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Reactions to Research on Sex Differences:

Effect of Sex Favoured, Researcher Sex and Importance of Sex-Difference Domain

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Abstract

Two studies (total $N = 778$) looked at (1) how people react to research finding a sex difference depending on whether the research puts men or women in a better light, and (2) how well people can predict the average man and average woman's reactions. Participants read a fictional popular-science article about fictional research finding either a male- or a female-favouring sex difference. The research was credited to either a male or a female lead researcher. In both studies, both sexes reacted less positively to differences favouring males; in contrast to our earlier research, however, the effect was larger among female participants. Contrary to a widespread expectation, participants did not react less positively to research led by a female. Participants did react less positively, though, to research led by a *male* when the research reported a male-favouring difference in a highly valued trait. Participants judged male-favouring research to be lower in quality than female-favouring research, apparently in large part because they saw the former as more harmful. In both studies, participants predicted that the average man and woman would exhibit substantial own-sex favouritism, with both sexes predicting more own-sex favouritism from the other sex than the other sex predicted from itself. In making these predictions, participants overestimated women's own-sex favouritism, and got the direction of the effect wrong for men. A greater understanding of the tendency to overestimate gender-ingroup bias could help quell antagonisms between the sexes.

KEYWORDS: Gender; Male Privilege; Sex Differences; Sexism; Women Are Wonderful Effect.

Reactions to Research on Sex Differences:

Effect of Sex Favoured, Researcher Sex and Importance of Sex-Difference Domain

Human beings commonly engage in motivated reasoning: We more readily accept claims that cohere with our preferences and preconceptions than those that don't (Ditto et al., 2018; Henry & Napier, 2017; Kahan et al., 2017). This is as true of scientific claims as of any other (Washburn & Skitka, 2018). One area of science where motivated reasoning may be common concerns differences between the sexes. Many people dislike claims about sex differences and are wary of research on the topic. This is understandable; science has a long history of making poorly evidenced, sexist proclamations about differences between men and women (Stewart-Williams, 2018). At the same time, however, when it comes to non-sexist, well-conducted sex-difference research, the antipathy may be regrettable. Aside from anything else, such research has the potential to increase human wellbeing. This is particularly clear in the medical realm; one study, for instance, concluded that the neglect in medical research of sex differences in body weight and pharmacokinetics has led to the overmedication of women and an increased frequency of adverse reactions in female patients (Zucker & Prendergast, 2020). The broader lesson is that an accurate view of existing sex differences may be useful in crafting interventions and policies that best serve the largest number of people. As such, examining the factors that determine whether people accept or reject sex-difference research is likely to be valuable. That was the main aim of the studies reported in this paper.

Theoretical Backdrop to the Research: The G-PROF Theory

Our efforts here were guided by a theoretical perspective we call the greater-protectiveness-of-females (or G-PROF) theory [citations redacted]. The central tenet of this theory is that, across cultures, people tend to be more protective and/or controlling of females

than males. The ultimate origins of this tendency can be found, we argue, in certain pan-human physical and reproductive differences between the sexes. This includes the fact that males are typically larger and stronger than females, and thus that females are typically more vulnerable, especially to threats from males. It includes the fact that women rather than men get pregnant and nurse the young, and thus that women and their families are more likely to end up “holding the baby” if a child is born outside the context of a stable long-term relationship. And it includes the fact that females are more “reproductively indispensable” than males: If half the males in a group were wiped out, the group could still have roughly as many offspring in the next generation; if half the *females* were wiped out, the number of offspring would necessarily be curtailed (Baumeister, 2010). Each of these sex differences, we propose, nudges individuals and cultures toward greater protectiveness and/or control of females. In addition, the same differences could potentially have created a biological selection pressure for an inherited nudge in this direction. Thus, the tendency may have both cultural and biological roots [citation redacted].

Regardless of the details of its origin, however, various psychological and sociological phenomena may have emerged to facilitate the greater protectiveness of females. These include a tendency to be more concerned about harm to females than males or to see greater harm to females in the same occurrence (Cesario, 2020; Reynolds et al., 2020; Stewart-Williams, 2002); a belief or social norm that females should be protected more than males even when harms are comparable (Reynolds et al., 2020); and a tendency to see females in a more positive light than males (aka the *women-are-wonderful effect*; Eagly & Mladinic, 1994; Glick et al., 2004). These tendencies and others may lead people to be more protective of females than males, at least in certain circumstances.

Male- vs. Female-Favouring Sex Differences

Applying the G-PROF framework to the question of people's responses to research on sex differences yields a number of testable predictions. The first concerns people's reactions to studies that paint men vs. women in a better light. Based on the assumption of greater protectiveness of females, a reasonable hypothesis would be that people of both sexes will typically react less positively to male- than to female-favouring sex differences. In a pre-registered study [citation redacted], we tested this hypothesis by presenting Western participants with a fictitious popular-science article describing sex differences that either favoured females (females draw better or lie less) or favoured males (the reverse). As predicted, participants were more positively disposed to the female-favouring than the male-favouring sex differences, rating the former as more important, plausible, and well-conducted, and the latter as more harmful, offensive, upsetting, and sexist. We also predicted that, although both sexes would react more positively to the female-favouring differences, the effect would be more pronounced in females as a result of gender-ingroup bias (FeldmanHall et al., 2016; Reynolds et al., 2020; Rudman & Goodwin, 2004). As it turned out, however, there were no consistent sex differences in participants' reactions. We later replicated both of these findings in a direct replication of our initial study with a comparable Western sample [citation redacted].

If protectiveness of females underlies the aversion to male-favouring findings, an implication is that any individual-level variable that predicts a tendency to see women as disadvantaged or as victims of male malfeasance – and thus as requiring greater protection – would predict a stronger aversion. This would include, for instance, a left-leaning political orientation (Winegard et al., 2018) and a belief that men are privileged over women in society [citation redacted]. The results of our initial study and direct replication were broadly in line with this proposal [citations redacted]. In both cases, the more left-leaning that the

participants were, and the more privileged they thought men are over women, the more negatively they reacted to the male-favouring differences. In contrast, political orientation did not predict participants' reactions to the female-favouring differences in either study, and male-privilege belief predicted reactions to the female-favouring differences only in the first (higher male-privilege belief scores were associated with more positive reactions to female-favouring differences).

A further implication of the G-PROF theory is that, if the aversion to male-favouring findings stems from protectiveness of women, it will be common across cultures, as a result of the fact that the sex differences giving rise to female-focused protectiveness are cross-cultural universals. To begin assessing this hypothesis, we conducted another pre-registered replication of our original study, but this time in Southeast Asia [citation redacted]. Despite the very different cultural background of the new sample, the results were largely the same. Participants reacted less positively to the male- than the female-favouring sex differences, with no difference between the sexes in the strength of this effect. In addition, the more privileged that participants thought men are over women, the less positively they reacted to the male-favouring difference. This constitutes preliminary evidence that our earlier results were not simply products of recent social norms unique to Western world. Instead, they may reflect a deeper-seated tendency, rooted in cultural and/or biological evolution, to be more protective and/or controlling of females than males.

Lay Predictions about Gender Bias

In addition to examining participants' responses to male- vs. female-favouring sex differences, we examined their predictions about the responses of the average man and woman [citations redacted]. Consistent with prior research (Stewart-Williams, 2002), participants predicted that both sexes would strongly prefer differences that favoured their own sex. The effect sizes for the predictions were extremely large, with Cohen's d 's as high

as 2 – notably larger than most effects in psychology (Brysbaert, 2019; Richard et al., 2003). In their predictions about the average woman, participants were accurate regarding the direction of the effect but greatly exaggerated the effect's magnitude. In their predictions about the average man, participants even got the direction of the effect wrong: They predicted a strong pro-male preference when in fact the average man exhibited a modest pro-female preference. These results were found not only in our initial Western study and Western replication but also in our Southeast Asian replication [citations redacted].

Study 1: Effect of Sex of Researcher

Our earlier studies show that people's reactions to research on sex differences are shaped in part by whether the findings of the research favour males or favour females. Another variable that could plausibly exert such an influence is the sex of the lead researcher. A number of predictions are possible here. One is that people will react less positively to research led by a woman, as a result of gender-role expectations and sexist stereotypes (see, e.g., Knobloch-Westerwick et al., 2013; Krawczyk & Smyk, 2016). Another prediction, however – the one we think more plausible in the light of the G-PROF theory – is that people will react less positively to research led by a *man* if the findings of that research favour males. As noted, the aversion to male-favouring sex differences is plausibly an instance of the greater protectiveness of females than males. If protectiveness is the operative variable, however, the effect may be compounded when the research is led by a man. Because men are typically larger, stronger, and more prone to violence than women, they have historically been a greater threat to women than other women have. Consequently, people may tend to treat threats to women from men as especially concerning and objectionable, even in contexts unrelated to size, strength, or violence. Existing research is consistent with this proposal; various studies, for instance, have found that participants are more likely to notice sexism

against women when the perpetrator is a man (Baron et al., 1991; Hehman et al., 2022). A sex-difference finding is not sexism per se, but it could evoke a similar response if seen as comparably harmful.

Aims and Hypotheses

Study 1 had two main aims. The first was to examine the effect of Researcher Sex on participants' reaction to sex-difference research. The second was to attempt a further replication of our prior findings using psychometrically improved measures. The following hypotheses were pre-registered with OSF.

- 1.1 Participants will react more positively to a female- than a male-favouring sex difference.
- 1.2 Participant sex will have little impact on the strength of this effect.
- 1.3 Participants will react less positively to a male-favouring sex difference when the lead researcher is male rather than female.
- 1.4 Participants will overestimate the extent to which both sexes are biased in favour of their own sex in their reactions to a male- vs. female-favouring sex difference.

We did not pre-register predictions regarding political orientation or male-privilege belief, but did attempt to replicate our prior findings related to these variables.

Method

Participants

Participants were recruited via Prolific.co, a platform that pays people a small sum to take part in online studies. A minimum sample size of 210 was calculated in advance using G*Power (Faul et al., 2007), with alpha set at .05 and power at .95, and looking for a medium effect size. The final sample included 358 people: 177 men and 181 women. The age range

was 18 to 72 years ($M = 34.64$, $SD = 11.72$). Most participants were from either the United States (71.3%) or the United Kingdom (26.2%).

Materials and Procedure

The study was administered through the online survey platform Qualtrics. After giving their informed consent, participants were shown a fictitious popular-science article reporting a fictitious recently discovered sex difference: either that men were better at drawing or that women were. Within each of these conditions, half the participants were led to believe that the lead researcher was a man and half that she was a woman. This was done by including both a name and a photograph of the ostensible lead researcher in each of the fictitious articles. The names were the most popular female or male first names in the United States in the 1980s and 1990s, coupled with the most common surname. Thus, the female researcher's name was Dr Jessica Smith and the male's Dr Michael Smith. The photos – two for each sex – were colour head-and-neck shots of smiling Caucasian adults drawn from the Facial Recognition Technology (FERET) database,¹ and used with permission. Having read their assigned article, participants were invited to complete four brief questionnaires.

