed ANCOVA: 2 (Condition: High Concern/Low Concern) \times 2 (Time: After Beliefs Manipulation/After Behavior Manipulation) \times 2 (participant Gender: Male/Not-Male) controlling for participants' own beliefs about bias. This analysis yielded significant condition by gender, $F(1, 197) = 3.92$, $p = .049$, $\eta_p^2 = .019$, and condition by time, $F(1, 197) = 10.15$, $p = .002$, $\eta_p^2 = .049$, interactions. All other effects were nonsignificant ($ps > .05$).

We decomposed the two significant two-way interactions using Bonferroni corrected pairwise comparisons. The condition by time two-way interaction (see Figure 3) revealed that after only learning that men care about gender bias (*high concern manipulated in*

¹⁴ Because we include nonbinary participants ($n = 1$) in this sample, our gender comparison is more accurately described as Male/Not-Male. However, when drawing inferences from this subsample, it might be more accurate to refer to women's responses on average.

Table 7*Study 3: Descriptive Statistics, Across Condition by Participant Gender*

Measure	Participant gender	High concern		Low concern		Total		<i>d</i> [95% CI]
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Perceptions of the group	Male	6.21	1.88	3.70	1.37	4.93	2.06	1.53 [1.04, 2.02]
	Not-male	5.98	1.61	2.97	1.38	4.46	2.13	2.01 [1.58, 2.44]
	Total	6.08	1.72	3.27	1.42	4.65	2.11	1.78 [1.46, 2.10]
Own beliefs (Post)	Male	6.37	1.92	5.52	1.72	5.93	1.86	0.46 [0.03, 0.90]
	Not-male	6.84	1.57	6.45	1.61	6.65	1.59	0.24 [-0.11, 0.60]
	Total	6.65	1.72	6.07	1.71	6.35	1.74	0.34 [0.07, 0.62]
Other men's beliefs (Post)	Male	5.95	1.20	3.84	1.29	4.86	1.63	1.69 [1.19, 2.19]
	Not-male	5.15	1.62	3.32	1.40	4.23	1.76	1.21 [0.82, 1.59]
	Total	5.47	1.51	3.54	1.37	4.49	1.74	1.34 [1.03, 1.64]
T1 confrontation	Male	0.59	0.75	0.76	0.80	0.68	0.78	0.21 [-0.22, 0.65]
	Not-male	0.74	0.79	0.75	0.73	0.74	0.76	0.01 [-0.36, 0.37]
	Total	0.68	0.77	0.75	0.76	0.72	0.77	0.09 [-0.19, 0.36]
T2 confrontation	Male	0.64	0.74	0.58	0.84	0.61	0.79	0.08 [-0.36, 0.52]
	Not-male	1.20	0.90	0.60	0.82	0.91	0.91	.70 [0.32, 1.07]
	Total	0.98	0.88	0.59	0.82	0.78	0.87	0.46 [0.17, 0.74]
T1 hesitancy	Male	3.02	1.70	2.85	1.63	2.93	1.66	0.11 [-0.32, 0.54]
	Not-male	3.50	1.94	3.80	1.80	3.67	1.87	0.15 [-0.21, 0.50]
	Total	3.32	1.85	3.41	1.79	3.37	1.82	0.05 [-0.22, 0.32]
T2 hesitancy	Male	2.90	1.88	3.00	1.84	2.95	1.85	.06 [-0.37, 0.49]
	Not-male	2.68	1.79	4.30	2.14	3.51	2.12	0.80 [0.43, 1.17]
	Total	2.79	1.82	3.77	2.11	3.28	2.03	0.50 [0.22, 0.77]

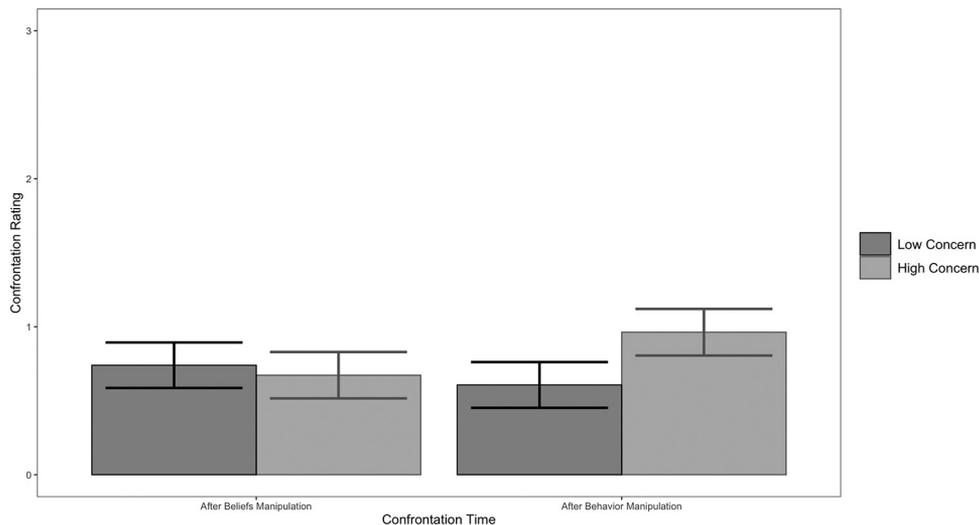
Note. All ratings were made on a 1–9 scale except for confrontation coding, which ranged from 0–3. *d* scores and 95% CIs refer to comparisons between conditions.

beliefs), participants in the high concern condition were not more likely to confront than those in the *low concern* condition ($p > .10$). However, after participants saw other men confront sexism (*high concern manipulated in behavior*), they confronted more strongly than those who saw others in the group avoid responding (*low concern*: $p = .035$). Moreover, participants' allyship significantly increased from time 1 to time 2 after seeing others' allyship behavior (*high concern*: $p = .038$; $d = .46$; 95% CI [.17, .74]). In contrast, there was no change in participants' own confrontation

after seeing others avoid confrontation in the *low concern* condition; $p = .505$, $d = .20$).

