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Women and Men, Harm and Censoriousness: Sex-Differentiated Reactions to Information About Sex Differences

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Abstract

Some of the most controversial information in psychology involves genetic or evolutionary explanations for sex differences in educational-vocational outcomes (Clark et al., 2024a). We investigated whether men and women react differently to controversial information about sex differences and whether their reaction depends on who provides the information. In the experiment, college students (n=396) and U.S. middle-aged adults (n=154) reviewed a handout, purportedly provided by either a male or a female professor. The handout stated that (1) women in STEM are no longer discriminated against in hiring and publishing and (2) sex differences in educational-vocational outcomes are better explained by evolved differences between men and women in various personal attributes. We found that college women were less receptive to the information than college men were and wanted to censor it more than men did; also, in both the college student and community adult samples, women were less receptive and more censorious when the messenger was a male professor than when the messenger was a female professor. In both samples, participants who leaned to the left politically and who held stronger belief that words can cause harm reacted with more censoriousness. Our findings imply that the identity of a person presenting controversial scientific information and the receiver's pre-existing identity and beliefs have the potential to influence how that information will be received.

Keywords: sex differences, harm, liberal science, censorship, identity

Women and Men, Harm and Censoriousness: Sex-Differentiated Reactions to Information About Sex Differences

Despite decades of programmatic efforts, women in the U.S. continue to be underrepresented in prestigious academic positions in the inorganic sciences and in executive positions in the corporate world (U.S. Census Bureau, 2023). Although discrimination against women may have been an important cause of these disparities in the past, it is unlikely to explain current or recent disparities (Stewart-Williams & Halsey, 2021). Across many domains, systematic reviews suggest little to no discrimination against women since the early 2000s; instead, growing evidence finds women are favored in the academy and hiring more broadly (Browne, 2023; Ceci & Williams, 2011; Ceci et al., 2014; Ceci et al., 2023; Irvine, 1996; Schaerer et al., 2023; Williams & Ceci, 2015).[1]

While discrimination is not a strong contender for explaining sex disparities in educational-vocational outcomes, biologically influenced, distributional differences between males and females can at least partially explain them (Stewart-Williams & Halsey, 2021; Geary, 2021). For example, boys more often than girls have science or math as their within-individual academic strength, while girls more often than boys have reading as their within-individual academic strength (Stoet & Geary, 2018). Males outnumber females at the highest levels of science reasoning, mathematical reasoning, and spatial reasoning (Wai et al., 2010; Lubinski & Benbow, 2006; Bleske-Rechek & Browne, 2014; Hedges & Nowell, 1995), while females outnumber males at the highest levels of verbal reasoning (Wai et al., 2010; Strand et al., 2006). All around the world, the sexes differ in their vocational preferences: females score ½ to a full point standard deviation higher than males do in their interest in working with people over things (Su et al., 2009; Lippa, 1998, 2010; Hoff et al., 2023; Tao et al., 2022).

The sexes differ in other relevant psychological attributes, as well. As children, males and females differ in their core values (Block et al., 2018), and as adults, females endorse communion and benevolence more, and agency and power less, compared to males (Schwartz & Rubel-Lifschitz, 2009). Relatedly, the sexes differ in temperament, with females being more risk-averse and fearful while also scoring higher in warmth and agreeableness (Kaiser, 2019; Kaiser et al., 2020), and males being more dominant (Kaiser et al., 2020) and physically aggressive (Archer, 2019). Even in samples of liberally educated adults (Bleske-Rechek et al., 2011; Bleske-Rechek & Gunseor, 2021) and extreme intellectual talent (Lubinski & Benbow, 2021), females differ from males in their commitment to long work hours and their preferred balance of family and career. Overall, then, in the multivariate space of psychological attributes relevant to educational-vocational outcomes, males and females differ substantially (Del Giudice, 2009). Moreover, many of these differences manifest early in life, are tied to androgen exposure (Beltz et al., 2011), and are of larger magnitude in countries where individuals are less constrained by living conditions or traditional gender roles (Herlitz et al., 2024; Kaiser, 2019; Stoet & Geary, 2018; Stoet & Geary, 2022).

However, as demonstrated by the well-publicized cases of Larry Summers at Harvard (Finder et al., 2006) and James Damore at Google (Wakabayashi, 2017), discussing these data on sex differences is taboo (Buss & von Hippel, 2018; Pinker, 2005; del Giudice, 2023). Indeed, recent evidence suggests that some of the most controversial conclusions in psychology involve genetic

[1] Academics and members of the public alike seem unaware of that conclusion, however (Schaerer et al., 2023), perhaps because the limited number of studies that have documented bias against women (e.g., Steinpreis et al., 1999, Study 1; Ross-Macusin 2012) are cited so much more often than are studies that have not documented any bias or that have documented bias against men (Jussim, 2019).

or evolutionary explanations for sex differences. For example, Clark et al. (2024a) interviewed academic psychologists and found that two of the 10 most taboo conclusions were that "Gender biases are not the most important drivers of the under-representation of women in STEM fields" and "Men and women have different psychological characteristics because of evolution." In a subsequent survey of nearly 500 academics in psychology, the more participants believed these statements were true, the more reluctant they were to share their beliefs (Clark et al., 2024a).

But why is it controversial to discuss how psychological sex differences may explain disparate outcomes between men and women? One possibility is concern about potential harm to women (Stewart-Williams et al., 2024). Women are a historically disadvantaged group and are also more protected than men (Baumeister, 2014; Benenson et al., 2021; Reynolds et al., 2020). Thus, people may worry that research supporting biologically influenced differences as the reason for male over-representation in certain high-prestige positions will be used to justify the status quo or disinvest in programming designated to help women (Clark et al., 2023).