Reaction-to-Research Questionnaire. The first questionnaire asked participants about their reactions to the study and its results; it was similar to the one used in our earlier studies [citations redacted], but with a number of changes and updates. To start with, we dropped the item asking participants how interesting the study was, because in the earlier studies, this had a lower item-total correlation than the rest. In addition, we added new items asking participants how convincing the study was, to what extent it provided good evidence for its conclusion (adapted from Colombo et al., 2016), how trustworthy the researchers were, and whether studies like this should be funded. We did this to improve the psychometric

¹ <https://www.nist.gov/itl/products-and-services/color-feret-database>

properties of the questionnaire, and to see whether we could replicate our findings with a modified instrument. All responses were registered via seven-point Likert scales.

Average-Man and Average-Woman Predictions Questionnaires. These questionnaires involved giving participants the same questions again twice, but asking them to respond, first, in the way they thought the average man would, and second, in the way they thought the average woman would.

Male-Privilege Belief Scale. This four-item scale, based on Martin and Nezelek's (2014) Belief in White Privilege Scale, asked participants for their views about the extent to which men or women are privileged over the other sex. Items included "Do you think people treat men worse or better than women in general?" and "Do you think men need to work less hard or work harder than women to get ahead in their career?"

Results and Discussion

Four aggregate variables were created from the items in the four questionnaires: Reaction to Research ($\alpha = .89$), Average-Man Predicted ($\alpha = .92$), Average-Woman Predicted ($\alpha = .94$), and Male-Privilege Belief ($\alpha = .89$). The main analyses were three-way ANOVAs, with the factors Sex Favoured, Participant Sex, and Researcher Sex. Below, we present our main findings; see Supplementary Tables S1.1 to S1.5 for the full set of descriptive and inferential statistics pertaining to Study 1.

Sex Favoured and Participant Sex

Consistent with Hypothesis 1.1, participants reacted less positively to a male- than a female-favouring sex difference ($F_{1,350} = 42.78, p < .001, d = 0.7$; see Figure 1). This replicates the pattern found in our earlier studies, and is consistent with the idea that people tend to be more protective of females than males.

-----Insert Figure 1 here-----

Contrary to Hypothesis 1.2 and our earlier studies, there was a significant Sex Favoured \times Participant Sex interaction ($F_{1, 350} = 6.62, p = .013, d = 0.27$). Although both sexes preferred the female-favouring sex difference, the effect was stronger for females. This was because females reacted less positively than males to the male-favouring sex difference ($F_{1, 179} = 12.19, p = .001, d = 0.52$). The sexes did not differ in their reactions to the female-favouring difference ($F_{1, 175} = 0.03, p = .871, d = 0.02$).

To get a more in-depth picture of the participants' reactions, we examined the individual items making up the aggregate variable. Figure 2 shows the effect of Sex Favoured for each of the individual items. In addition to finding an effect for all the items used in our earlier studies, we found a number of new effects related to the newly added items. Specifically, when presented with a male-favouring sex difference, participants found the study less convincing, thought it provided weaker evidence for its conclusion, judged the researchers to be less trustworthy, and agreed less that such studies should be funded (though note that the last finding only just reached significance; $p = .048$).

-----Insert Figure 2 here-----

Sex of the Lead Researcher

We next examined the effects of Researcher Sex on participants' reactions to the research (see Figure 3). The planned comparison was not significant: Contrary to Hypothesis 1.3, participants did not react less positively to a male-favouring sex difference when the lead researcher was male rather than female ($F_{1, 177} = 0.19, p = .665, d = 0.05$). Indeed, the sex of

the lead researcher had no impact at all on participants' reactions: There was no main effect of Researcher Sex, and there were no interactions involving Researcher Sex ($ps > .05$).

-----Insert Figure 3 here-----

Male-Privilege Belief and Political Orientation

Replicating our prior studies, participants tended to see men as privileged over women ($M = 1.15$, $SD = 1.21$, on a scale spanning from -3 [women privileged] to 3 [men privileged]), but with female participants seeing a notably higher level of male privilege than males ($M = 1.67$, $SD = 0.99$ vs. $M = 0.61$, $SD = 1.19$; $F_{1, 355} = 83.71$, $p < .001$, $d = 0.97$). Also replicating our prior studies, a non-trivial minority of participants (14.4%) saw women as privileged over men. This included 25.8% of the male participants but only 4% of the females ($X^2 [1, N = 334] = 32.13$, $p < .001$, $d = 0.65$).

To determine whether male-privilege belief and political orientation moderated the effect of Sex Favoured on participants' reactions to the research, we conducted a moderation analysis using PROCESS Model 3 (Hayes, 2017). All variables were mean-centred prior to running the analysis (Aiken & West, 1991; Iacobucci et al., 2017). The overall model was significant ($R^2 = .23$, $F_{7, 346} = 14.98$, $p < .001$). Sex Favoured was the strongest independent predictor of participants' reactions ($B = 0.63$, $t_{346} = 5.46$, $p < .001$). Political orientation and male-privilege belief were also predictors ($B = 0.18$, $t_{346} = 4.45$, $p < .001$ for the former; $B = -0.1$, $t_{346} = -2.05$, $p = .041$ for the latter). Collapsing across Sex-Favoured conditions, the more left-leaning that participants were, and the more privileged they thought men are over women, the less positive their reactions to the research.

There was no significant interaction between Sex Favoured and political orientation ($B = -0.12$, $t_{346} = -1.44$, $p = .152$). There was, however, a (barely) significant interaction

between Sex Favoured and male-privilege belief ($B = 0.2$, $t_{346} = 1.98$, $p = .048$). Controlling for political orientation, the more privileged that participants thought men are over women, the less positively they reacted to the male-favouring difference, consistent with our three prior studies on this topic ($B = -0.18$, $t_{10.87} = -2.47$, $p = .014$). Male-privilege belief did not predict reactions to the female-favouring difference, consistent with two of our three prior studies ($B = 0.02$, $t_{16.26} = 0.27$, $p = .786$).

Predictions about the Average Man and Woman's Gender Biases

Finally, we looked at participants' predictions about the reactions of the average man and woman to the fictitious findings. Consistent with Hypothesis 1.4, participants predicted that the average man doing the study would react much more positively to a male- than a female-favouring sex difference ($F_{1, 349} = 213.67$, $p < .001$, $d = 1.49$; see Figure 4). The collective prediction was false; the average man, as mentioned, reacted somewhat *less* positively to the male-favouring difference. As with our earlier studies, there was a significant Sex Favoured \times Participant Sex interaction ($F_{1, 349} = 25.52$, $p < .001$, $d = 0.54$). Although both sexes predicted own-sex bias from the average man, female participants predicted more. Specifically, compared to males, females predicted a somewhat more positive reaction from the average man to the male-favouring difference ($F_{1, 178} = 4.76$, $p = .03$, $d = 0.33$), and a notably less positive reaction to the female-favouring difference ($F_{1, 175} = 27.09$, $p < .001$, $d = 0.78$).

-----Insert Figure 4 here-----

Also consistent with Hypothesis 1.4, participants predicted that the average woman would react much more positively to the female- than the male-favouring sex difference ($F_{1, 350} = 445.46$, $p < .001$, $d = 2.21$; see Figure 4). This effect was qualified by a significant Sex

Favoured \times Participant Sex interaction ($F_{1, 350} = 7.07, p = .008, d = 0.28$): Although both sexes predicted that the average woman would exhibit considerable own-sex bias, male participants predicted more. This was entirely due to the fact that, compared to females, males predicted a more positive reaction from the average woman to the female-favouring difference ($F_{1, 175} = 12.02, p = .001, d = 0.52$). The sexes did not differ in their predictions about the average woman's reaction to the male-favouring difference ($F_{1, 179} = 0.09, p = .771, d = 0.04$). The upshot is that both sexes predicted more own-sex bias from the other sex than their own: an own-sex bias in the prediction of own-sex bias.

Study 2: Effect of Sex of Researcher for a High-Stakes Sex Difference

Our initial investigation of the effect of Researcher Sex yielded no significant results. Contrary to what many would expect (e.g., Knobloch-Westerwick et al., 2013; Krawczyk & Smyk, 2016), participants did not react any less positively to female-led research. Contrary to our own expectation, participants did not react any less positively to *male*-led research reporting a male-favouring sex difference. One potential explanation for this null result is that the trait we used as the locus of our male- vs. female-favouring sex difference – drawing ability – is not one that matters hugely to most people or that has much impact on most people's lives. As such, a male-favouring sex difference in this trait might not be sufficiently threatening to elicit the hypothesized effect of Researcher Sex. In Study 2, we tested the hypothesis again, but this time using a more consequential and contentious trait: intelligence.

We also expanded our investigation into the nature of the aversion to male-favouring sex differences and the psychological variables underpinning it. Our original Reaction-to-Research variable included items asking participants about the quality of the research, and items asking about how harmful the research was and the extent to which the disfavoured sex should be protected from it. It occurred to us that by adding more items and splitting the

Reaction-to-Research variable into these three components, we could address two new questions. First, we could determine whether people judge research finding a male-favouring sex difference to be lower in quality. Unlike attributes such as harmfulness, perceived quality should in principle not be affected by the direction of the fictional study's findings. As such, examining the impact of Sex Favoured on perceived quality alone would provide a stronger test of the impact of motivated reasoning. Second, if people do judge male-favouring research to be lower in quality, we could assess whether this effect is mediated by perceived harmfulness and a desire to protect women from the findings. In addition to splitting the Reaction-to-Research variable, we added a measure of the women-are-wonderful effect, so we could assess whether the tendency to see women in a more positive light than men contributes as well to the male-favouring aversion – and ultimately to the greater protectiveness of females.

Hypotheses

Once again, our hypotheses were pre-registered with OSF.

- 2.1 Both sexes will react less favourably to a male-favouring sex difference in intelligence.
- 2.2 Participant sex will have little impact on the strength of the effect.
- 2.3 Participants will react less favourably to a male-favouring sex difference in intelligence when the lead researcher is male rather than female.
- 2.4 Participants will perceive research finding a male-favouring sex difference as lower in quality. This will be mediated by participants' perceptions of the harmfulness of the research and the need to protect people from it.
- 2.5 For a male-favouring sex difference, greater susceptibility to the women-are-wonderful effect will predict a less positive overall reaction to the research, lower ratings of research quality, higher ratings of harmfulness, and a greater perceived need to protect people from the findings. The reverse will be true for a female-favouring sex difference.

