

Stressing the Advantages of Female Leadership Can Place Women at a Disadvantage

A Replication and Extension of Lammers and Gast (2017)

Daria Mousavi, Anna Schulte^{ORCID}, and Joris Lammers

Department of Psychology, University of Cologne, Germany

Abstract: An often-heard claim is that women will inevitably take over men's dominant position in management due to superior female leadership skills. Lammers and Gast (2017) found that such claims paradoxically maintain gender inequality by undermining support for affirmative action. The original article was limited by comparing a single experimental and control text and exclusive reliance on American samples. We report a replication and extension among a German community sample ($N = 300$), which tests the effects of five different experimental stimuli, primarily drawn from different German media outlets, against a control stimulus. The data replicate earlier effects and confirm that the media should be careful not to exaggerate claims about female leadership strengths.

Keywords: gender, sexism, stereotypes, biases, leadership, gender gap

Although most countries across the world have in the past few decades moved toward greater gender equality, women are still under-represented in leadership positions in almost all areas. For example, in the 500 leading companies listed in the S&P500, in 2021, only 6% of CEO positions were held by women and 94% by men (Catalyst, 2021). A popular claim that recurs in contemporary media is that women have an inherently superior leadership style that offers important advantages – especially in a postindustrial society. A related claim is that as a result of these advantages, women are likely to take over men's dominant position in leadership. To give a few examples, both Bloomberg Business (2012) and Business Week (2003) published articles that discussed a predicted future reversal of the gender gap. A recent overview article in the Harvard Business Review discussed how female leadership strengths may cause a reversal (rather than an attenuation) of women's under-representation (Chamorro-Premuzic & Gallop, 2020). Finally, many popular scientific bestsellers proclaim that the *era of men* is about to end and that women are about to take over (Hymowitz, 2012; Mundy, 2012; Rosin, 2012).

There is some truth behind these ideas. Evidence suggests that women do on average exercise a more productive leadership style than do men. Yet, evidence also suggests that the size of that gender effect is quite small (Eagly, 2007; Eagly & Carli, 2003; Vecchio, 2002). For

example, although women are more likely than men to exercise transformational leadership styles, these effects are small (Eagly et al., 2003; Eagly & Johnson, 1990). When it comes to leadership (and many other psychological aspects), the similarities between the genders far outweigh the differences (Hyde, 2005).

Irrespective of the veracity of these ideas, another interesting question is what their effect is. Possibly, such ideas are expected to produce benevolent effects. Authors may believe that sexist stereotypes that leaders require stereotypically masculine traits such as decisiveness, boldness, and aggression (Schein, 1973, 1975) are best fought by presenting the opposite claim that stereotypically female traits are superior. Recent evidence, however, shows that such claims can paradoxically also have the opposite effect. Specifically, Lammers and Gast (2017) found in four experiments that claims about the inherent advantages of female leadership, taken from popular outlets such as The Atlantic (Rosin, 2012), reduce support for affirmative action and the likelihood that women are selected for leadership roles. Lammers and Gast's (2017) reasoning was that if women are presented as superior, it unburdens participants from the need to support women and even frees them to ventilate any lingering sexist feelings. After all, if women are the *new winners*, it may feel fair to stop affirmative action or even to switch to supporting men.

Limitations of Lammers and Gast (2017)

Despite some strengths, the studies conducted by Lammers and Gast (2017) have several limitations. One particular limitation is that all studies rely on the comparison between single-experimental and single-control texts. For example, participants in Experiment 1 of Lammers and Gast (2017) either read a text taken from The Atlantic (Rosin, 2012) entitled *The End of Men* (about female superiority in leadership) or a neutral article. This approach, although common in experimental social psychology, does not allow for generalizing the findings beyond those stimuli (Brunswick, 1955; Fiedler, 2011). Simply put, there could be something specific and unique to that article that produces the observed effect. To address this limitation, we replicate this research but instead simultaneously compare the effects of multiple stimuli with a control text.

Another limitation is that all studies by Lammers and Gast (2017) relied on MTurk or Prolific samples drawn in English-speaking countries and stimuli drawn from English popular literature. This begs the question of whether the effect also extends to stimuli in other languages and/or other participants from different national populations.

A final limitation is that Lammers and Gast (2017) did not test all potentially underlying mechanisms. The central mechanisms proposed were that highlighting allegedly superior female leadership traits and forecasting a numerical dominance of women in leadership positions lead to reduced support for affirmative action. Another explanation, implied but not tested by the authors, is that highlighting female strength frees people to ventilate any sexist beliefs that are otherwise inhibited due to social desirability. In other words, if people high in sexist beliefs are confronted with claims about female superiority and future dominance, this potentially reinforces hatred directed toward women and undermines empathy for women’s plight (i.e., reduces support for affirmative action). If this explanation is true, then sexism serves as a moderating variable, with people high in sexist beliefs showing a stronger effect of condition than those low in sexist beliefs. We test this by measuring differences in ambivalent sexism. We use the Ambivalent Sexism Scale as it includes both items that measure openly hostile beliefs and subjectively positive, sexist beliefs about women (Glick & Fiske, 1996).