The Condition \times Gender two-way interaction revealed that women/nonbinary participants in the high concern condition were nonsignificantly more confrontational (a) compared with women/nonbinary participants in the low concern condition ($p = .091$, $d = .45$) and (b) men in the high concern condition ($p = .102$; $d = .54$). These nonsignificant comparisons combined with the lack of a three-way interaction precludes us from concluding that either

Figure 3
Coded Extremity of Confrontation by Time and Condition



Note. Error bars denote 95% CIs.

men or women were more susceptible to these effects of behavioral norms on confrontation. However, the descriptive patterns in Table 7 suggest that effects were driven by nonmale responses, not by men's responses as predicted.

Hesitancy

We tested participants' hesitancy ratings with a Mixed ANCOVA: 2 (Condition: High Concern/Low Concern) \times 2 (Time: After Beliefs Manipulation/After Behavior Manipulation) \times 2 (participant Gender: Male/Not-Male), controlling for own beliefs about bias. Main effects of time, $F(1, 206) = 4.00, p = .047, \eta_p^2 = .019$, participant gender, $F(1, 206) = 6.28, p = .013, \eta_p^2 = .030$, and a condition by time interaction, $F(1, 206) = 12.45, p < .001, \eta_p^2 = .057$, were qualified by a significant three-way interaction, $F(1, 206) = 4.40, p = .037, \eta_p^2 = .021$.

Contrary to our preregistered hypotheses, Bonferroni pairwise comparisons revealed no significant differences in men's reported hesitancy across time and condition ($ps > .10$). However, significant differences emerged for nonmale participants. Although nonmale participants did not differ in hesitancy in their responses at Time 1 after the beliefs manipulation ($p > .10$), those who saw others confront (*high concern*) rather than ignore (*low concern*) sexism were less hesitant to reply at Time 2 ($p < .001$). Analyzed within condition, nonmale participants were less hesitant about replying to sexism after seeing the group (including men) confront sexism, compared with only learning that they have *high concern* ($p = .002; d = .55; 95\% \text{ CI } [.21, .90]$). There was no change in hesitancy for those in the low concern condition ($p > .10$). Finally, examination of simple gender comparisons revealed only one condition where the gender difference was significant: Nonmale participants reported being more hesitant to confront than were male participants after seeing other men avoid confronting sexism ($p = .048; ps > .10$, in all other conditions). Although this was not the focus of the study, we observed that seeing other men act as allies allowed targets to feel more free to confront sexism.

Discussion

Study 3 demonstrated that social norms can elevate participants' perceptions that other men believe that gender bias is a problem. As a result of knowing men's concerns for bias and seeing allyship, participants in the *high concern* condition more strongly believed their male peers (not only in their group, but also in general) care about bias. The manipulation of social norms to confront (or ignore) sexism, as opposed to merely learn about men's beliefs, appeared to drive between-condition effects. In other words, these effects do not appear immediately after participants learned they might have underestimated men's beliefs that bias is a problem. Rather, significant differences in hypothesized directions occurred only *after* people actually witnessed the group, including men, enacting (or not enacting) allyship. Moreover, the *high concern* behavioral manipulation uniquely changed allyship behavior. Seeing others avoid allyship (*low concern*) did not significantly decrease confrontation behavior, suggesting the unique motivational impact of social norms to confront sexism.

Notably, gender did not significantly moderate effects of condition on confrontation, suggesting that social norms created by men in a male-dominated context may similarly impact gender groups' allyship. However, descriptive patterns of confrontation and

significant differences in hesitancy suggested that only nonmale participants demonstrated decreased concerns for speaking up after seeing others confront sexism. Although not predicted in advance, this finding provides novel evidence that nonmale (mostly women) participants are particularly sensitive to how men in the group will respond to sexist statements. Again, this hesitancy among nonmale participants did not change in the *low concern* condition, suggesting the unique impact of *high concern* social norms in a male-dominated setting in creating a culture where allyship is permitted. Interestingly, we did not find strong evidence that men felt less hesitant in speaking out against gender bias themselves when they see other men in the setting acting as allies. Although counter to our preregistered predictions, this (lack of a) finding aligns with previous research demonstrating that backlash concerns are not significantly associated with men's decisions to confront bias (Good et al., 2018). Below we will discuss what this might mean for the guiding question of whether pluralistic ignorance inhibits men's allyship.