- 2.6 Participants will overestimate the extent to which men and women are biased in favour of their own sex in their reactions to a male- vs. female-favouring sex difference.²

Method

Participants

Participants were again recruited from Prolific.co, with a G*Power analysis determining a minimum sample size of 210 using the same alpha, power, and effect size parameters as Study 1. Our final sample included 420 individuals – 207 men and 213 women – aged 18 to 74 years ($M = 30.15$, $SD = 10.86$). Most were from either the United States (61%) or the United Kingdom (35%).

Materials and Procedure

The stimuli were identical to those used in Study 1, except that the fictitious sex difference described in the popular-science article was a sex difference in intelligence rather than drawing ability. We did not include the Male-Privilege Belief Scale in this iteration of the study, to keep participation time to a reasonable length.

Reaction-to-Research Questionnaire. To test Hypotheses 2.4 and 2.5, we added ten new items to the questionnaire used in Study 1, so we could create separate scales measuring participants' views about the quality of the research, its harmfulness, and the extent to which the disfavoured sex should be protected from it. See Table 1 for the full list of items.

Average-Man and Average-Woman Predictions Questionnaires. These were again identical to the Reaction-to-Research questionnaire, except that they asked participants to predict the responses of the average man and woman doing the study.

² Note that we also pre-registered the hypothesis that the effect of Sex Favoured would be stronger in Study 2 than Study 1, due to the use of a more contentious sex difference in Study 2. We ultimately decided, however, that this hypothesis should be tested in a single study varying the focal traits, rather than a comparison of two different studies.

Spontaneous Stereotypes of Men and Women Questionnaire. This questionnaire – a measure of the women-are-wonderful effect – was based on the spontaneous-stereotypes-about-men-and-women questionnaire described by Glick et al. (2004). Participants listed up to ten personality traits they associated with men, and rated each on a scale spanning from -3 (Extremely negative) to 3 (Extremely positive). They then repeated the exercise for women.

Note that the debrief page at the end of the survey made clear not only that the study was fictitious, but also that there are no average sex differences in intelligence (Flynn, 2012; Halpern, 2012).

Results and Discussion

We created four aggregate variables from the items in the Reaction-to-Research questionnaire. First, we created an overall Reaction-to-Research variable, identical to that used in Study 1 ($\alpha = .89$). Next, we created three sub-variables covering participants' perceptions of the quality and harmfulness of the research, and the extent to which the disfavoured sex should be protected from it. To assess the validity of the proposed three-factor structure, we ran a principal components exploratory factor analysis using a Varimax rotation (see Table 1). Bartlett's test of sphericity and the KMO both indicated that our items were sufficiently related for factor analysis. The anticipated factor structure was evident for 21 of the 22 items. The exception was Surprising. Removing Surprising from the analysis yielded the three-factor structure for the remaining items. Of these, all but one loaded strongly on only one of the three factors. The exception was Funded, which loaded on Factor 2 (.524) and Factor 3 (-.499), and which was thus excluded from the analysis. Table 1 shows the factor loadings for the final 20-item analysis. We labelled Factor 1 Harmfulness of Research ($\alpha = .91$), Factor 2 Quality of Research ($\alpha = .92$), and Factor 3 Need to Protect from

Research ($\alpha = .89$). Together, the three factors explained 66.58% of the variance in participants' responses.

-----Insert Table 1 here-----

Finally, we created two aggregate variables from the two prediction questionnaires: Average-Man Predicted ($\alpha = .95$) and Average-Woman Predicted ($\alpha = .96$). The main analyses were three-way ANOVAs with the factors Sex Favoured, Participant Sex, and Researcher Sex. See Supplementary Tables S2.1 to S2.9 for all the descriptive and inferential statistics related to Study 2.

Sex Favoured and Participant Sex

Consistent with Hypothesis 2.1, and all our previous studies, participants reacted less positively to the male- than the female-favouring sex difference in intelligence ($F_{1, 412} = 71.75, p < .001, d = 0.79$; see Figure 5). This was qualified, however, by a significant Sex Favoured \times Participant Sex interaction ($F_{1, 412} = 12.03, p = .001, d = 0.33$): Contrary to Hypothesis 2.2, but consistent with Study 1, the effect of Sex Favoured was larger for the female participants. As with Study 1, this was due entirely to differences in how the sexes reacted to the male-favouring sex difference: Females reacted less positively than males ($F_{1, 212} = 17.46, p < .001, d = 0.57$). The sexes did not differ in their reactions to the female-favouring difference ($F_{1, 204} = 0.13, p = .718, d = 0.05$).

-----Insert Figure 5 here-----

Figure 6 shows the effect of Sex Favoured for each of the individual items. As well as replicating all the individual-item findings from our earlier studies, the analysis revealed

various new findings related to the newly added items. Participants were more sympathetic to women than men exposed to an other-sex-favouring sex difference (a particularly large effect: $d = 1.02$). Participants thought that a male-favouring sex difference would contribute more to harmful stereotypes of the sexes than a female-favouring difference. Participants thought that an other-sex-favouring sex difference would undermine women's confidence more than men's, and cause women to do worse on intelligence tests to a greater extent. Participants thought it was more important to keep other-sex favouring findings away from girls than boys, and agreed more that teachers and media should avoid mentioning a male- than a female-favouring sex difference. Finally, participants thought that people promoting a male-favouring sex difference were being more irresponsible than those promoting a female-favouring one.

-----Insert Figure 6 here-----

Sex of the Lead Researcher

In contrast to Study 1, but in line with Hypothesis 2.3, participants reacted less positively to a male-favouring sex difference when the lead researcher was male rather than female ($F_{1, 210} = 5.02, p = .026, d = 0.25$; see Figure 7). Post-hoc tests revealed that this was largely due to the female participants: Females reacted less positively to male-led than female-led research finding a male-favouring sex difference ($F_{1, 103} = 6.5, p = .012, d = 0.5$); males, in contrast, did not react significantly differently depending on the sex of the lead researcher ($F_{1, 107} = 0.67, p = .415, d = 0.16$). Note that participants did not react any differently to *female*-led research finding a *female*-favouring sex difference ($F_{1, 202} = 0.01, p = .932, d = 0.01$). This suggests that the negative reaction to the male-reported, male-favouring difference was not simply an aversion to researchers of either sex promoting own-

sex favouring findings. Instead, it appears to reflect a tendency, at least among female participants, to be especially protective of females in response to a threat from a male.

-----Insert Figure 7 here-----

Research Quality vs. Harmfulness and Need to Protect from Research

Next, we looked at whether Sex Favoured impacted participants' perceptions of the quality of the research, and if so, whether the effect was mediated by its perceived harmfulness and participants' desire to protect the lower-scoring sex from the findings. To that end, we ran a mediation analysis using PROCESS Model 6 (Hayes, 2017). The results are shown in Figure 8.

-----Insert Figure 8 here-----

The total effect model showed that, prior to adding the mediators, Sex Favoured was significantly associated with perceptions of research quality ($R^2 = .05$, $F_{1, 418} = 21.9$, $p < .001$): Participants viewed the female-favouring research as higher in quality than its male-favouring counterpart ($B = 0.58$, $t_{418} = 4.68$, $p < .001$). However, with Harmfulness and Need to Protect added to the model as mediators, the Sex Favoured-Quality link ceased to be significant, indicating full mediation by one or both of these variables ($B = 0.14$, $t_{416} = 1.08$, $p = .279$). Hypothesis 2.4 stated that both variables would mediate the Sex Favoured-Quality link. As it turned out, though, Harmfulness alone was a significant mediator ($B = 0.41$, BCa CI [0.24, 0.61]): Participants saw the male-favouring finding as more harmful than the female-favouring one ($B = -1.25$, $t_{418} = -10.29$, $p < .001$), and the more harmful that

participants judged the finding to be, the lower in quality they rated the research ($B = -0.33$, $t_{416} = -5.74$, $p < .001$).

Need to Protect, on the other hand, did not mediate the Sex Favoured-Quality link ($B = 0.03$, BCa CI [-0.02, 0.03]): Sex Favoured was not significantly associated with Need to Protect ($B = -0.1$, $t_{417} = -0.82$, $p = .415$), and Need to Protect was not significantly associated with Quality ($B = -0.03$, $t_{416} = -0.51$, $p = .613$). Note that a separate analysis using PROCESS Model 4 showed that, without including Harmfulness in the model, both associations *were* significant (indirect effect: $B = 0.18$, BCa CI [0.09, 0.29]): People were more inclined to protect females than males from other-sex favouring research ($B = -0.93$, $t_{417} = -6.72$, $p < .001$), and a greater inclination to protect the disfavoured sex was associated with lower ratings of research quality ($B = -0.19$, $t_{417} = -4.55$, $p < .001$). However, with Harmfulness added to the model, both associations disappeared. This suggests that participants were more inclined to protect females because they saw greater harm to females, and that the desire to protect the disfavoured sex was associated with lower ratings of research quality because this desire was associated with greater perceived harm.

Women Are Wonderful

Next, we looked at the women-are-wonderful effect and whether it influenced participants' reactions to the research. As mentioned, participants listed up to ten traits they associated with each sex, then rated each of those traits. As Figure 9 shows, participants rated both the male and the female traits at least somewhat positively, but rated the female traits more positively than the male ones – the standard women-are-wonderful effect ($F_{1, 396} = 155.58$, $p < .001$, $d = 0.76$). This was qualified by an interaction between Evaluated Sex and Participant Sex ($F_{1, 396} = 4.79$, $p = .029$, $d = 0.16$): The gap between female participants' ratings of the female vs. male traits was larger than that between male participants' ratings, indicating a stronger women-are-wonderful effect among the females. This was because

females rated the male traits less positively than males did ($F_{1, 396} = 12.27, p = .001, d = 0.35$). The sexes did not differ significantly in their ratings of the female traits ($F_{1, 396} = 1.72, p = .19, d = 0.13$).

-----Insert Figure 9 here-----

Our next aim was to determine whether the women-are-wonderful effect moderated the impact of Sex Favoured on participants' reactions to the research, and on their assessments of its quality, its harmfulness, and the extent to which the disfavoured sex should be protected from it. To that end, we conducted a moderation analysis using PROCESS Model 3 for each of the outcome variables. Our women-are-wonderful variable was the average evaluation score for the female traits minus the average evaluation score for the male ones; thus, positive values implied a more positive view of females than males, and negative values the reverse.³ We included political orientation as an additional moderator to determine whether any effects of our women-are-wonderful variable were independent of political orientation, and vice versa.