Consistent with the possibility that people may judge some findings less positively because of their potential harm to women, Stewart-Williams and colleagues (2020, 2022a) found that people who were told about hypothetical research with a result favoring men rated it as more sexist, upsetting, offensive, and harmful than did people who were told about the same research but with a finding that favored women. In follow-up studies, individuals rated hypothetical research that favored males as lower in quality than research that favored females, a judgment effect that was mediated by the perception of the male-favoring result as harmful to women (Stewart-Williams et al., 2022b). Stewart-Williams et al. (2022b; 2024) also found that women and politically liberal individuals tended to be selectively critical (compared to men and politically conservative individuals) of hypothetical research results favoring men, consistent with women's and liberal-leaning individuals' harm-aversion and broad definitions of harm (McGrath & Haslam, 2020).

As discussed by Clark et al. (2023), concerns about harm to protected groups underlie censoriousness (e.g., Nature Human Behavior Editorial, 2022). Thus, concern about harm to women may underlie motives to censor information about sex differences. In other research by Stewart-Williams and colleagues for example, individuals rated it as more important to protect females from learning about male-favoring findings than to protect males from learning about female-favoring findings, and this effect was mediated by their perceptions of the male-favoring findings as harmful (Stewart-Williams et al., 2024). In another set of studies, researchers presented half of participants with a written passage claiming that researchers have found men to be genetically disposed to be better leaders than women, and the other half with a passage claiming that women are genetically disposed to be better leaders than men are (Clark et al., 2024b). Across multiple samples from different countries, people wanted to censor the information more when it presented women (rather than men) unfavorably (Clark et al., 2024b). And, similar to the pattern documented by Stewart-Williams et al. (2022a, 2022b), individuals with left-leaning political views tended to be particularly censorious toward information that presented males as "better" than females (Clark et al., 2024b).

The current study

The current research is similar to past studies in its goal of understanding how people react to information about sex differences and how people's reactions relate to their gender, concern

about harm, and political leaning. However, the current research differs from past studies in two primary ways.

First, we were interested in understanding how people respond to scientifically documented, as opposed to hypothetical, sex differences. Thus, we presented all participants with a brief summary of research suggesting that the disproportionate representation of men and women in STEM and high-level corporate America is better accounted for by inherent differences between the sexes in abilities, personality traits, interests, and values than by bias and discrimination. We expected that women would react more negatively to this information than men would, as would participants who lean left politically and who hold strong concerns about harm, as measured by their belief that words – even written words – can cause psychological harm.

Second, we were interested in how people's reactions to scientifically documented information about sex differences might be affected by the identity of the person providing the information. Thus, we manipulated the sex of the messenger, describing them as either a male or female professor. We predicted that participants would react more negatively when the messenger was described as a male professor compared to a female professor. Because individuals are quick to perceive others as self-interested and susceptible to bias (Ehrlinger et al., 2005), we expected individuals to perceive a male messenger as likely to be influenced by the fact that he can benefit – e.g., via maintenance of the status quo – from findings suggesting that discrimination is not as big of a problem as people think and that women and men differ inherently along attributes that are relevant for educational-vocational outcomes.

We also expected the negative effect of a male rather than female messenger to be more pronounced among women. People are prone to perceive members outside their identity group as having a more biased perspective (Ehrlinger et al., 2005), and although that bias might operate in both directions, we thought that women, as members of a protected group, would be particularly skeptical of information coming from someone who would not share their identity, that is, a man rather than a woman. This prediction is consistent with recent observations (Bipartisan Policy Center, 2021; Hughes, 2024; Paresky & Campbell, 2023) that it is becoming increasingly common for individuals to prioritize insights coming from those who have firsthand, or "lived," experiences as members of a protected group and to dismiss insights from those who do not.

Recent research offers inconsistent support for the proposal that females in particular will react more negatively to a male messenger relative to a female messenger. In one of Stewart-Williams et al.'s studies (2022b Study 2), women reacted more negatively when the researcher behind the hypothetical finding was a male rather than a female; however, in another of their studies, there was no effect of researcher sex for either men or women (2022b, Study 1), and in yet another study, *men* reacted more negatively to a male compared to female researcher presenting male-favoring findings (Stewart-Williams et al., 2024).

In the current research, then, we investigated how individuals react to scientifically documented yet controversial information about sex differences. Our hypotheses were as follows:

Hypothesis 1 (Main effect of participant gender): Compared to men, women will be (1a) less receptive to and (1b) more censorious toward the messenger and message.

Hypothesis 2 (Main effect of messenger gender): Participants will be (2a) less receptive to and (2b) more censorious toward a male messenger than female messenger.

Hypothesis 3 (Interactive effect of participant and messenger gender): The effect of a male versus female messenger on (3a) receptivity and (3b) censoriousness will be stronger for women than for men.

Hypothesis 4: Compared to politically right-leaning participants, left-leaning participants will be (4a) less receptive to and (4b) more censorious toward the messenger and message.

Hypothesis 5: Compared to those with weaker belief that words can cause harm, participants with stronger belief that words can cause harm will be (5a) less receptive to and (5b) more censorious toward the messenger and message.