General Discussion

The original goal of this research was to investigate how pluralistic ignorance may inhibit men from enacting allyship. We theorized that if people do not commonly see men take action in support of gender equality, they might underestimate how much men perceive bias to be a problem. These misperceptions then might inhibit men's (if not also women's) allyship. We also posited that aspects of people (i.e., precarious masculinity) or situations (a male-dominated context) that increase sensitivity to men's judgments would strengthen the relationship between perceptions of other men's beliefs and allyship. We carried out three preregistered studies using a combination of allyship intention scenarios and an ecologically valid behavioral paradigm.

The results of these three preregistered studies converged to support several aspects of our proposed model but led us to question or revise others. All three studies yielded support for our first preregistered hypothesis that men (and women) underestimate the extent to which men on average believe that sexism is a problem in STEM. In contrast, people are accurate about women's concerns. In support of our second preregistered hypothesis, Studies 1 and 2 demonstrated that men's perceptions of other men's bias concerns predict stronger allyship intentions, over and above their own concerns for gender bias. Third, in Studies 1 and 2, allyship intentions were especially inhibited by other men's bias beliefs for men most sensitive to masculinity concerns, supporting a secondary prediction from the model. Finally, in support of a fourth preregistered prediction, Studies 2 and 3 demonstrated that when men (and women) are exposed to evidence that men care about bias, their tendency to underestimate men's beliefs can be reduced. Such evidence suggests that the misperception of men's beliefs is malleable to new information, and less likely to reflect stable biases against men that perceivers justify and maintain.

Whereas the findings summarized above suggest that men and women experience pluralistic ignorance when estimating other men's beliefs about bias, we found no evidence that changing men's perceptions by *informing* them that other men do care about gender bias is enough to boost men's allyship intentions (Study 2) or behavior (Study 3). Results from Study 3 suggest that *seeing* men enact allyship, not just learning that they care, is more likely

to increase allyship behavior generally. However, internal analyses suggest that these effects might be driven more by women's responses than by men's. Although these findings cannot be considered conclusive, these studies were preregistered, showed evidence of successful manipulations, and demonstrated strong effects for women's tendency to confront sexism in a highly impactful behavioral paradigm. Why, in spite of all of the strengths of these methods, do men still remain relatively unaffected by the changing norms around them? Here we consider several interpretations, and hope that in the spirit of Kaiser's (2012) Campaign for Real Data, our mixed findings from Study 3 might provide open avenues for future research.

Revisiting the CPR model

The CPR model (Ashburn-Nardo et al., 2008) helps us consider men's psychological experience in Study 3 and possibilities for why our social norm manipulation did not impact their allyship action. The CPR model first posits that men must interpret the situation as biased (Step 1: Detecting Discrimination) and believe that the biased event requires an immediate response (Step 2: Deeming the Discriminatory Incident as an "Emergency"). Although our data suggest that men's beliefs were changed by the manipulation, a cynical interpretation is that men might have exaggerated their self-reported beliefs and intentions. Thus, perhaps social norms for allyship did not influence men in Study 3 because they did not see the confederate's comments as sexist or requiring a response, failing to meet Steps 1 and 2, respectively. We think this interpretation of our results is unlikely. In Study 3, 50% of men were at least somewhat confrontational of a sexist comment before seeing others' responses, suggesting disagreement with the statement and willingness to engage, even when explicitly given the option not to. Therefore, although changing social norms did not significantly increase or decrease men's confrontation, it is not the case that most men entirely dismissed the event as unbiased or something that could be ignored.

Nevertheless, it is possible that our paradigm did not guarantee Steps 3 (Taking Responsibility to Confront Discrimination) and 4 (Deciding How to Confront Discrimination). Because men were asked to respond to bias in a group setting, men may have fallen prey to diffusion of responsibility, immobilized by the expectation that others will step up (Step 3). Future research could explore this possibility in a setting where social norms for male confrontation is salient and male participants are the only bystander to the sexist comment to ascertain if this would elevate their likelihood of responding. Even if men did feel personally responsible for speaking out, they may have lacked self-efficacy or felt they did not have the standing to speak out (Step 4). Follow-up paradigms could equip men with the skills to take action, by training men on how to respond (or providing options for responding) and affirming their standing to speak up.

In contrast to men's inaction, our predicted effects appeared most strongly for women. Considering the CPR model, it is possible that manipulating social norms effectively changed women's behavior because Steps 3 and 4 were met (even though they were not explicitly incorporated into our lab paradigm). Women are more likely to publicly confront sexism when they are the only woman in a group (Swim & Hyers, 1999). Therefore, many women in Study 3 may have felt responsible for speaking up in a

male-dominated context (meeting Step 3), given that 46% of non-male participants had solo status (whereas male participants were never the only man present). Additionally, compared with members of nonstigmatized groups, minority group members are more often socialized with knowledge about how confront prejudice (Hughes et al., 2006; Lesane-Brown, 2006; as cited by Ashburn-Nardo et al., 2008, 2020). Women might have felt more efficacious than did men in responding to sexist comments (meeting Step 4).

With our aforementioned suggestions for ensuring perceived responsibility and self-efficacy, future research should adapt our lab paradigm to more certainly meet CPR Steps 1–4 for both men and women, providing a better test of the pluralistic ignorance manipulation on decisions to confront sexism at Step 5. Assuming that Steps 1–4 are met, it is also important to consider that men vary in their sensitivity to male social norms which could differentially impact the effect of a social norms manipulation in the allyship decision-making process (Step 5). The results of Studies 1 and 2 suggest that those men high in precarious masculinity were especially sensitive to other men's beliefs. Although male judgments and norms were highly salient in Study 3, we did not have the statistical power to test if individual differences in sensitivity to this context might moderate effects. Future research is needed to explore this possibility.