Table 2 presents the results. The overall model was significant for each outcome variable. The findings for the women-are-wonderful effect were largely consistent with Hypothesis 2.5. For the male-favouring sex difference, higher women-are-wonderful scores were associated with less positive overall reactions to the research, higher ratings of harmfulness, and a higher perceived need to protect the disfavoured sex. Women-are-wonderful scores did not predict ratings of the quality of research finding a male-favouring sex difference. For the female-favouring sex difference, higher women-are-wonderful scores

³ Although most participants rated female traits higher than male, a substantial minority – 22.5% – did the opposite, thereby exhibiting a *men-are-wonderful* effect. Although this included more males than females (25.4% vs. 19.6%), the difference was not significant ($X^2 [1, N = 387] = 1.87, p = .172, d = 0.14$).

were associated with more *positive* overall reactions to the research, higher ratings of quality, lower ratings of harmfulness, and a lower perceived need to protect the disfavoured sex.

Turning to political orientation, for the male-favouring sex difference, the more left-leaning the participants were, the less positive their overall reactions to the research, the lower in quality and more harmful they judged the study to be, and the more they agreed that the disfavoured sex should be protected from the study's findings. For the female-favouring sex difference, in contrast, political orientation did not predict responses for any outcome variable, corroborating the pattern observed in our earlier studies.

-----Insert Table 2 here-----

Predictions about the Average Man and Woman's Gender Biases

Consistent with Hypothesis 2.6, participants predicted that the average man would react much more positively to the male- than the female-favouring sex difference in intelligence ($F_{1, 412} = 550.51, p < .001, d = 2.25$; see Figure 10). This effect was qualified, however, by a significant interaction between Sex Favoured and Participant Sex ($F_{1, 412} = 27.91, p < .001, d = 0.52$): As with our previous studies, females predicted more own sex bias from the average man than males did. More precisely, compared to males, females predicted a more positive reaction from the average man to the male-favouring difference ($F_{1, 112} = 8.23, p = .005, d = 0.39$), and a less positive reaction to the female-favouring difference ($F_{1, 204} = 23.21, p < .001, d = 0.67$).

-----Insert Figure 10 here-----

Also consistent with Hypothesis 2.6, participants predicted that the average woman would react much more positively to a female- than a male-favouring sex difference in intelligence ($F_{1, 412} = 943.41, p < .001, d = 2.95$; see Figure 10). Once again, this effect was qualified by a significant Sex Favoured \times Participant Sex interaction ($F_{1, 412} = 10.36, p = .001, d = 0.35$), with males predicting more own-sex bias from the average woman than females predicted. Specifically, consistent with Study 1, males predicted a more favourable reaction from the average woman to the female-favouring difference than did females ($F_{1, 204} = 11.04, p = .001, d = 0.46$); also consistent with Study 1, the sexes did not differ significantly in their predictions about the average woman's reaction to the male-favouring difference ($F_{1, 212} = 2.7, p = .102, d = 0.22$). In summary, participants of both sexes again overestimated people's own-sex favouritism, especially in the other sex.

General Discussion

The strongest and most consistent findings of the studies reported here were, first, that participants of both sexes reacted less positively to male- than female-favouring sex differences, and second, that participants predicted – falsely – that both sexes would react much more positively to differences favouring their own sex. Below, we discuss these and our other major findings.

Both Sexes React Less Positively to Male-Favouring Sex Differences

Consistent with expectations, participants in both studies reacted less positively to male-favouring sex differences. This pattern has now been demonstrated in five out of five studies: four in the Anglosphere and one in Southeast Asia [citations redacted]. In every case, the effect was found not only among female participants but also among the males. These findings mesh nicely with related research showing that people view claims that males

perform better than females in a given domain as less credible than equivalent claims that females do (Colombo et al., 2016; von Hippel & Buss, 2017; Winegard et al., 2018), and that people are more inclined to censor the former claims (Ashokkumar et al., 2020; Clark et al., 2022; Clark et al., 2020). The aversion to male-favouring sex differences appears to be a robust phenomenon.

Our results challenge some commonly held views about how people see the sexes. This includes the view that people in general, and males in particular, see men more favourably than women, a plausible implication of which is that people would resist information running in the opposite direction (see, e.g., Eagly & Mladinic, 1994, pp. 2-5; Glick & Fiske, 2001, p. 110; Mercier et al., 2020). It also includes the view that both sexes would be more accepting of information that puts their own sex in a better light. This view appears to be particularly common, as was evident in the predictions made by participants in five out of five of our studies (further discussed below). Neither view, however, is accurate. Both sexes are less accepting of male-favouring sex differences, consistent with the supposition that both sexes are more protective of females than males.

The aversion to male-favouring differences could potentially impact the conduct and reception of research in this area. Studies investigating male-favouring differences may less readily gain IRB approval, attract grant money, or navigate the peer-review process (Ceci & Williams, 2020) – not necessarily because reviewers deliberately discriminate against such studies (although see Honeycutt & Freberg, 2017; Inbar & Lammers, 2012), but because they genuinely view them as lower in quality. Such effects seem particularly plausible given that most academics fall on the political left, where the male-favouring aversion is stronger (Ceci & Williams, 2020; Duarte et al., 2015). And not only might male-favouring studies have a harder time getting published, some might never be conducted in the first place because of researcher concerns about their effects or reception.

On the one hand, it could be argued that this is a good thing, as we should set a higher bar for accepting findings that could inadvertently bolster harmful stereotypes.⁴ On the other hand, to the extent that studies showing male-favouring differences are judged by different standards than those showing the reverse, one effect might be to somewhat distort our understanding of current sex differences. This could make it harder to target interventions appropriately. If so, then although the resistance to male-favouring sex differences stems from a concern about women's wellbeing, it is not necessarily in women's best interests. This may be a common unintended consequence of the greater protectiveness of women than men (see, e.g., Jampol & Zayas, 2021).

The Aversion to Male-Favouring Sex Differences May Be More Pronounced in Women

Both sexes exhibit an aversion to male-favouring sex differences – but is it equally strong for both? Our original prediction [citation redacted] was that it would not be; instead, as a result of gender-ingroup bias, women's aversion would be stronger (FeldmanHall et al., 2016; Olsen & Willemsen, 1978; Rudman & Goodwin, 2004). In our first three studies, we found little evidence for this hypothesis [citations redacted]. Consequently, our hypothesis for the studies presented in this paper was that we would *not* find a sex difference in the strength of the male-favouring aversion. Ironically, having revised our hypothesis, we then *did* find a difference, consistent with our original, previously unsupported hypothesis. Specifically, although both sexes reacted less positively to male- than female-favouring sex differences, the gap was larger for our female participants, mainly because females reacted more negatively than males to the male-favouring differences. One possible explanation for the mixed results is that our new, psychometrically improved Reaction-to-Research measures

⁴ Note, though, that just as male-favouring stereotypes could be harmful to females, female-favouring stereotypes could be harmful to males. As such, the selective concern about the impact of male-favoring sex differences on females would itself seem to rest on the greater protectiveness of females than males.

detected a subtle effect that the earlier versions missed. Regardless of the reason, though, it seems safe to say that the effects of gender-ingroup bias are weaker and less reliable than those of Sex Favoured.

People Sometimes React Less Positively to Male-Led Research Reporting a Male-Favouring Sex Difference

The sex of the lead researcher had surprisingly little impact on participants' reactions to the research. On the one hand, participants did not react less positively to female- than male-led research in either study addressing this issue. Many would predict that they would (Knobloch-Westerwick et al., 2013; Krawczyk & Smyk, 2016), so our null finding, if it holds up, is good news. As for our hypothesis that people would react less positively to a male-favouring sex difference reported by a male lead researcher, the results were mixed. For a sex difference in drawing ability, no such effect materialized. However, for a sex difference in a more valued and consequential trait – a sex difference in intelligence – it did, albeit only among female participants. Although further research is needed, our findings are consistent with the idea that people are especially protective of females when the threat originates from a male, but only when the threat is sufficiently severe.

“The Findings Are Harmful; Therefore, the Study was Poorly Done”

Participants judged research finding a male-favouring sex difference to be lower in quality than that finding a female-favouring difference. Our hypothesis was that this effect would be mediated by the perceived harmfulness of the research and the desire to protect women from it. Contrary to hypothesis, however, harmfulness alone mediated the effect. Participants saw the male-favouring difference as more harmful, and judgements of

harmfulness predicted lower ratings of research quality. The desire to protect women from the research played no independent role.

At first glance, this might seem to contradict the G-PROF theory, according to which people's aversion to male-favouring findings stems from protectiveness toward females. We disagree with this interpretation, however. By including perceived harmfulness and protectiveness as separate variables in our analysis, what we were testing is whether people would be more protective of females *over and above* perceived harm to females. We found that they would not. This does not imply, however, that they were *not* more protective of females; they were. Instead, the finding implies that the greater protectiveness of females is due largely to greater perceived harm to females, rather than a tendency to protect females more than males even when harms are comparable. In other words, rather than contradicting the idea that people are more protective of females, the finding helps to explain *why* they're more protective. They're more protective, it seems, largely because they see more harm to women than men in the same occurrence.

As well as shedding light on the wellsprings of female-focused protectiveness, our research contributes to the literature on motivated reasoning. In principle, judgements of the quality of research should be independent of perceptions of its potential harmfulness. In practice, though, they are not: The latter impacts the former – as if people are thinking “The findings are harmful; therefore, the study was poorly done.” This result provides a strong demonstration of the power of motivated reasoning.

People's Reactions Are Shaped in Part by Political Orientation, Male-Privilege Belief, and the Women-Are-Wonderful Effect

Participants' reactions to male- vs. female-favouring findings were moderated by several variables in ways largely consistent with the G-PROF theory. The first moderator was

political orientation. Although the findings here are somewhat unstable [citations redacted], the general rule is that the more that participants leaned politically to the left, the less positive their reactions to the male-favouring sex differences. In contrast, political orientation consistently failed to predict reactions to the *female*-favouring sex differences. Although not anticipated, this pattern does make sense in light of the G-PROF theory. The more that one sees women as victims of oppression by men, the more protective one is likely to be of women and thus the more averse to male-favouring findings. People on the left are more likely to see women as victims of male oppression (Winegard et al., 2018), so people on the left are likely to be more averse. In contrast, regardless of one's views on the oppression of women, female-favouring differences are not a threat to women; thus, left and right would not be expected to differ in their reactions. The fact that political orientation predicts reactions to male- but not female-favouring sex differences is consistent with the idea that the effect of Sex Favoured is a product of protectiveness toward females rather than, say, a desire to boost females over males. More generally, our findings are consistent with recent research suggesting that people on both sides of the political spectrum, rather than only conservatives, are prone to the biased processing of information (Crawford, 2012; Ditto et al., 2018; Kahan et al., 2017), and that people on both sides are sceptical of scientific findings that clash with their political preferences (Washburn & Skitka, 2018).