We conducted the online experiment with two samples: college students from a public university in the Midwestern United States and U.S. adults surveyed via Amazon's Mechanical Turk (MTurk). The research was evaluated and approved by the participating university's institutional review board; researchers followed standard consent and debriefing procedures. Hypotheses 1, 2, 3, and 5 were informally pre-registered through inclusion in our initial IRB proposal. The IRB proposal, study materials, datasets, and supplementary tables are available at https://osf.io/3xjym/.

Method

Participants

College student sample

The original college student sample included 450 undergraduate students who participated voluntarily through an online research platform for partial credit towards a research requirement in an introductory psychology course or for extra credit in various psychology courses. Data collection occurred over multiple academic semesters to obtain a sufficient number of male participants. We omitted participants who spent less than three minutes in the survey. At the end of the survey, participants were asked to report how thoroughly they read the stimulus materials; we omitted participants who reported having not read at all. The final sample included 396 participants (278 women, Mage = 19.33; 108 men, Mage = 20.37; 10 other/no response). Post hoc G Power analyses suggest that this sample size provided 86% power to detect a main effect of participant sex of d = .35 or larger, and it provided 93% power to detect a main effect of messenger sex of d = .35 or larger. However, with only 108 men, the sample was underpowered for detecting interactions. The average time to complete the survey was 9.8 minutes.

Community adult sample

The original community adult sample included 170 participants acquired via MTurk. MTurk respondents were required to be a U.S. resident, be fluent in English, and have a 100% positive participation record; they were paid $1.50 for their participation. We removed participants who spent less than 3 minutes in the survey or who reported not reading the materials. The final sample included 154 participants (all but one reported their gender: 78 women of 24 to 73 years of age, M_{age} = 44.37; 75 men of 25 to 68 years of age, M_{age} = 39.48). Post hoc G Power analyses suggest that this sample size provided 57% power to detect a main effect of participant sex of *d* = .35 or larger, and it provided 57% power to detect a main effect of messenger sex of *d* = .35 or

larger. With 78 women and 75 men, the sample was substantially underpowered for detecting interactions. Mean completion time was 6.75 minutes.

Materials and Procedure

On the first screen of the online survey, participants were asked to imagine themselves as a university student engaged in conversation with their roommate. In the conversation, their roommate mentions having a guest speaker in class that day and describes the speaker as either a male or female professor from the University of Minnesota. The roommate shares a handout of the main takeaways of the professor's presentation. Participants were asked to review the handout carefully and told they would be asked questions about it.

The next screen displayed the guest speaker's handout. The speaker's identity as a male or female professor was reinforced at the top of the handout (*Professor Kevin Gilden, PhD* or *Professor Kathryn Gilden, PhD*). The rest of the handout was identical across conditions. The handout began by acknowledging women's continued underrepresentation in STEM and high-level corporate positions, and then stated that women's continued underrepresentation is better explained by differences between men and women in personal attributes than by discrimination. In a series of five supporting bullet points, the handout described distributional differences between the sexes in personality, values, interests, work/life preferences, and cognitive abilities that appear across cultures. For example, one bullet point on work preferences stated, "Women more than men prefer jobs that involve working with *people*; and men more than women prefer jobs that involve working with *things*. As with the other traits, these sex differences have been documented all over the world, and they are larger in countries that have more gender equality." The claims in the handout included citations that were referenced in full, as part of the handout, at the bottom of the screen. The complete handout is available at https://osf.io/3xjym/.

Then, using a seven-point scale ranging from *Strongly Disagree* to *Strongly Agree*, participants provided their reactions to the speaker ("messenger") and information ("message"). Several items were designed to capture participants' impressions of the credibility of the messenger: "The speaker is well-educated on sex differences," "The speaker is intelligent," and "The speaker is credible." Another item measured participants' perceptions of the messenger's intent: "The speaker is an advocate for women's rights." Several items evaluated the credibility of the message: "The arguments made on the handout are emotionally driven" (rev), "The research cited is credible," and "The arguments made in the handout are logical." Several items evaluated the perceived harmfulness of the message: "The information on the handout is sexist" (rev), "The information on the handout goes against my values" (rev), "The information on the handout is offensive" (rev), and "The information on the handout could cause people emotional harm" (rev). Although these items seem to fall into conceptually different domains (e.g., messenger credibility, message credibility, and message harmfulness), 84% of the pairwise correlations in the college student sample and 96% in the community adult sample were greater than .30. This suggests that the items share a lot of variance (Tabachnick & Fidell, 2013). Indeed, maximum likelihood exploratory factor analyses strongly suggested a one factor solution in both samples (first three eigenvalues for college students were 5.79, 1.30, 0.90; and for community adults, 6.88, 0.57, 0.22). In addition, the 11 items showed strong internal consistency (College sample $\alpha = .90$; Community sample $\alpha = .94$). Therefore, each participant's responses were aggregated into one composite variable that we labeled "Overall Receptivity" to the messenger and message.

Four additional statements designed to assess participants' inclination to censor the messenger and message were included: "The speaker should be censored," "The speaker should be allowed to present this information to students" (rev), "I would show this information to women" (rev), and "The information on the handout should be shared with others" (rev). As with the other items, participants responded using a seven-point rating scale (*Strongly Disagree* to *Strongly Agree*). Responses to these four statements were highly consistent (College sample $\alpha = .89$; Community sample $\alpha = .82$). We were concerned, however, that the first two items were more clearly censorious compared to the latter two. When we analyzed the findings for this outcome variable using only the first two items, the pattern of findings was the same as it was with all four items; thus, given that internal consistencies were higher with all four items than with just the first two, we retained all four items as indicative of censoriousness.