Considering Male Gender Roles

In addition to lacking responsibility and efficacy, some men may not have been responsive to our social norms manipulation because it did not shift perceived *male gender roles*. Although our social norms manipulation changed *perceptions of men's beliefs* and we speculated that this alone would shape men's behavior, perhaps it was not strong enough to change men's *gender role beliefs* about what men should generally do with regard to allyship. Gender roles can be internalized and become a part of one's personal disposition (Eagly, 2009; Wood & Eagly, 2009). Therefore, despite manipulating social norms, men in our studies may still have relied on preexisting beliefs that men are not *expected* to take action, inhibiting their own action. It is an empirical question whether or not allyship is incongruent with male gender roles and subsequently avoided; the existing findings are mixed (e.g., Good et al., 2018; Rudman et al., 2013) and norms for behavior or men's attitudes toward hegemonic norms might be changing over time (e.g., Kaya et al., 2020; Kilmartin et al., 2008). To answer these questions, future research should measure men's *responses to observing male allies*, either experimentally (e.g., paralleling our paradigm) or observationally (e.g., big data approaches to analyze men's behavior online). Nevertheless, we discuss several directions for addressing the influence of male gender roles (assuming incongruence with allyship) in our paradigm.

Strengthening the male norms in our lab paradigm is one approach to address steadfast gender role beliefs. Despite the advantages of our real-life social norms manipulation in Study 3, manipulating a few men's responses in the setting may not have shifted general conceptions of what men should do when they hear sexist comments. Future research could test whether men's allyship behavior would be more likely if they observe a greater number of men respond to sexism, particularly in contexts where there is no expectation to respond (as there might have been in our

context of discussing gender equality). In this case, observers might more readily perceive these actions as indicative of a new gender role for men's reactions to sexism. Consequentially, in a new context in which they feel responsible and efficacious, men might step up to be consistent with male gender roles *and* social norms.

Alternatively, one might even explicitly frame allyship as a masculine behavior. Men may be more likely to act as allies if doing so is in accordance with masculine roles (Moss-Racusin et al., 2010). Indeed, previous work demonstrates that men's paternalistic masculinity, the belief that protecting women is a masculine responsibility, positively predicts confronting sexism (on behalf of socially close women; Good et al., 2018). Therefore, we might expect that framing allyship as masculine behavior, in addition to increasing the belief that men care about allyship, will more strongly encourage men's own action. In both cases, we might still expect a moderating role of precarious masculinity. Men who are especially sensitive to masculinity judgments and norms should be most likely to take allyship action if it is incorporated into their beliefs about what men are expected to do.

Limitations of Sample and Stimuli

In addition to the conceptual analysis provided above, there are sample and stimuli related reasons why we may not have seen a strong effect of the manipulation on men's behavior. It is important consider the generalizability of Study 3, which comprises psychology students rather than STEM employees. On the one hand, we might find a stronger effect of social norms with STEM professionals in a workplace context; STEM professionals might be more inclined to adhere social norms to avoid confronting, as breaking this norm is risky (e.g., perceived as unprofessional, warranting superiors' intervention). On the other hand, students with more progressive beliefs and perhaps experience with social-justice oriented debate on campus may be more inclined to increase their confrontation if they see their peers doing so. Although we are unsure how the effects would compare between samples, future studies should nevertheless test a similar paradigm with a STEM sample to address limitations of generalizability. It is also necessary to consider other intersecting identities (e.g., race, SES, sexual orientation) that might increase the relevance of gender bias issues and predict variability in men's allyship behavior.

Beyond Reactive Allyship

Research on allyship has tended to focus on reactive forms of allyship, specifically confrontation of other's biased behaviors and expressions. Our focus in Study 3 was also on public reactive allyship given men's particular hesitation to confront bias publicly in Studies 1 and 2. However, future research should examine the influence of norms on more proactive forms of allyship. In cross-group interactions, members of minority groups are particularly concerned with how the majority views their competence (Bergsieker et al., 2010), and majority group members can be especially effective at signaling an inclusive workplace (Hall et al., 2015; Hall, Schmader, Aday, & Croft, 2018). Therefore, future work should examine how the power of social norms can be harnessed to encourage proactive efforts to foster inclusion in those at risk for feeling marginalized. Determining how social norms can be used to promote proactive

action is particularly beneficial, given that proactive allyship is not contingent on observing bias and likely does not incur the same social costs. Encouraging proactive action through social norms allows for people to signal inclusion without needing to detect bias first (i.e., the first hurdle of the CPR model) and take action in contexts where bias is not easily identifiable.