The second moderator was belief in male privilege. The most consistent finding here (three studies out of four) was that the more privileged that participants thought men are over women, the more negatively they responded to the male-favouring sex differences. The converse was not true; in three studies out of four, male-privilege belief did not predict reactions to the female-favouring differences. The exception was our initial study [citation redacted], which found that male-privilege belief predicted not only negative reactions to male-favouring differences but also positive reactions to female-favouring ones. Although

this finding has a pleasing symmetry, it appears not to be replicable. As with political orientation, the fact that male-privilege belief more reliably predicts negative reactions to male-favouring differences than positive reactions to female-favouring differences makes good sense in light of the G-PROF theory: For male-favouring differences, the protection of females is potentially an issue; for female-favouring differences, it is not.

The final moderator was the women-are-wonderful effect. Although only explored in one study so far, the results were largely consistent with expectations: Higher women-are-wonderful scores predicted more positive reactions to female-favouring differences and less positive reactions to male-favouring ones. This suggests that the women-are-wonderful effect is one of the factors explaining why people react less positively to male- than female-favouring sex differences – and plausibly one of the factors explaining why people tend to be more protective of women than men.

People Overestimate Gender Bias in Both Sexes and Exhibit Gender Bias in their Predictions about Gender Bias

One of the most consistent findings of our research program (five studies out of five) is that people predict that members of both sexes will show a huge bias toward studies putting their own sex in a better light. This expectation was reliably present and reliably false. First, participants greatly exaggerated the magnitude of the average woman's own-sex bias, predicting a very large bias when in fact the bias was modest. More misguided still, participants consistently got the direction of the effect wrong for the average man: They predicted that the average man would exhibit a strong own-sex bias, when in fact he exhibited a modest bias in favour of women. The effect sizes for the participants' predictions were extremely large, ranging from around $d = 1.5$ to $d = 3$. This is considerably larger than most effects in psychology, which fall within the small-to-medium range (Brybaert, 2019;

Richard et al., 2003). However, although most effects in psychology are modest, people may commonly assume that they're large. As such, one way to find a large effect in psychology may be to ask people how large they think effects in psychology are. Note that the tendency to exaggerate the magnitude of psychological effects would not fully explain participants' prediction errors – after all, participants did not simply exaggerate the average man's bias; they predicted a bias opposite to the one displayed.

Consistent with our previous studies [citations redacted], women predicted more own-sex favouritism from the average man than men did. Contrary to two of our three previous studies, however, the converse was true as well: Men predicted more own-sex favouritism from the average woman than women did. Thus, participants predicted that both sexes would be biased in favour of their own sex, but both sexes were biased in favour of their own sex in their predictions about how biased each sex would be.

As well as shedding light on the nature and accuracy of people's stereotypes, our findings may have practical implications. To take an analogous case, research in political psychology suggests that, although Democrats and Republicans in the US commonly dislike and dehumanize each other, both sides exaggerate how much the other side does this (Moore-Berg et al., 2020). Ironically, exaggerating the extent of polarization appears to increase polarization: an unfortunate self-fulfilling prophesy (Lees & Cikara, 2019). The same phenomenon may be found in the realm of gender. The fact that people greatly exaggerate the magnitude of own-sex bias in the other sex could potentially stoke conflict between the sexes. As such, a more accurate understanding of levels of own-sex bias within each sex could help defuse antipathy between the sexes. Support for this contention can again be found in research on political psychology: A recent 26-nation study found that informing people that partisans on both sides of the political aisle overestimate how much the other side dislikes

them can weaken this tendency and reduce polarization (Ruggeri et al., 2021; see also Lees & Cikara, 2019).

Limitations

Various criticisms can be levelled against the studies reported in this paper. One is that participants might have been giving “politically correct” answers, rather than answers reflecting their true reactions. The first thing to say about this is that, even if it were true, the results could still be informative. If people substitute their own views for politically correct ones even on an anonymous questionnaire, presumably they’re even more likely to do so in non-anonymous real life. Thus, even if our findings were due *entirely* to political correctness, they could still have real-world implications.

That said, it seems unlikely our findings are due entirely to political correctness. First, if they were, we might expect larger effect sizes. Political correctness would presumably mandate strongly preferring female-favouring outcomes over male-favouring ones, rather than rating female-favouring differences 4.12 on a 1-to-7 scale and male-favouring differences 3.39 (the numbers from Study 1). Second, some of our findings seem directly inconsistent with the dictates of political correctness. This includes the finding that participants predict greater own-sex bias from women than men, and the finding that Researcher Sex has no effect on people’s overall reactions to the research (if political correctness were operative, we might expect less positive reactions to male-led research). Finally, it seems unlikely that, if participants were simply feigning politically correct views, the data would fit so tidily with our theories about the causes of our results. It seems unlikely, for instance, that the effect of Sex Favoured on participants’ judgements about the quality of the research would be mediated by participants’ perceptions of its harmfulness; after all, this fine-grained pattern is not mandated by political correctness, and even if it were, it is difficult

to see how participants could collectively fabricate it. This is especially so given that the research used a between-subjects design, and participants did not know how people in other conditions would have responded – or, for that matter, that there *were* other conditions or what exactly those conditions might be.

A second potential criticism relates to our explanation for the findings. Even if people are more protective of females than males, as the G-PROF theory proposes, it is unclear whether this explains people's negative reactions to the male-favouring differences. For one thing, similar effects can be seen for differences unfavourable to other groups, including disadvantaged ethnic, religious, and sexual minorities (Clark et al., 2020; Winegard et al., 2018). For another, it is unclear whether the aversion to male-favouring differences in intelligence and related traits would have been found in earlier epochs – in the 1950s, for instance, or in Victorian times. Fallacious public pronouncements about the abilities of females during those periods suggest that people were often unperturbed about male-favouring sex differences, despite presumably still being more protective of females than males.

In our view, neither of these points is fatal to the G-PROF theory. First, the fact that people react negatively to findings unfavourable to groups other than females does not imply that protectiveness is not involved. On the contrary, our suspicion is that female-focused protectiveness is one instance of a more general phenomenon, namely a tendency to be more protective toward groups seen as disadvantaged, vulnerable, or victimized. Certainly, the G-PROF theory only explains protectiveness toward females. We do not think, however, that this is a problem for the theory, as there is no reason to expect that there will be a single explanation for protectiveness toward all groups.

As for whether the aversion to male-favouring findings would be found in the 1950s or in Victorian times, we agree that it might not, even though people were still often more

protective of females back then. If this is right, though, it is presumably because, in those periods, claims about male-favouring sex differences in intelligence and other such traits were not generally seen as harmful. Just as there is some cultural wiggle room in how protective people are of girls and women [citation redacted], there is some cultural wiggle room in what is considered harmful. Given, though, that in *our* culture and time, male-favouring sex differences *are* seen as harmful, the G-PROF theory may provide an explanation for people's negative responses to these findings.

A final possible criticism is that participants' predictions about the average man and woman's reactions to research on sex differences might not be as inaccurate as they seem. To assess their accuracy, we compared participants' predictions to the responses of the samples themselves. However, our samples were atypical in various ways, including being more educated, more left-leaning, and less religious than the population at large. Perhaps in more representative samples, the observed biases would be closer to the predicted ones, and males would exhibit an own-sex bias after all. To be fair, participants were explicitly asked to predict the responses of the average man and woman *doing this study*; it is not clear, however, how effective such an instruction might have been. Still, even if people's gender biases really are larger in more representative samples, they are almost certainly nowhere near as large as the predicted biases, because the predicted biases were considerably larger than the vast majority of effects in psychology. It is difficult, therefore, to dodge the conclusion that people greatly exaggerate the magnitude of men and women's own-sex biases.

Conclusion

Reactions to research on sex differences are shaped in part by a tendency to be more protective of females than males. Most notably, people respond less positively to research

that paints men in a better light. This pattern is found in both sexes but may be stronger in women. It may also be stronger when the lead researcher is a man, at least for sex differences in highly valued traits like intelligence. People view research finding a male-favouring difference as lower in quality than identically described research finding a female-favouring difference, an effect due largely to the fact that people see the male-favouring difference as more harmful. Left-leaning political views and belief in male privilege are associated with less positive reactions to male-favouring sex differences but do not reliably predict reactions to female-favouring differences, perhaps because protectiveness of females is not an issue for the latter. Susceptibility to the women-are-wonderful effect is associated with less positive reactions to male-favouring sex differences and more positive reactions to female-favouring ones.

People assume that both sexes are hugely biased in favour of their own sex in their reactions to male- vs. female-favouring research, but neither is: Women are slightly biased in favour of their own sex; men are slightly biased in favour of women. Both sexes predict more own-sex favouritism from the other sex than from their own, thus ironically exhibiting own-sex favouritism in their predictions about own-sex favouritism. The tendency to overestimate own-sex bias could potentially exacerbate conflict between the sexes. As such, a more accurate perception of levels of own-sex bias could foster more harmonious relations between men and women, with obvious implications for the well-being of all concerned.

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Tables and Figures

Table 1.

Factor loadings for 20 items from the Reaction-to-Research questionnaire, based on principal components factor analysis using Varimax rotation (Study 2).

	Factor 1: Harmfulness of Research	Factor 2: Quality of Research	Factor 3: Need to Protect from Research	Communality
Results important	-.03	.70	-.15	.52
Results plausible	-.32	.73	-.20	.68
Study convincing	-.16	.89	-.08	.83
Study provides good evidence regarding the conclusion	-.10	.87	-.03	.77
Study well-conducted	-.14	.86	.02	.76
Researchers trustworthy	-.15	.83	-.03	.71
Results offensive	.69	-.22	.32	.63
Results harmful	.73	-.29	.31	.71
Findings upsetting	.75	-.23	.23	.67
Studies like this inherently sexist	.62	-.30	.29	.56
Findings might contribute to harmful stereotypes	.71	-.31	.25	.66
Findings might undermine disfavoured sex's confidence	.78	-.05	.14	.62
Findings might cause disfavoured sex to do worse on intelligence tests	.73	.03	.20	.57
Sympathetic to members of disfavoured sex finding out about research	.73	-.05	.32	.64
Disfavoured sex should be protected from this kind of information	.32	.12	.65	.54
Important to keep findings away from children of disfavoured sex	.36	-.03	.70	.62
Findings should not be made public	.20	.00	.80	.68
Teachers should not tell students about findings	.22	-.15	.78	.67
Findings should not be widely reported in media	.23	-.22	.80	.74
People who promote these findings are irresponsible	.35	-.38	.68	.73

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Eigenvalue	8.49	3.31	1.51
% of Total Variance	42.46	16.57	7.56
Cronbach's Alpha	.91	.92	.89

Table 2

Effects of the women-are-wonderful effect and political orientation on participants' reactions to a sex difference in intelligence (Study 2).