The Current Research

We conduct a conceptual replication of Lammers and Gast (2017), using the design of Studies 1 and 2, but randomly assigning participants to one of five experimental texts stressing female leadership strengths (instead of one, as in

Lammers & Gast, 2017) or a control condition. Participants were a nonprofessional, German mixed student, and community sample. The stimuli were drawn from a variety of dominant German media sources. After administering the same dependent measures, we also measure Ambivalent Sexism to investigate its moderating effect. All data and materials are accessible online (<https://osf.io/fydwv>).

Method

Participants and Design

Using G*Power, a required sample size of $n = 50$ per cell ($N = 300$ in total) was computed. This provides sufficient power ($1 - \beta = 0.90$) to detect the effect size ($d = 0.66$) observed in Lammers and Gast (2017). (Note that this power analysis was based on an ANOVA, as in Lammers and Gast (2017). However, as suggested by an anonymous reviewer, we test and report a linear mixed-effects model in the following.) In return for partial course requirement or the chance to participate in a lottery for one of five €10 vouchers, 300 participants (64.0% female, 35.7% male, and <0.1% other, mean age 26.3 years) took part. After signing informed consent, participants were randomly assigned to one of six conditions in a between-participants design.

Stimuli

As stimuli, we selected four German media articles that made exaggerated, stereotypical statements about superior female leadership skills, combined with sensationalist claims that women are taking over. See Table 1 for an overview. Two articles were adapted from the website of leading German national daily newspaper Die Welt (Mischke, 2010, “Frauen auf dem Vormarsch/ Women on the rise”; and Heiß, 2012, “Die Zukunft ist weiblich/The

Table 1. Means (M) and standard deviations (SD) of support for affirmative action across all conditions

Stimulus	Article reference	M	SD
1. Welt 1	“Women on the Rise” 1 (Mischke, 2010)	3.29	1.04
2. Welt 2	“The Future is Female” (Heiß, 2012)	3.02	1.12
3. Business Wissen	“Women on the Rise” 2 (Oberhofer, 2009)	3.27	1.01
4. FAZ	“Women in Management Shape the Future” (FAZ, 2021)	3.31	0.96
5. Atlantic	“The End of Men” (Rosin, 2012)	3.06	0.87
6. Control	“Leadership and Personality” (Lammers & Gast, 2017)	3.72	0.78

future is female”). A third was taken from the popular management portal *Business Wissen* (Oberhofer, 2009, “Frauen auf dem Vormarsch” 2/“Women on the rise” 2). A fourth was taken from leading German newspaper the *Frankfurter Allgemeine Zeitung* (2021, “Frauen in Führung gestalten die Zukunft”/“Women in management shape the future”). In addition, we included a German-translated version of the article used by Lammers and Gast (2017), *The End of Men* (Rosin, 2012). The German articles were shortened and slightly modified, without changing their core message, to ensure equal length. As a control condition, we used the fictional article *Leadership and Personality*, also adopted from Lammers and Gast (2017). The neutral article of the control condition addressed the effect of personality on leadership, without making any claims about gender or its relationship with leadership. In all conditions, participants answered one comprehension question to ensure that they read the texts. All stimuli and their translations are accessible online (<https://osf.io/fydwj>).

Measures

To measure support for affirmative action, participants completed the same 4-item measure (in randomized order, translated) of affirmative action-support used by Lammers and Gast (2017; $\alpha = 0.81$, $M = 3.29$, $SD = 0.99$). Participants were asked to indicate their (dis)agreement (between 1 = *strongly disagree* and 5 = *strongly agree*) using the following items: “The government should force employers to use sex quotas, to ensure that more female managers are appointed,” “Future developments will by themselves ensure a balanced distribution of male and female leaders” (recoded), “The government needs to stimulate employers to hire more women,” and “In the long run, gender inequalities in corporate boards will balance themselves out” (recoded).

Finally, we measured differences in sexism with a shortened and translated version of the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996; $\alpha = .83$, $M = 2.36$, $SD = 0.76$) consisting of 10 randomized items measuring both benevolent and hostile sexism. We randomized the display order of the sexism scale and experimental manipulation to avoid any order effects or response biases. In this study, the ASI has been included for the purpose of measuring negative, openly hostile, and subjectively positive attitudes toward women and to examine whether these dimensions moderate the effect of the experimental manipulation. Some items from the ASI, such as “Women seek to gain power by getting control over men,” directly link to the proposed, underlying mechanisms and were therefore included in this study. We also asked participants

to guess the number of women in leadership positions in Germany and in their own environment. These two items are not discussed further.