Participants also completed the *Words Can Harm (WCH)* scale by Bellet et al. (2018). The WCH scale includes 10 statements and measures participants' belief that a person can experience marked psychological or emotional harm by the things they read or hear. A sample item is, "I could be emotionally scarred by something I read." Participants responded on a seven-point scale (*Strongly Disagree* to *Strongly Agree*) for each item. Responses showed strong internal consistency (College sample $\alpha = .86$; Community sample $\alpha = .93$). To obscure study intentions, these items were mixed in with personality-related filler items that we did not plan to analyze.

Finally, participants reported their age, gender identity (*man, woman, nonbinary, other*), racial/ethnic identity (open-ended response), and political leaning (*far left, liberal, centrist, conservative, far right*). They also reported how closely they read the handout (*I didn't read it at all, I skimmed it, I read it, and I read it carefully*). As noted above, those who reported not reading it at all were removed from the dataset prior to analysis.

Statistical Analysis

All analyses were conducted in SPSS version 29 and Jamovi 2.2.5.

Results

Table 1 displays descriptive statistics for the two samples, by participant gender. These descriptive statistics reveal systematic differences between the samples. First, the MTurk sample leaned more to the left than did the college student sample, perhaps because crowdsourced participants tend to lean liberal (Levay et al., 2016) and because our college student sample was drawn from a U.S. region that tends to lean conservative and vote Republican.[2] Second, college students held a stronger belief than the community adults that words can cause harm, were less receptive to the information, and were more censorious, especially if they were female. Because of these differences between the college student and community adult samples, we analyzed the samples separately.

[2] We were surprised that the college students leaned less to the left than the community adults did. Perhaps the community adults, obtained through Mechanical Turk, were in fact, more left-leaning than our college students, who were sampled from a "Red" state in the Midwestern United States. It is also possible that our one-item, five-point rating scale measure of political leaning was a less-than-ideal measure of political leaning, especially for college students, who have had less time to orient themselves in the political landscape. Given the makeup of today's universities (Abrams, 2016; 2018; Langbert, 2018), our college students might be surrounded by voices and views that lead them to believe they are less liberal than they are.

Table 1

Sample Descriptive Statistics (Mean ± SD, [95% CI]) for Variables of Interest, by Participant Gender

	College Students (Online Subject Pool)		*Community Adults (MTurk)*	
	Men (n=108)	Women (n=278)	Men (n=75)	Women (n=78)
Political leaning (1 to 5)	3.05 ± 0.86 [2.89, 3.21]	2.76 ± 0.91 [2.65, 2.87]	2.49 ± 1.10 [2.25, 2.74]	2.39 ± 1.09 [2.15, 2.63]
Belief that words can harm (1 to 7)	4.05 ± 1.18 [3.83, 4.27]	5.01 ± 0.82 [4.91, 5.11]	3.64 ± 1.40 [3.32, 3.96]	4.14 ± 1.33 [3.85, 4.44]
Overall receptivity (1 to 7)	4.92 ± 0.92 [4.74, 5.10]	4.32 ± 1.08 [4.20, 4.44]	5.13 ± 1.33 [4.83, 5.43]	5.02 ± 1.30 [4.72, 5.31]
Censoriousness (1 to 7)	2.84 ± 1.21 [2.61, 3.07]	3.57 ± 1.32 [3.40, 3.73]	2.54 ± 1.29 [2.25, 2.84]	2.83 ± 1.24 [2.56, 3.11]

Note. Higher scores on political leaning represent more conservatism (1=*far left*, 2=*liberal*, 3=*centrist*, 4=*conservative*, 5=*far right)*.

Hypotheses 1, 2, and 3: Effects of Participant Gender and Messenger Gender on Receptivity and Censoriousness

Hypothesis 1 was that compared to men, women would be (a) less receptive to and (b) more censorious toward the messenger and message. Hypothesis 2 was that individuals would be (a) less receptive to and (b) more censorious toward the male messenger compared to the female messenger. Hypothesis 3 was the interaction — that the negative effects of a male versus female messenger would be stronger for women than for men. These three hypotheses were tested with factorial ANOVAs.

As displayed in Table 2, Hypothesis 1 was supported in the college student sample but not in the community adult sample. In support of the hypothesis, college women were less receptive (M=4.32, SD=1.08) than the men (M=4.92, SD=0.92) were, M_{diff}=0.60, 95% CI [0.39, 0.82], and college women (M=3.57, SD=1.32) reacted with more censoriousness than the men (M=2.84, SD=1.21) did, M_{diff}=-0.73, 95% CI [-1.02, -0.44]. However, in the community adult sample, the difference between men's and women's receptivity was not statistically significant, nor was the difference in their censoriousness.

As shown in Table 2, Hypothesis 2 was partially supported in the college student sample. College students were less receptive to the male messenger (M=4.30, SD=1.08) than to the female messenger (M=4.63, SD=1.04); the difference was about 1/3 of a point (M_{diff}=0.33, 95% CI [0.12, 0.54]). However, the main effect of messenger gender on college students' censoriousness was not statistically significant, and in the community adult sample, the effect of messenger gender on receptivity was not statistically significant, nor was the effect of messenger gender on censoriousness.