Conclusion

To our knowledge, this is the first set of studies to examine the (mis)perception of other men's beliefs about gender bias and how that pluralistic ignorance might impact allyship intentions and behavior among both men and women. Disrupting pluralistic ignorance by changing social norms to reveal that the majority of men *do* care about gender bias (i.e., demonstrating that men generally perceive bias as a problem and willingly confront sexism) encourages women to speak out against sexism, and might at least predict men's greater intentions to be an ally (especially for those sensitive to male gender norms). Because our results are applicable to understanding how social norms impact STEM environments, these findings might inform interventions in male-dominated fields where subtle sexism typically goes unaddressed, negatively impacting women's engagement and opportunities to succeed. Our hope is that these findings further spark research on the ways in which the perceptions of social norms can encourage men and women to take action.

References

- AAUW. (2015). *Solving the equation: The variables for women's success in engineering and computing*. <https://ww3.aauw.org/research/solving-the-equation/>
- Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgments. In H. Guetzkow (Ed.), *Groups, leadership and men; research in human relations* (pp. 177–190). Carnegie Press.
- Ashburn-Nardo, L., Lindsey, A., Morris, K. A., & Goodwin, S. (2020). Who is responsible for confronting prejudice? The Role of perceived and conferred authority. *Journal of Business and Psychology, 35*(6), 799–811. <https://doi.org/10.1007/s10869-019-09651-w>
- Ashburn-Nardo, L., Morris, K. A., & Goodwin, S. A. (2008). The confronting prejudiced responses (CPR) model: Applying CPR in organizations. *Academy of Management Learning & Education, 7*(3), 332–342. <https://doi.org/10.5465/amle.2008.34251671>
- Ayres, M. M., Friedman, C. K., & Leaper, C. (2009). Individual and situational factors related to young women's likelihood of confronting sexism in their everyday lives. *Sex Roles, 61*(7-8), 449–460. <https://doi.org/10.1007/s11199-009-9635-3>
- Bergsieker, H. B., Shelton, J. N., & Richeson, J. A. (2010). To be liked versus respected: Divergent goals in interracial interactions. *Journal of Personality and Social Psychology, 99*(2), 248–264. <https://doi.org/10.1037/a0018474>
- Blanchard, F. A., Crandall, C. S., Brigham, J. C., & Vaughn, L. A. (1994). Condemning and condoning racism: A social context approach to interracial settings. *Journal of Applied Psychology, 79*(6), 993–997. <https://doi.org/10.1037/0021-9010.79.6.993>
- Blanchard, F. A., Lilly, T., & Vaughn, L. A. (1991). Reducing the expression of racial prejudice. *Psychological Science, 2*(2), 101–105. <https://doi.org/10.1111/j.1467-9280.1991.tb00108.x>
- Bosson, J. K., & Vandello, J. A. (2011). Precarious manhood and its links to action and aggression. *Current Directions in Psychological Science, 20*(2), 82–86. <https://doi.org/10.1177/0963721411402669>
- Bosson, J., Vandello, J., Burnaford, R., Weaver, J., & Wasti, S. (2009). Precarious manhood and displays of physical aggression. *Personality*