	R^2	df	F	p	B	t	p
Overall Reaction to Research							
Overall model	.28	7, 387	21.89	.000			
Sex Favoured					0.85	8.79	.000
Women-Are-Wonderful Effect					0.00	0.14	.890
Political Orientation					0.16	4.62	.000
Sex Favoured x Women-Are-Wonderful Effect					0.32	4.68	.000
Sex Favoured x Political Orientation					-0.31	-4.46	.000
Post-hoc tests							
<i>Male-favouring sex difference</i>							
Overall model	.223	2, 195	28.06	.000			
Women-Are-Wonderful Effect					-0.16	-2.89	.004
Political Orientation					0.32	6.18	.000
<i>Female-favouring sex difference</i>							
Overall model	.072	2, 194	7.55	.000			
Women-Are-Wonderful Effect					0.17	3.88	.000
Political Orientation					0.01	0.23	.816
Quality of Research							
Overall model	.15	7, 387	9.94	.000			
Sex Favoured					0.62	5.09	.000
Women-Are-Wonderful Effect					0.03	0.71	.480
Political Orientation					0.21	4.65	.000
Sex Favoured x Women-Are-Wonderful Effect					0.30	3.44	.001
Sex Favoured x Political Orientation					-0.19	-2.15	.032
Post-hoc tests							
<i>Male-favouring sex difference</i>							
Overall model	.136	2, 195	15.34	.000			
Women-Are-Wonderful Effect					-0.12	-1.78	.077

Political Orientation					0.30	4.78	.000
<i>Female-favouring sex difference</i>							
Overall model	.061	2, 194	6.31	.002			
Women-Are-Wonderful Effect					0.18	3.20	.002
Political Orientation					0.12	1.90	.058
Harmfulness of Research							
Overall model	.327	7, 387	26.88	.000			
Sex Favoured					-1.25	-10.54	.000
Women-Are-Wonderful Effect					0.01	0.33	.745
Political Orientation					-0.17	-4.05	.000
Sex Favoured x Women-Are-Wonderful Effect					-0.27	-3.14	.002
Sex Favoured x Political Orientation					0.46	5.40	.000
Post-hoc tests							
<i>Male-favouring sex difference</i>							
Overall model	.220	2, 195	27.44	.000			
Women-Are-Wonderful Effect					0.15	2.28	.024
Political Orientation					-0.41	-6.44	.000
<i>Female-favouring sex difference</i>							
Overall model	.034	2, 194	3.44	.034			
Women-Are-Wonderful Effect					-0.12	-2.21	.028
Political Orientation					0.06	1.14	.257
Need to Protect from Research							
Overall model	.167	7, 387	11.09	.000			
Sex Favoured					-0.94	-6.66	.000
Women-Are-Wonderful Effect					-0.05	-0.91	.364
Political Orientation					-0.04	-0.81	.421
Sex Favoured x Women-Are-Wonderful Effect					-0.44	-4.33	.000
Sex Favoured x Political Orientation					0.26	2.49	.013
Post-hoc tests							
<i>Male-favouring sex difference</i>							
Overall model	.062	2, 195	6.47	.002			

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Women-Are-Wonderful Effect					0.17	2.24	.026
Political Orientation					-0.17	-2.30	.022
<i>Female-favouring sex difference</i>							
Overall model	.091	2,194	9.68	.000			
Women-Are-Wonderful Effect					-0.27	-4.10	.000
Political Orientation					0.08	1.09	.279

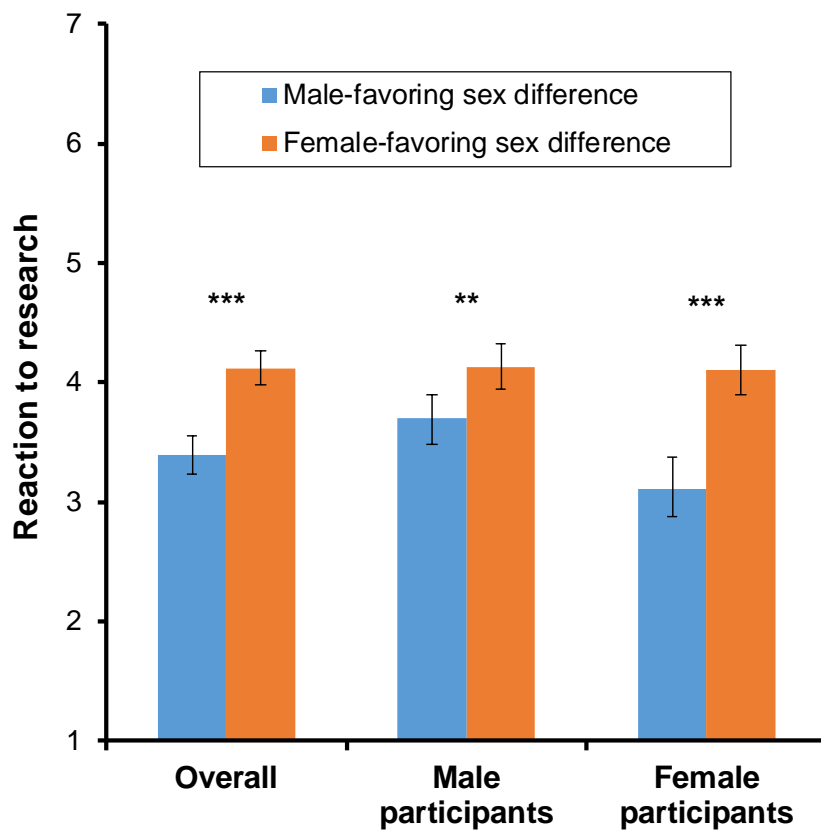


Figure 1. Participants' reactions to a male- vs. female-favouring sex difference in drawing ability

(Study 1). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

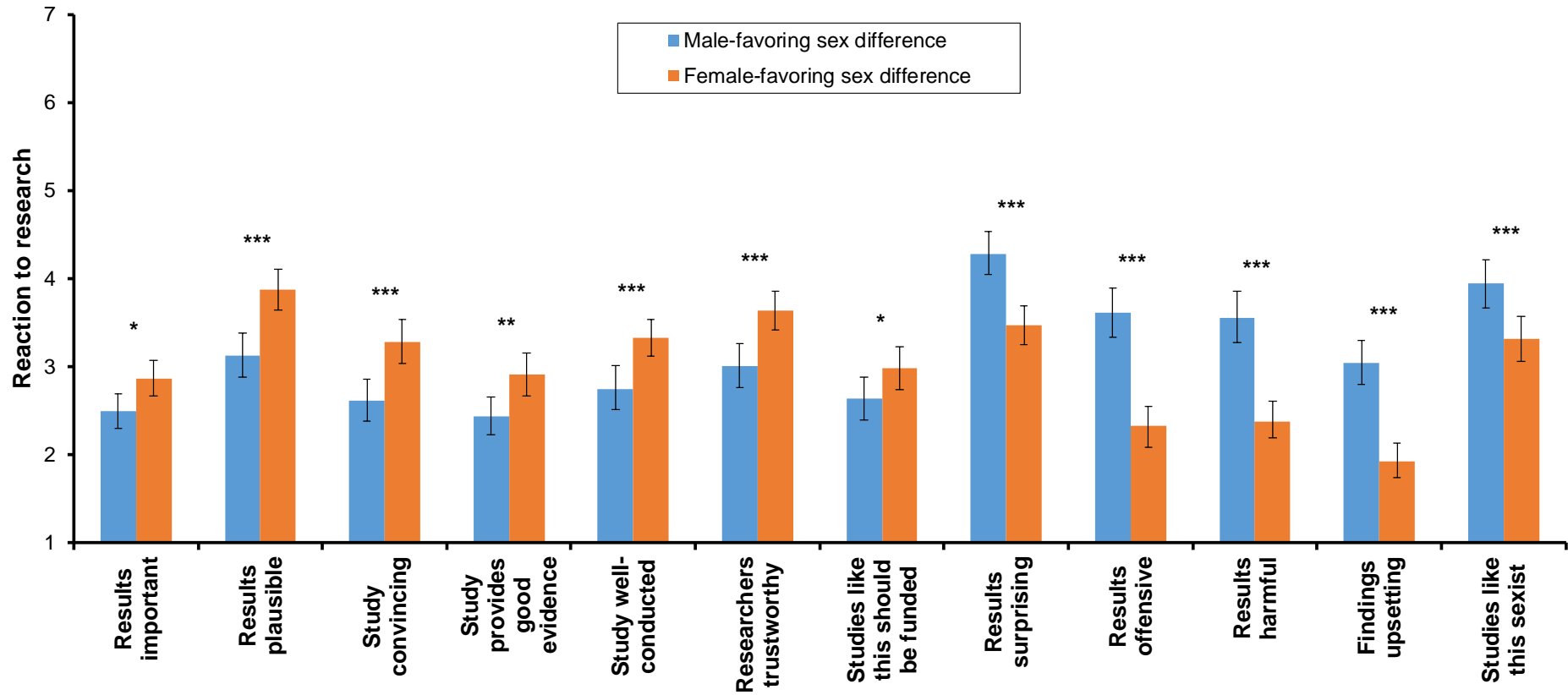


Figure 2. Participants' reactions to a male- vs. female-favouring sex difference in drawing ability: individual items (Study 1). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