Hypothesis 3 was not supported in the college student sample. As shown in Figure 1, the effect of messenger gender on receptivity and censoriousness was not statistically significantly different for the college women relative to the college men. However, there was support for Hypothesis 3 In the community adult sample. As shown in Figure 2, community adult women were less receptive, on average, when the messenger was a male professor (M=4.71, SD=1.31) rather than female professor (M=5.31, SD=1.24), t(72)=2.02, p=.023, d=0.47, M_{diff}=0.60, 95% CI [0.01, 1.19], and they were more censorious toward the male messenger (M=3.14, SD=1.29) than toward the female messenger (M=2.53, SD=1.12), t(76)=-2.24, p=.028, d=-0.51, M_{diff}=-0.62, 95% CI [-1.16, -0.07]. In community adult men, the effect was reversed: Community adult men were less receptive when the messenger was a female professor (M=4.75, SD=1.44) rather than male professor (M=5.49, SD=1.11), t(73)=-2.49, p=.015, d=-0.58, M_{diff}=-0.74, 95% CI [-1.33, -0.15], and community adult men were more censorious toward the female messenger (M=2.84, SD=1.42) than toward the male messenger (M=2.25, SD=1.10), t(73)=2.03, p=.046, d=0.47, M_{diff}=0.59, 95% CI [0.01, 1.18].

Hypotheses 4 and 5: Words Can Harm and Political Leaning as Predictors of Receptivity and Censoriousness

Hypothesis 4 stated that participants with left-leaning political views would be less receptive to and more censorious toward the messenger and message, and Hypothesis 5 stated that participants who held a stronger belief that words can cause harm would be less receptive and more censorious. As displayed in Table 3, these hypotheses were supported in both samples. The link between belief that words can harm and censoriousness was particularly consistent:

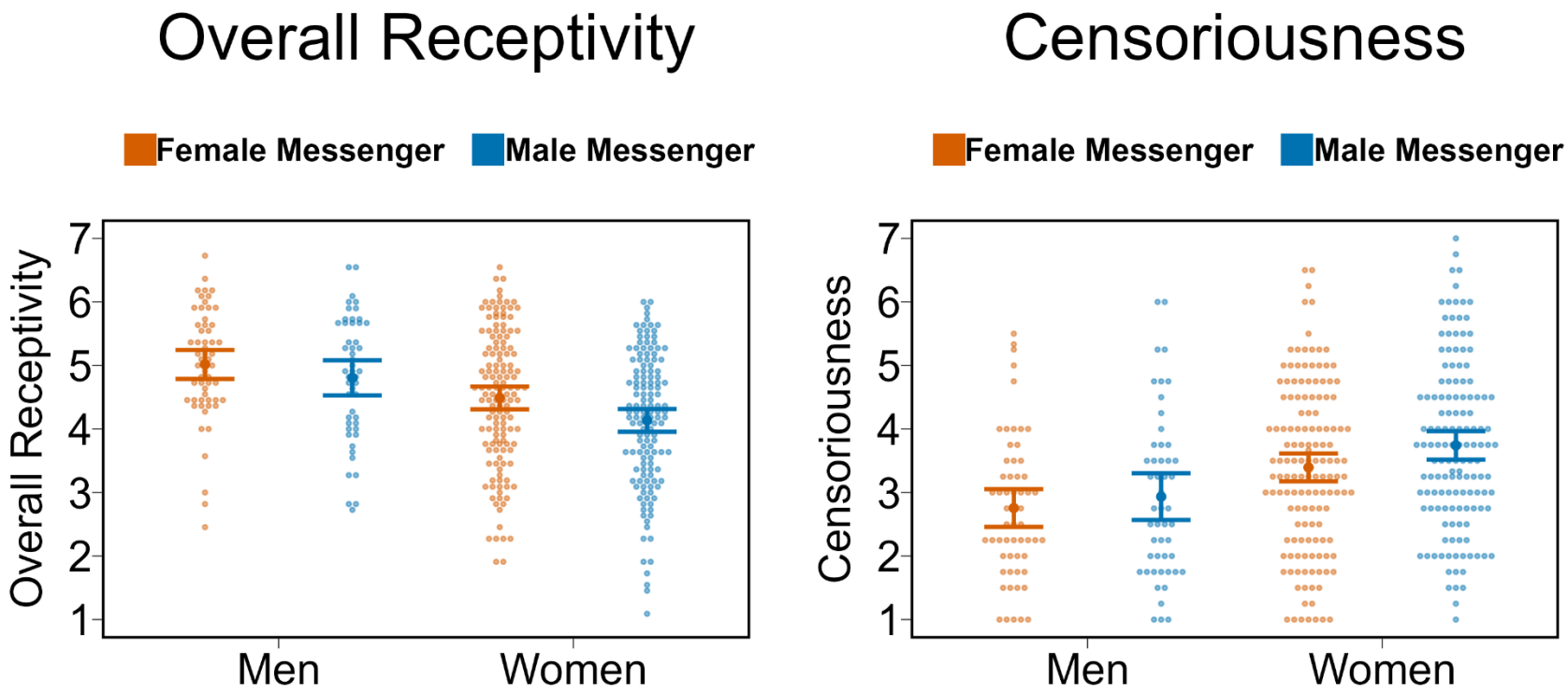
Table 2

ANOVA Results for Hypotheses 1, 2, and 3

	Receptivity				*Censoriousness*			
	F	*df*	*p*	*Partial* η^2	*F*	*df*	*p*	*Partial* η^2
College Student Sample								
H1: Participant Gender	26.29	1,382	<.001	.064	24.64	1,382	<.001	.061
H2: Messenger Gender	5.88	1,382	.016	.015	3.30	1,382	.070	.009
H3: Participant Gender x Messenger Gender	0.37	1,382	.543	.001	0.35	1,382	.557	.001
Community Adult Sample								
H1: Participant Gender	0.29	1,145	.594	.002	2.04	1,149	.155	.013
H2: Messenger Gender	0.11	1,145	.740	.001	0.00	1,149	.959	.000
H3: Participant Gender x Messenger Gender	10.17	1,145	.002	.066	9.12	1,149	.003	.058