- and *Social Psychology Bulletin*, 35(5), 623–634. <https://doi.org/10.1177/0146167208331161>
- Brinkman, B. G., Garcia, K., Rickard, K. M. (2011). What I wanted to do was . . .” discrepancies between college women’s desired and reported responses to gender prejudice. *Sex Roles*, 65(5–6), 344–355. <https://doi.org/10.1007/s11199-011-0020-7>
- Brown, A. L., & Messman-Moore, T. L. (2010). Personal and perceived peer attitudes supporting sexual aggression as predictors of male college students’ willingness to intervene against sexual aggression. *Journal of Interpersonal Violence*, 25(3), 503–517. <https://doi.org/10.1177/0886260509334400>
- Brown, K. T., & Ostrove, J. M. (2013). What does it mean to be an ally? *Journal of Applied Social Psychology*, 43(11), 2211–2222. <https://doi.org/10.1111/jasp.12172>
- Burgess, D., van Ryn, M., Dovidio, J., & Saha, S. (2007). Reducing racial bias among health care providers: lessons from social-cognitive psychology. *Journal of General Internal Medicine*, 22(6), 882–887. <https://doi.org/10.1007/s11606-007-0160-1>
- Burn, S. M. (2009). A situational model of sexual assault prevention through bystander intervention. *Sex Roles*, 60(11–12), 779–792. <https://doi.org/10.1007/s11199-008-9581-5>
- Casey, E. A., & Ohler, K. (2012). Being a positive bystander: Male anti-violence allies’ experiences of “stepping up.” *Journal of Interpersonal Violence*, 27(1), 62–83. <https://doi.org/10.1177/0886260511416479>
- Cheng, S., Ng, L., Trump-Steele, R., Corrington, A., & Hebl, M. (2018). Calling on male allies to promote gender equity in I-O psychology. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 11(3), 389–398. <https://doi.org/10.1017/iop.2018.88>
- Cialdini, R. B. (1993). *Influence: Science and practice* (3rd ed.). Harper-Collins College Publishers.
- Cialdini, R. B. (2012). The focus theory of normative conduct. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 295–312). Sage Ltd. <https://doi.org/10.4135/9781446249222.n41>
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6), 1015–1026. <https://doi.org/10.1037/0022-3514.58.6.1015>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge.
- Crosby, J. R., & Wilson, J. (2015). Let’s not, and say we would: Imagined and actual responses to witnessing homophobia. *Journal of Homosexuality*, 62(7), 957–970. <https://doi.org/10.1080/00918369.2015.1008284>
- Curtin, N., & McGarty, C. (2016). Expanding on psychological theories of engagement to understand activism in context(s). *Journal of Social Issues*, 72(2), 227–241. <https://doi.org/10.1111/josi.12164>
- Czopp, A. M., & Monteith, M. J. (2003). Confronting prejudice (literally): Reactions to confrontations of racial and gender bias. *Personality and Social Psychology Bulletin*, 29(4), 532–544. <https://doi.org/10.1177/0146167202250923>
- Czopp, A. M., Monteith, M. J., & Mark, A. Y. (2006). Standing up for a change: Reducing bias through interpersonal confrontation. *Journal of Personality and Social Psychology*, 90(5), 784–803. <https://doi.org/10.1037/0022-3514.90.5.784>
- Darley, J. M., & Latane, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, 8(4), 377–383. <https://doi.org/10.1037/h0025589>
- Dennehy, T., Bergsieker, H., & Schmader, T. (2018). *RISE workplace culture survey: Results across organizations*. Unpublished report.
- Dickter, C. L. (2012). Confronting hate: Heterosexuals’ responses to anti-gay comments. *Journal of Homosexuality*, 59(8), 1113–1130. <https://doi.org/10.1080/00918369.2012.712817>
- Dickter, C. L., & Newton, V. A. (2013). To confront or not to confront: Non-targets’ evaluations of and responses to racist comments. *Journal of Applied Social Psychology*, 43(S2), E262–E275. <https://doi.org/10.1111/jasp.12022>
- Diekmann, A. B., & Eagly, A. H. (2000). Stereotypes as dynamic constructs: Women and men of the past, present, and future. *Personality and Social Psychology Bulletin*, 26(10), 1171–1188. <https://doi.org/10.1177/0146167200262001>
- Drury, B. J., & Kaiser, C. R. (2014). Allies against sexism: The role of men in confronting sexism. *Journal of Social Issues*, 70(4), 637–652. <https://doi.org/10.1111/josi.12083>
- Eagly, A. H. (2009). The his and hers of prosocial behavior: An examination of the social psychology of gender. *American Psychologist*, 64(8), 644–658. <https://doi.org/10.1037/0003-066X.64.8.644>
- Eagly, A. H., & Mladinic, A. (1989). Gender stereotypes and attitudes toward women and men. *Personality and Social Psychology Bulletin*, 15(4), 543–558. <https://doi.org/10.1177/0146167289154008>
- Eagly, A. H., & Wood, W. (2016). Social role theory of sex differences. In N. Naples, R. C. Hoogland, M. Wickramasinghe, and W. C. A. Wong (Eds.), *The Wiley Blackwell encyclopedia of gender and sexuality studies* (pp. 1–3). Wiley. <https://doi.org/10.1002/9781118663219.wbegss183>
- Eliezer, D., & Major, B. (2012). It’s not your fault: The social costs of claiming discrimination on behalf of someone else. *Group Processes & Intergroup Relations*, 15(4), 487–502. <https://doi.org/10.1177/1368430211432894>
- Fabiano, P. M., Perkins, H. W., Berkowitz, A., Linkenbach, J., & Stark, C. (2003). Engaging men as social justice allies in ending violence against women: Evidence for a social norms approach. *Journal of American College Health*, 52(3), 105–112. <https://doi.org/10.1080/07448480309595732>
- Fessler, L. (2018, October 30) How we’ll win. *Quartz*. <https://qz.com/work/is/how-well-win-the-other-half/>
- Geiger, N., & Swim, J. K. (2016). Climate of silence: Pluralistic ignorance as a barrier to climate change discussion. *Journal of Environmental Psychology*, 47, 79–90. <https://doi.org/10.1016/j.jenvp.2016.05.002>
- Glick, P., & Fiske, S. T. (1999). The Ambivalence Toward Men Inventory: Differentiating hostile and benevolent beliefs about men. *Psychology of Women Quarterly*, 23(3), 519–536. <https://doi.org/10.1111/j.1471-6402.1999.tb00379.x>
- Glick, P., Lameiras, M., Fiske, S. T., Eckes, T., Masser, B., Volpato, C., Manganello, A. M., Pek, J. C. X., Huang, L.-L., Sakalli-Ugurlu, N., Rodríguez Castro, Y., Pereira, M. L. D., Willemsen, T. M., Brunner, A., Six-Materna, I., Wells, R., & Glick, P. (2004). Bad but bold: Ambivalent attitudes toward men predict gender inequality in 16 nations. *Journal of Personality and Social Psychology*, 86(5), 713–728. <https://doi.org/10.1037/0022-3514.86.5.713>
- Good, J. J., Sanchez, D. T., & Moss-Racusin, C. A. (2018). A paternalistic duty to protect? Predicting men’s decisions to confront sexism. *Psychology of Men & Masculinity*, 19(1), 14–24. <https://doi.org/10.1037/men0000077>
- Hall, W., Schmader, T., Aday, A., Inness, M., & Croft, E. (2018). Climate control: The relationship between social identity threat and cues to an identity-safe culture. *Journal of Personality and Social Psychology*, 115(3), 446–467.
- Hall, W., Schmader, T., Aday, A., & Croft, E. (2018). Decoding the dynamics of social identity threat in the workplace: A within-person analysis of women’s and men’s interactions in STEM. *Social Psychological & Personality Science*, 10(4), 542–552. <https://doi.org/10.1177/1948550618772582>
- Hall, W. M., Schmader, T., & Croft, E. (2015). Engineering exchanges: Daily social identity threat predicts burnout among female engineers. *Social Psychological & Personality Science*, 6(5), 528–534. <https://doi.org/10.1177/1948550615572637>
- Ipsos and Global Institute for Women’s Leadership. (2019, March 6). *Gender equality around the world*. <https://www.ipsos.com/en-za/gender-equality-around-world>