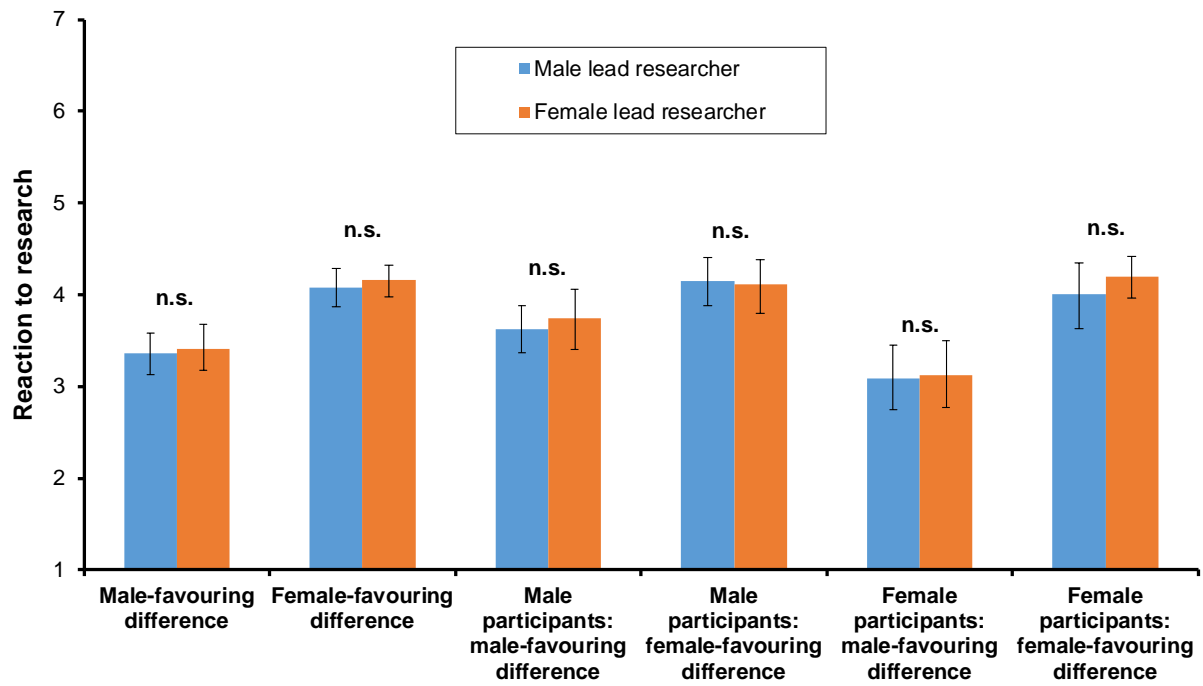


Figure 3. Participants' reactions to a male- vs. female-favouring sex difference in drawing ability reported by a male vs. female lead researcher (Study 1). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

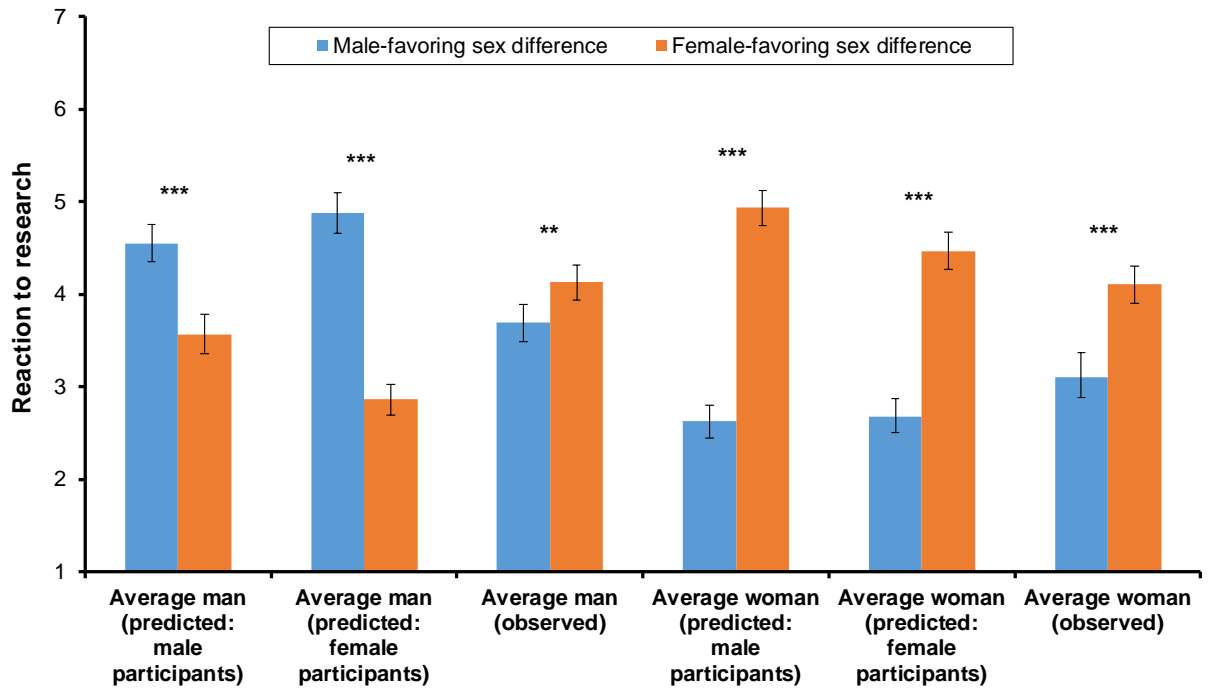


Figure 4. Participants' predictions regarding the reactions of the average man and woman to a male- vs. female-favouring sex difference in drawing ability, alongside the actual reactions observed in the study (Study 1). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

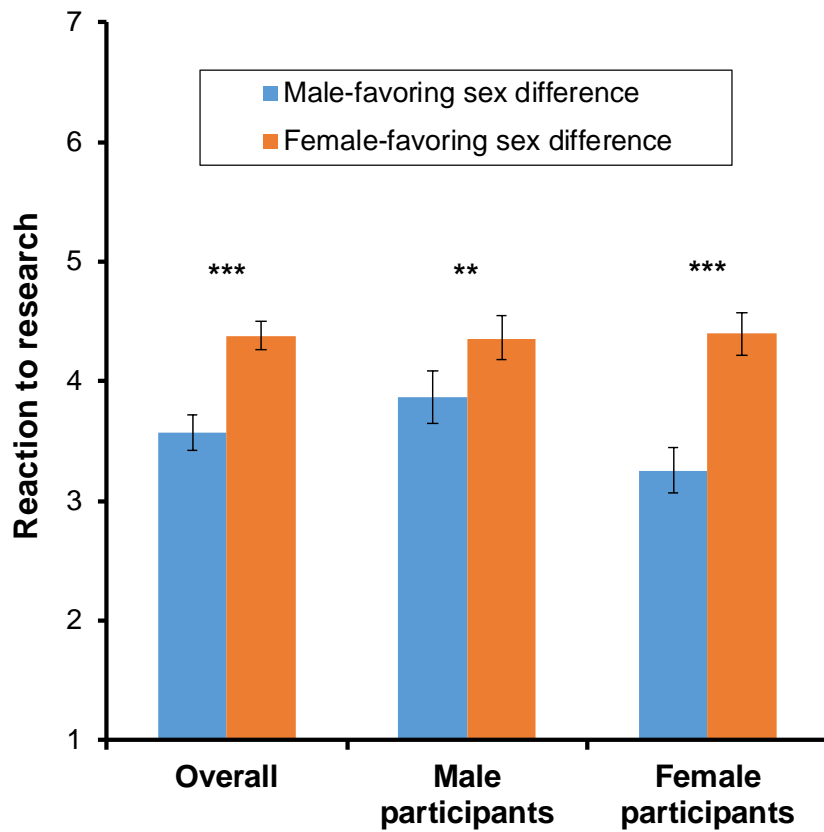


Figure 5. Participants' reactions to a fictitious male- vs. female-favouring sex difference in intelligence (Study 2). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

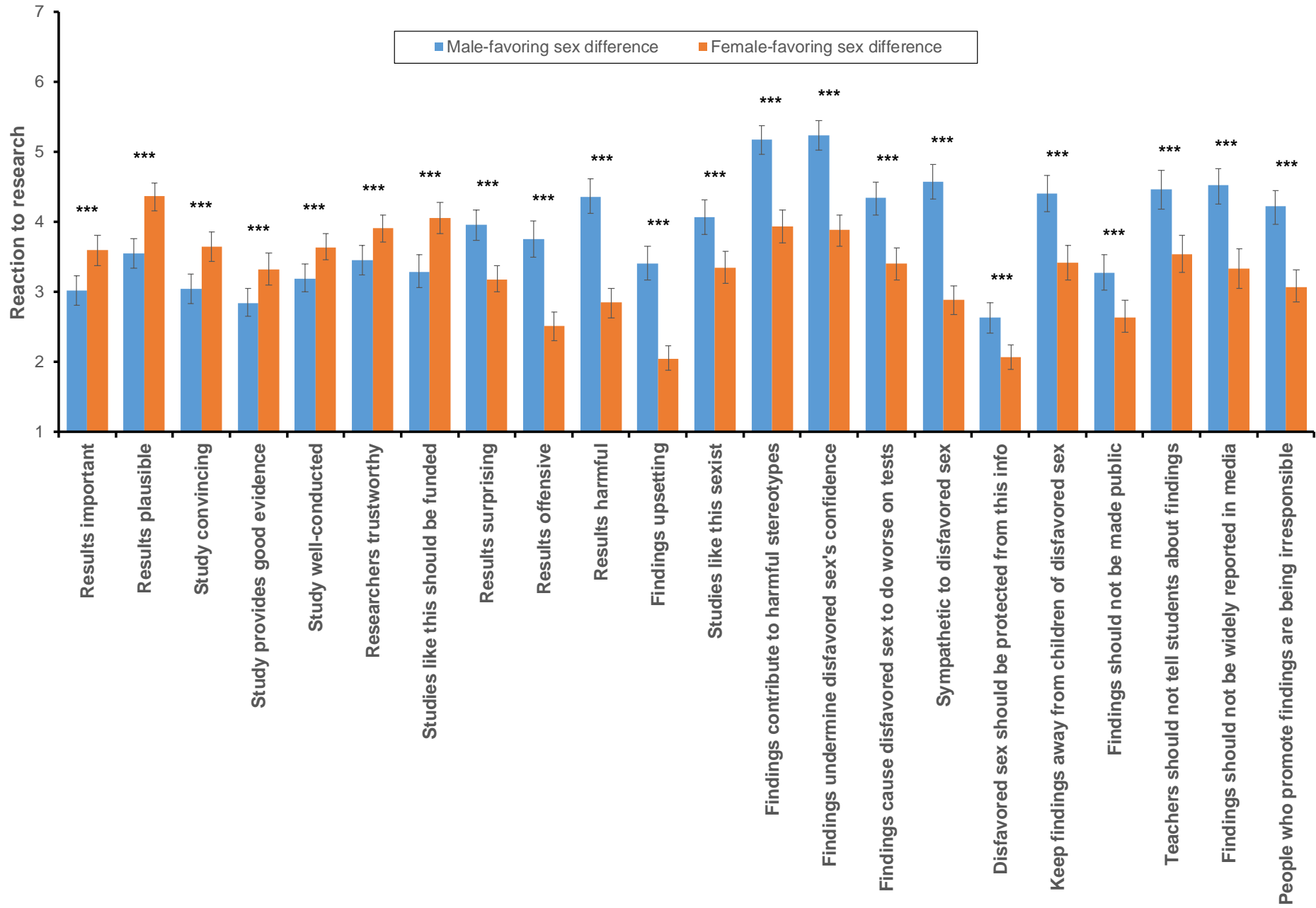


Figure 6. Participants' reactions to a fictitious male- vs. female-favouring sex difference in intelligence: individual items (Study 2). The “disfavoured sex” is the sex that scored lower for a given finding – i.e., females for a male-favouring finding; males for a female-favouring finding. * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