Figure 1

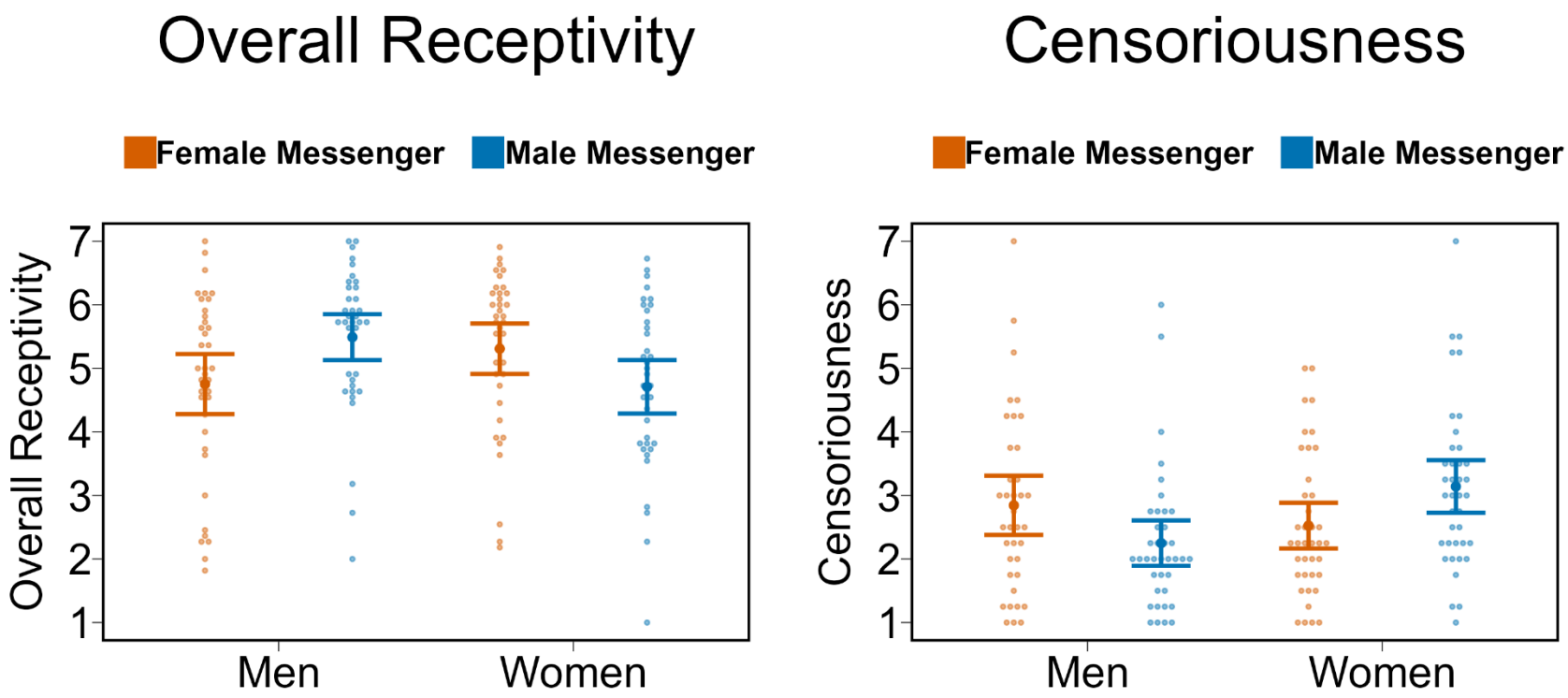
College Students' Reactions to the Messenger and Message, by Participant Gender and Messenger Gender



Note. Error bars represent ±2 standard errors of the mean. Both dependent measures were on seven-point scales, with higher scores reflecting more receptivity, more censoriousness.

Figure 2

Community Adults' Reactions to the Messenger and Message, by Participant Gender and Messenger Gender



Note. Error bars represent ±2 standard errors of the mean. Both dependent measures were on seven-point scales, with higher scores reflecting more receptivity, more censoriousness.

Table 3

Zero-Order Correlations [95% CI] Between Variables of Interest

	Political Leaning	*Words Can Harm*	*Receptivity*	*Censoriousness*
Political Leaning	----------	-.33 [-.42, -.24]	.15 [.06, .25]	-.18 [-.27, -.08]
Words Can Harm	-.34 [-.47, -.19]	----------	-.33 [-.41, -.23]	.28 [.18, .36]
Receptivity	.28 [.13, .42]	-.28 [-.42, -.12]	----------	-.83 [-.86, -.80]
Censoriousness	-.25 [-.39, -.10]	.37 [.22, .50]	-.78 [-.84, -.71]	----------

Note. All correlations are statistically significant. For political leaning, higher scores represent more conservatism. Correlations for the college student sample are displayed above the main diagonal; correlations for the community adult sample are displayed below the main diagonal.

it manifested among both male participants (college *r*=.26 [.08, .43], community adult *r*=.36 [.14, .54]) and female participants (college *r*=.16 [.05, .28], community adult *r*=.34 [.12, .52], and among participants exposed to the male messenger (college *r*=.32 [.19, .45], community adult *r*=.39 [.19, .57]) as well as to the female messenger (college *r*=.22 [.09, .35], community adult *r*=.34 [.12, .52]).