- Kaiser, B. N. (2012). Campaign for real data. *Dialogue*, 26, 8–10.
- Kaiser, C. R., & Miller, C. T. (2001). Stop complaining! The social costs of making attributions to discrimination. *Personality and Social Psychology Bulletin*, 27(2), 254–263. <https://doi.org/10.1177/0146167201272010>
- Kaiser, C. R., & Miller, C. T. (2003). Derogating the victim: The interpersonal consequences of blaming events on discrimination. *Group Processes & Intergroup Relations*, 6(3), 227–237. <https://doi.org/10.1177/13684302030063001>
- Katz, I., & Hass, R. G. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive structures. *Journal of Personality and Social Psychology*, 55(6), 893–905. <https://doi.org/10.1037/0022-3514.55.6.893>
- Kawakami, K., Dunn, E., Karmali, F., & Dovidio, J. F. (2009). Mispredicting affective and behavioral responses to racism. *Science*, 323(5911), 276–278. <https://doi.org/10.1126/science.1164951>
- Kaya, A., Le, T. P., Brady, J., & Iwamoto, D. (2020). Men who intervene to prevent sexual assault: A grounded theory study on the role of masculinity in bystander intervention. *Psychology of Men & Masculinity*, 21(3), 463–478. <https://doi.org/10.1037/men0000249>
- Kilmartin, C., Semelsberger, R., Dye, S., Boggs, E., & Kolar, D. (2015). A behavior intervention to reduce sexism in college men. *Gender Issues: New York*, 32(2), 97–110. <https://doi.org/10.1007/s12147-014-9130-1>
- Kilmartin, C., Smith, T., Green, A., Heinzen, H., Kuchler, M., & Kolar, D. (2008). A real time social norms intervention to reduce male sexism. *Sex Roles*, 59(3–4), 264–273. <https://doi.org/10.1007/s11199-008-9446-y>
- Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* Appleton-Century-Crofts.
- LeMaire, K. L., & Oswald, D. L. (2016). How gender affects heterosexual allies' intentions of confronting sexual prejudice. *Psychology of Sexual Orientation and Gender Diversity*, 3(4), 453–464. <https://doi.org/10.1037/sgd0000190>
- Lewis, M. A., & Neighbors, C. (2004). Gender-specific misperceptions of college student drinking norms. *Psychology of Addictive Behaviors*, 18(4), 334–339. <https://doi.org/10.1037/0893-164X.18.4.334>
- Logel, C., Walton, G. M., Spencer, S. J., Iserman, E. C., von Hippel, W., & Bell, A. E. (2009). Interacting with sexist men triggers social identity threat among female engineers. *Journal of Personality and Social Psychology*, 96(6), 1089–1103. <https://doi.org/10.1037/a0015703>
- Mallett, R. K., & Wagner, D. E. (2011). The unexpectedly positive consequences of confronting sexism. *Journal of Experimental Social Psychology*, 47(1), 215–220. <https://doi.org/10.1016/j.jesp.2010.10.001>
- Miller, D. T., & McFarland, C. (1991). When social comparison goes awry: The case of pluralistic ignorance. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 287–313). Erlbaum.
- Miller, D. T., Monin, B., & Prentice, D. A. (2000). Pluralistic ignorance and inconsistency between private attitudes and public behaviors. In D. J. Terry & M. A. Hogg (Eds.), *Applied social research, attitudes, behavior, and social context: The role of norms and group membership* (pp. 95–113). Erlbaum.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & N. S. Endler (Eds.), *Personality at the Crossroads: Current issues in interactional psychology* (pp. 333–352). Erlbaum.
- Monteith, M. J. (1993). Self-regulation of prejudiced responses: Implications for progress in prejudice-reduction efforts. *Journal of Personality and Social Psychology*, 65(3), 469–485.
- Moss-Racusin, C. A., Phelan, J. E., & Rudman, L. A. (2010). When men break the gender rules: Status incongruity and backlash against modest men. *Psychology of Men & Masculinity*, 11(2), 140–151. <https://doi.org/10.1037/a0018093>
- Moss-Racusin, C. A., Sanzari, C., Caluori, N., & Rabasco, H. (2018). Gender bias produces gender gaps in STEM engagement. *Sex Roles*, 79(11–12), 651–670. <https://doi.org/10.1007/s11199-018-0902-z>
- Murphy Austin, M. J., Dardis, C. M., Wilson, M. S., Gidycz, C. A., & Berkowitz, A. D. (2016). Predictors of sexual assault-specific prosocial bystander behavior and intentions: A prospective analysis. *Violence against Women*, 22(1), 90–111. <https://doi.org/10.1177/1077801215597790>
- Neighbors, C., O'Connor, R. M., Lewis, M. A., Chawla, N., Lee, C. M., & Fossos, N. (2008). The relative impact of injunctive norms on college student drinking: The role of reference group. *Psychology of Addictive Behaviors*, 22(4), 576–581. <https://doi.org/10.1037/a0013043>
- Ostrove, J. M., & Brown, K. T. (2018). Are allies who we think they are?: A comparative analysis. *Journal of Applied Social Psychology*, 48(4), 195–204. <https://doi.org/10.1111/jasp.12502>
- Pew Research Center. (2017, December 14). Gender discrimination comes in many forms for today's working women. <https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/>
- Pew Research Center. (2018, January 9). Women and men in STEM often at odds over workplace equity. <https://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/>
- Pew Research Center. (2019, April 22). A changing world: Global views on diversity, gender equality, family life and the importance of religion. <https://www.pewresearch.org/global/2019/04/22/a-changing-world-global-views-on-diversity-gender-equality-family-life-and-the-importance-of-religion/>
- Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without prejudice. *Journal of Personality and Social Psychology*, 75(3), 811–832. <https://doi.org/10.1037/0022-3514.75.3.811>
- Prentice, D. A. (2007). Pluralistic ignorance. In R. Baumeister & K. Vohs (Eds.), *Encyclopedia of social psychology* (pp. 674–674). SAGE Publications, Inc. <https://doi.org/10.4135/9781412956253.n402>
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly*, 26(4), 269–281. <https://doi.org/10.1111/1471-6402.t01-1-00066>
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, 64(2), 243–256. <https://doi.org/10.1037/0022-3514.64.2.243>
- Radke, H. R. M., Kutlaca, M., Siem, B., Wright, S. C., & Becker, J. C. (2020). Beyond allyship: Motivations for advantaged group members to engage in action for disadvantaged groups. *Personality and Social Psychology Review*, 24(4), 291–315. <https://doi.org/10.1177/1088868320918698>
- Rasinski, H. M., & Czopp, A. M. (2010). The effect of target status on witnesses' reactions to confrontations of bias. *Basic and Applied Social Psychology*, 32(1), 8–16. <https://doi.org/10.1080/01973530903539754>
- Rasinski, H. M., Geers, A. L., & Czopp, A. M. (2013). I guess what he said wasn't that bad": Dissonance in nonconfronting targets of prejudice. *Personality and Social Psychology Bulletin*, 39(7), 856–869. <https://doi.org/10.1177/0146167213484769>
- Richard, F. D., Bond, C. F., Jr., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, 7(4), 331–363. <https://doi.org/10.1037/1089-2680.7.4.331>
- Rudman, L. A., Mescher, K., & Moss-Racusin, C. A. (2013). Reactions to gender egalitarian men: Perceived feminization due to stigma-by-association. *Group Processes & Intergroup Relations*, 16(5), 572–599. <https://doi.org/10.1177/1368430212461160>
- Suls, J., & Green, P. (2003). Pluralistic ignorance and college student perceptions of gender-specific alcohol norms. *Health Psychology*, 22(5), 479–486. <https://doi.org/10.1037/0278-6133.22.5.479>
- Swim, J. K., & Hyers, L. L. (1999). Excuse me—What did you just say?!: Women's public and private responses to sexist remarks. *Journal of*