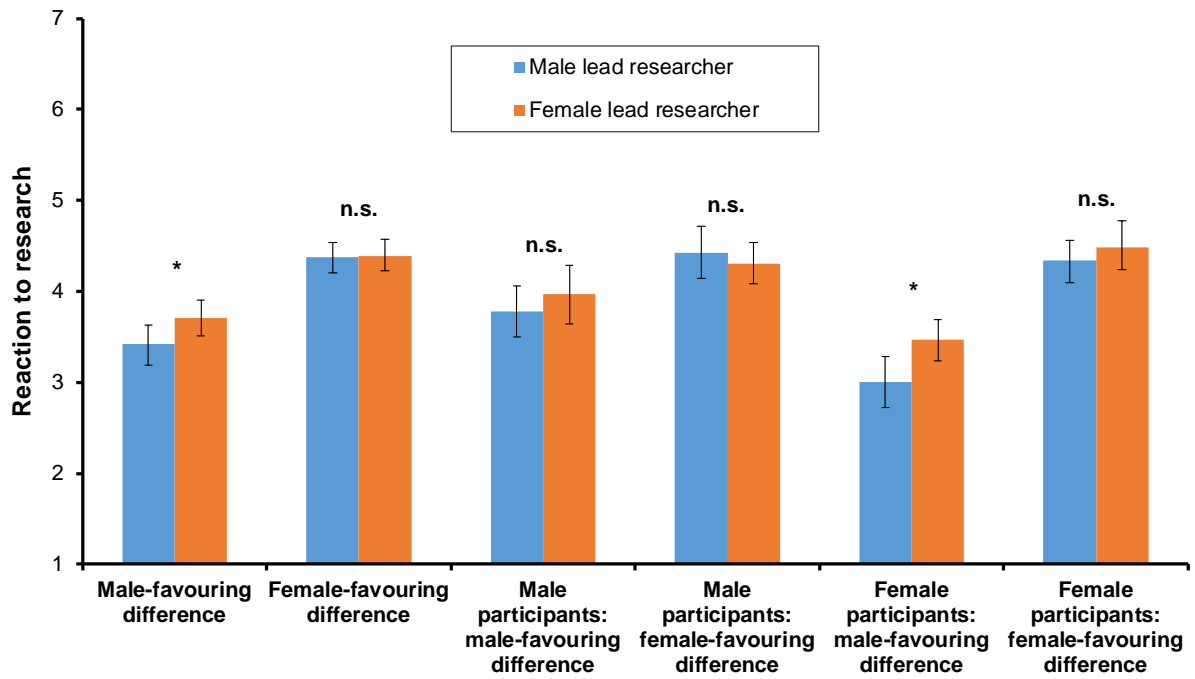


Figure 7. Participants' reactions to a fictitious male- vs. female-favouring sex difference in intelligence reported by a male vs. female lead researcher (Study 2). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

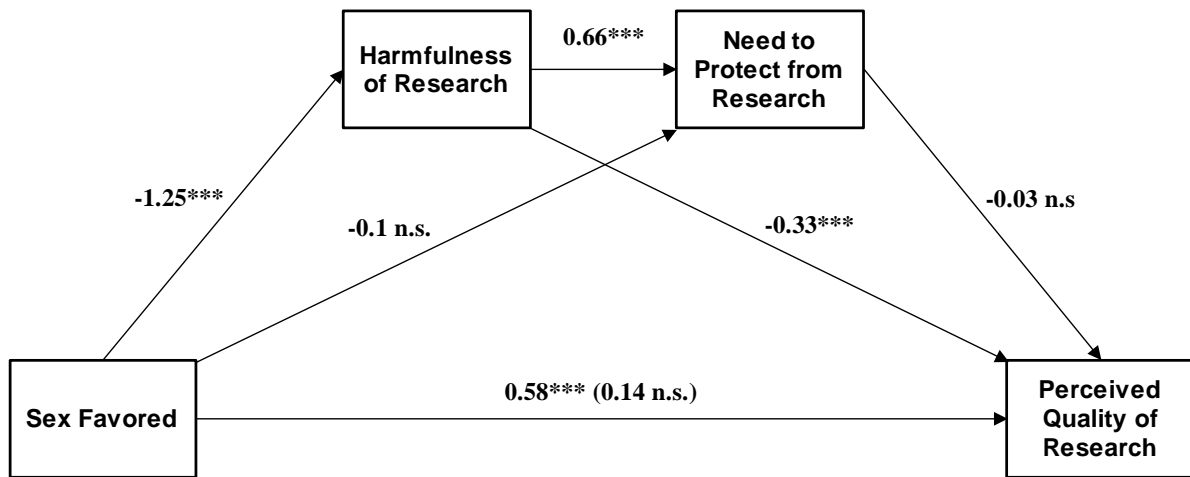


Figure 8. Relationship between Sex Favoured and Quality of Research, with Harmfulness and Need to Protect from Research as mediators (Study 2). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant.

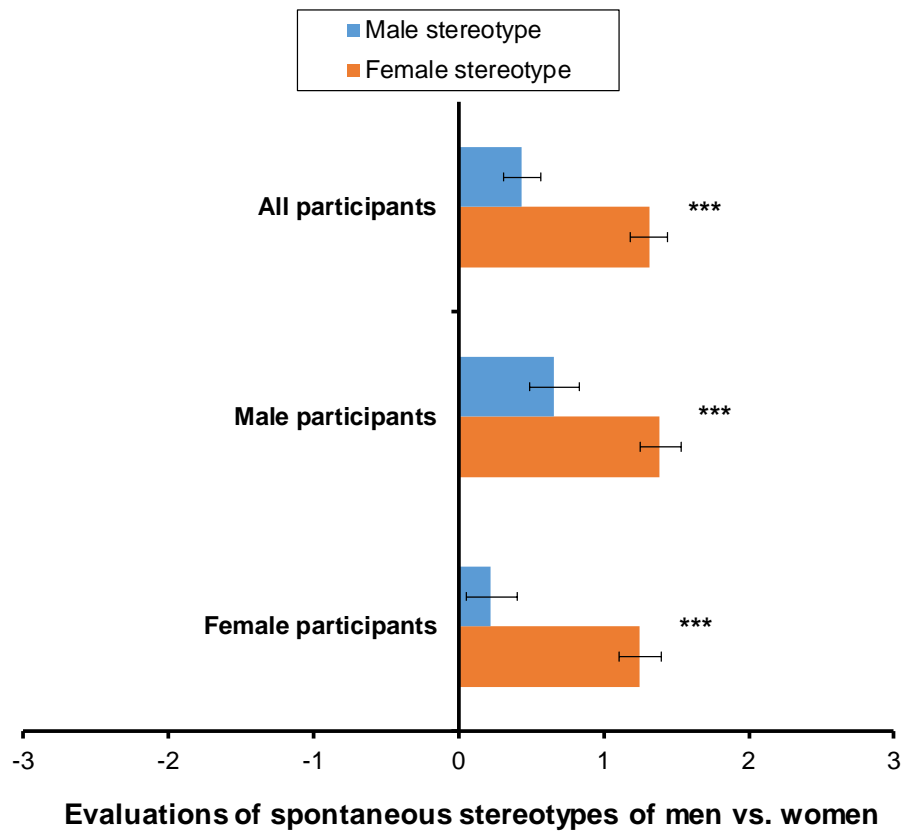


Figure 9. Evaluations of spontaneous stereotypes of men and women. Positive scores indicate favourable evaluations, negative scores unfavourable evaluations. * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.

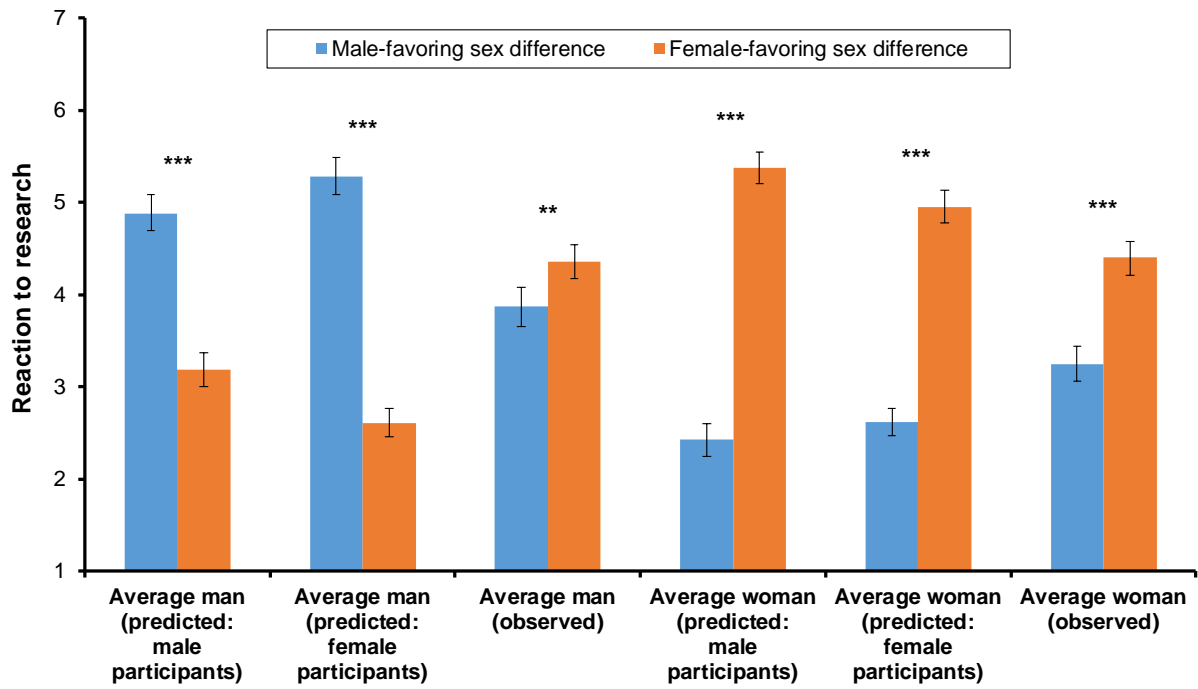


Figure 10. Participants' predictions regarding the reactions of the average man and woman to a male- vs. female-favouring sex difference in intelligence, alongside the actual reactions observed in the study (Study 2). * $p < .05$; ** $p < .01$; *** $p < .001$; n.s.: not significant. Error bars = 95% CIs.