Additional exploratory analyses showed these individual differences variables were correlated: participants with more liberal political views also tended to hold stronger beliefs that words can harm (college students: *r*(392)=-.33, 95% CI [-.42, -.24]; community adults *r*(151)=-.34, 95% CI [-.47, -.19]). Political views and belief that words can harm were also tied to gender. As displayed in Table 1, in the college student sample, women leaned more liberal than the men did, *t*(202.16)=2.87, *p*=.005, *d*=0.32; and in both samples, women held stronger belief than men did that words cause harm (college students: *t*(148.67)=-7.67, *p*<.001, *d*=-1.02; community adults: *t*(150)=-2.29, *p*=.023, *d*=-0.37).

Discussion

We designed this online experiment to examine how people react to scientifically documented yet controversial information supporting the claim that inherent differences between the sexes are a primary explanation for sex differences in educational-vocational outcomes. We tested the hypotheses that women would react more negatively than men would overall, that individuals in general would be react more negatively to a male versus female messenger. Additionally, we hypothesized that this latter difference would be more pronounced among women than men. Findings from other studies also led us to predict that more left-leaning participants and participants with stronger belief that words can cause harm would be less receptive to and more censorious toward the messenger and message. We documented some support for these predictions. In the sample of college students, for example, women were less receptive to and more censorious toward the messenger than men were. In both samples, women were less receptive and more censorious when the messenger was male rather than female. And, in both samples, participants who leaned to the left politically and who held stronger belief that words can cause harm reacted to the messenger and message with more censoriousness. These findings imply that identity and belief-based biases have the potential to influence how individuals process scientific information.

Men's and women's reactions to the messenger and their message

One of our primary hypotheses, that women would react more negatively than men, was developed from the broader theoretical position that, as members of a protected (or historically mistreated) group, women would be more sensitive than men to the potential misuse of the information about sex differences. However, we did not directly measure participants' perceptions that the information would be harmful to women as a group or be used against efforts to empower women. Further, additional experimental conditions are needed to establish that women react in a negative way specifically to information that attributes gender disparities to evolved sex differences. As noted by Stewart-Williams (2024), our experiment lacked a comparison handout that attributed sex differences in educational-vocational outcomes to a more popular explanation, *discrimination*, rather than the unpopular explanation of biologically influenced psychological sex differences. Inclusion of conditions with that handout would clarify whether women are less receptive to *any* explanation of continued gender disparities in

educational-vocational outcomes, or specifically to those that highlight inherent differences between men and women. As noted by Stewart-Williams (2024), inclusion of an alternate handout would also enable us to compare men's reactions to the two explanations. Along those lines, we think it could also be informative to have a parallel experiment focused on disparities that do *not* favor men (or disparities that favor women). For example, we could explore men's and women's reactions to one handout that attributes continued over-representation of males in prisons and special education classrooms primarily to evolved distributional differences between males and females (say, in impulsivity, physical aggressiveness, and general cognitive ability) rather than discrimination, and compare those reactions to men's and women's reactions to another handout that attributes the disparities primarily to discrimination rather than inherent differences. How would men and women compare in their receptivity to these two handouts, and in their perceptions that the information is harmful, ought to be censored, and could be used against the group in question?

Messenger gender identity

We also hypothesized that participants overall – but women especially - would be less receptive to a male than female messenger. These hypotheses were generated from a theoretical position that women are concerned about harm and are more wary than men of potential misuse of information about sex differences, particularly when the messenger is a member of a group – men – that historically has taken advantage of women. In the community adult sample, we did find that women reacted more negatively to the male messenger than to the female messenger; however, men showed the reverse pattern. In the college student sample, the negative effect of the male messenger did not statistically differ by participant gender. As noted by Reynolds (2024), when we designed this study, we could have considered the substantial literature suggesting that women display greater in-group bias (i.e., that women show more favoritism toward women than men do toward men; Glick et al., 2004). Ideally, as recommended by Reynolds (2024), our experiment would have included a control condition in which the messenger was unspecified. By including a gender-neutral condition, we could explore the degree to which a same-sex messenger *increases* favorability and the degree to which an opposite-sex messenger *decreases* favorability.

Belief that words can harm and censoriousness

In the current study, we measured individual differences in concern about harm through Bellet et al.'s (2018) Words Can Harm scale. The items on this scale are designed to assess the degree to which individuals believe they and others can be psychologically harmed merely through words – read, said, or written – and hence this scale can be considered a measure of the degree to which people hold an expanded concept of harm (McGrath et al., 2019). In other research, individuals with stronger belief that words can harm have been found to agree more that offensive views can be considered acts of violence against vulnerable groups, and they are more likely to support the use of trigger warnings to protect vulnerable others (Celniker et al., 2022). Similarly, in our samples, belief that words can harm predicted a greater inclination to censor information about inherent differences between the sexes.

Other research has shown that being young, liberal, and female is associated with stronger belief that words can harm (Celniker et al., 2022); we found this pattern, as well. For example, in both samples, women held a stronger belief that words can harm than men did, and the college

students reported a stronger belief that words can harm than did the community adults (who were, on average, 20-25 years older). Although the community adult sample was overall more left-leaning than the college student sample,2 Table 3 shows that the within-sample pattern of censorious reactions to the information was the same: belief that words can harm and political liberalism predicted more censoriousness. These findings coincide with others' proposal that a concern about harm of protected groups is an underlying explanation for censorship (Clark et al., 2023; Stewart-Williams et al., 2024). They also coincide with survey data from university samples showing that female students and left-leaning students agree more that offensive viewpoints can be seen as an act of violence against vulnerable groups and should be prohibited (Bleske-Rechek et al., 2023).