- Experimental Social Psychology*, 35(1), 68–88. <https://doi.org/10.1006/jesp.1998.1370>
- Vandello, J. A., & Bosson, J. K. (2013). Hard won and easily lost: A review and synthesis of theory and research on precarious manhood. *Psychology of Men & Masculinity*, 14(2), 101–113. <https://doi.org/10.1037/a0029826>
- Vandello, J. A., Bosson, J. K., Cohen, D., Burnaford, R. M., & Weaver, J. R. (2008). Precarious manhood. *Journal of Personality and Social Psychology*, 95(6), 1325–1339. <https://doi.org/10.1037/a0012453>
- Vial, A. C., Brescoll, V. L., & Dovidio, J. F. (2019). Third-party prejudice accommodation increases gender discrimination. *Journal of Personality and Social Psychology*, 117(1), 73–98. <https://doi.org/10.1037/pspi0000164>
- PeerNetBC. (2016, November 22). What is allyship? Why can't I be an ally? <http://www.peernetbc.com/what-is-allyship>
- Wood, W., & Eagly, A. H. (2009). Gender identity. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 109–125). Guilford Press.
- Woodzicka, J. A., & LaFrance, M. (2001). Real versus imagined gender harassment. *Journal of Social Issues*, 57(1), 15–30. <https://doi.org/10.1111/0022-4537.00199>
- Zitek, E. M., & Hebl, M. R. (2007). The role of social norm clarity in the influenced expression of prejudice over time. *Journal of Experimental Social Psychology*, 43(6), 867–876. <https://doi.org/10.1016/j.jesp.2006.10.010>
- Zounlome, N. O. O., & Wong, Y. J. (2018). Addressing male-targeted university sexual aggression: An experimental evaluation of a social norms approach. *Psychology of Men & Masculinity*, 20(4), 528–540. <https://doi.org/10.1037/men0000181>

Received June 25, 2020

Revision received December 18, 2020

Accepted January 12, 2021 ■