The college student women scored nearly a full point higher than their college male counterparts and the community adult men and women in belief that words can harm. The college student women also stand out from the other groups in their relatively low receptivity and relatively high level of censoriousness toward the messenger and message. This negativity from the young women parallels other research showing that young women are much more likely than women of older generations to believe that women of today are discriminated against, even though the actual data suggest otherwise (Twenge, 2023). Given the overwhelming left-leaning ideological makeup of university faculty (Abrams, 2016, 2018; Langbert, 2018), we speculate that the college students in our samples have had more consistent exposure than the community adults to narratives that assert the continued subjugation of women by men, leading young women to be sensitive to any claim that could be viewed as furthering or supporting that subjugation. Future studies could investigate age and generational differences in the degree to which individuals perceive the scientific information we offered in the current study as discrepant from what they have seen in the news or social media or been taught in school. Perhaps future studies could also determine the degree to which people think the information we offered would be used to harm women.

Limitations

Although we have provided tentative evidence in support of the overarching hypothesis that identity-based biases can influence how individuals respond to scientific information about sex differences, the current study has several limitations that we hope to address in future research. First, the samples were too small to provide ample power to reliably detect interactive effects of participant and messenger identity. Because the community adult sample was substantially smaller than the college student sample, the interactive effect that did manifest in that sample is unreliable and should be treated with caution.

Second, we used small, written manipulations, which some might consider weak. It is also likely that some of our participants did not read the materials carefully, even if they said they did. A picture of a male professor vs female professor (matched on attractiveness, apparent status, etc.), or a video of a male vs female professor reciting the information, may have made the manipulation more impactful – and realistic. That said, a weak manipulation provides a conservative test of the hypothesis about the effect of messenger identity. In future replications and extensions of this work, we are considering alternative implementations of the manipulated variables (such as images of the messengers in addition to written descriptions), and we are implementing attention checks to increase our likelihood of retaining invested participants.

Another potential limitation of the current experiment is that the participant variables, including the Words Can Harm scale, were measured after the manipulation and primary dependent variables. Thus, rather than serve as a moderator of reactions to the messenger and their message, individuals' beliefs that words can cause harm could have been influenced by the vignette, the dependent variables, or the manipulation. In fact, though, in neither study was participants' belief that words cause harm reliably different when the messenger was male rather than female (College students: $t(394)=-1.05$, $p=.294$, $M_{diff}=-0.10$, 95% CI[-0.31, 0.09], Cohen's $d=-0.11$; Community adults: $t(151)=-1.13$, $p=.259$, $M_{diff}=-0.25$, 95% CI [-0.69, 0.19], Cohen's $d=-0.18$.).

Although our participants were convenience samples from a large public university and a crowdsourcing platform, and although our findings for the community adult sample should be considered tentative in light of the small sample size, in the aggregate our findings imply that the identity of a person presenting scientific information, as well as the receiver's identity and pre-existing personal beliefs, have the potential to influence how that information will be received. We hope that our findings will spur construct replications and extensions that will explore the degree to which identity characteristics, political views, and concerns about harm may relate to individuals' processing of information in other important contexts. For example, our team is currently investigating how people respond to controversial information about race and policing as a function of their own and the messenger's racial identity, and how people respond to information that is critical of psychiatric medications (such as antidepressants) as a function of their own personal experience with psychiatric medications and the apparent expertise of the messenger offering that information.

Implications for science

The results of our study imply epistemological bias: individuals' reactions to claimed facts about the world, including whether they want those facts censored or not, are not only related to their own identity and pre-existing beliefs, but can also be influenced by the claimant's identity. These findings align with a massive research literature showing that people in general do not process information in an unbiased fashion (Kahneman et al., 2021, Pinker, 2021). As a direction for future research, we wonder if *scientists* would be vulnerable to the same effects we documented here. Other research on bias suggests they might (Hergovich et al., 2010; Kahan et al., 2017; Stanovich, 2021), which highlights the importance of the principles of liberal science. Liberal science involves ideologically and politically impartial evaluation of all testable claims regardless of who makes the claims and regardless of their content and potential consequences (Abbot et al., 2023; Merton, 1942; Rauch, 2021).

If scientists hold these identity- and belief-based biases themselves, information can be flawed from its conception. Thus, not only might reliable information be misperceived, but also information itself may be unreliable. It is concerning to consider how frequent systematic distortions of information could be occurring. For example, we documented that political leaning was associated with individuals' reactions to scientific information, suggesting that we should be concerned about how information is processed in scientific domains that are politically homogenous – such as psychology (Inbar & Lammers, 2012). Within psychology, the claims from individuals of some identity groups could be favored and disseminated without undergoing critical review, while individuals of other identities might have their claims held to a stricter standard or censored. If this occurs, it is yet another bias that detaches the truthfulness of a claim from its actual truth value. In liberal science, the veracity of any testable claim, no

matter the identity of the claimant (messenger) or claim-checker (receiver), should be held to same logical and methodological scrutiny (Rauch, 2013).

Conclusion

In the current research, we have provided some evidence that people's response to scientific claims of truth can depend on the claimant's identity. We have also shown that people's own gender identity, political views, and beliefs about harm can relate to how they respond to scientific information. However, the scientific pursuit of truth demands impartial skepticism and evaluation of any testable claim no matter who makes it. If psychological scientists succumb to the same biases as others do, it is important to consider how harm concerns and identity-based biases might be shaping the production and dissemination of knowledge about human behavior.

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