Results

Main Analyses

To investigate whether texts about female superiority in leadership (compared to a neutral control text) reduce support for affirmative action, we used the lme4 package (Bates et al., 2015) in R to test a linear mixed-effects model following conventional methods for fully nested designs (Judd et al., 2017). We included support for affirmative action as the outcome and condition (experimental text about female superiority vs. control text) as the predictor. A random intercept of target was included to account for the different experimental texts that were used in this study. Consistent with our predictions, condition significantly predicted support for affirmative action, $b = -.53$, $SE = .15$, $t(3.59) = -3.60$, $p = .027$, 95% CI_b [-.82; -.24]. Overall, participants showed lower support for affirmative action after reading any of the experimental texts about female superiority ($M = 3.19$, $SD = 1.00$), than after reading the neutral, control text ($M = 3.72$, $SD = 0.78$). See Table 1 and Figure 1.

Given that support for affirmative action was negatively correlated with sexism ($r = -.42$, $p < .0001$), we also reran the analysis controlling for differences in sexism (centered). Although we found a significant effect of sexism on support for affirmative action, $b = -.53$, $SE = .07$, $t(297) = -7.91$, $p < .0001$, 95% CI_b [-.67; -.40], the effect of condition remained significant, $b = -.48$, $SE = .13$, $t(297) = -3.63$, $p < .001$, 95% CI_b [-.75; -.22].

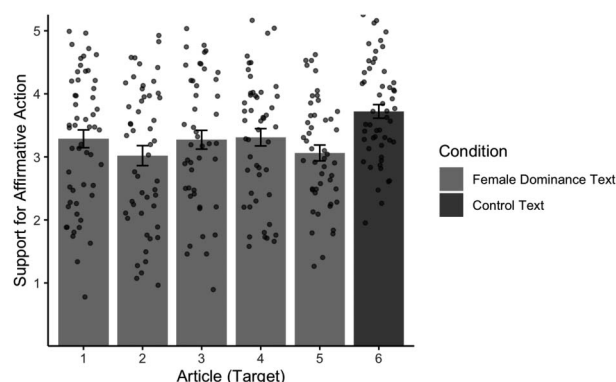


Figure 1. Support for affirmative action for all stimulus articles. Observations are jittered to avoid overplotting. The numbers on the x-axis correspond to the numbers in Table 1. Error bars represent standard errors.

Secondary Analyses

Moderation by Ambivalent Sexism

We additionally tested whether sexism moderates the effect of condition on support for affirmative action. Again, we tested a mixed-effects model and included support for affirmative action as the outcome and condition, sexism (centered), and their interaction as predictors. A random intercept of target was included to account for the different experimental texts. The main effect of condition was again significant, $b = -.50$, $SE = .13$, $t(296) = -3.72$, $p < .001$, 95% CI_b $[-.76; -.24]$, while there was only a marginally significant main effect of sexism, $b = -.34$, $SE = .17$, $t(296) = -1.96$, $p = .051$, 95% CI_b $[-.67; -.001]$. The interaction of condition and sexism was not significant, $b = -.23$, $SE = .19$, $t(296) = -1.25$, $p = .214$, 95% CI_b $[-.60; .13]$. We also tested whether the two subscales (i.e., benevolent and hostile sexism) moderate the effect. Both benevolent sexism, $b = -.16$, $SE = .19$, $t(296) = -0.83$, $p = .407$, 95% CI_b $[-.52; .21]$, and hostile sexism, $b = -.14$, $SE = .14$, $t(296) = -1.04$, $p = .301$, 95% CI_b $[-.42; .13]$, had no moderating effect on the relation between conditions on support for affirmative action. We take these findings as evidence against the idea that sexism moderates the effects of the experimental manipulation. Because sexism was measured in half of the cases before and in half of the cases after the experimental manipulation, we tested whether sexism differed between conditions. Reassuringly, we found no difference between the experimental and control conditions, $t(80.18) = -0.80$, $p = .428$.

Moderation by Gender

In line with Lammers and Gast (2017), we also investigated whether the effect of condition on support for affirmative action was moderated by gender. We excluded one participant who reported a nonbinary gender ($n = 1$). Adding gender to the model did not yield a significant interaction of condition and gender, $b = -.16$, $SE = .29$, $t(292.17) = -0.57$, $p = .569$, 95% CI_b $[-.72; .39]$. This finding is consistent with the nonsignificant Gender $\times$ Condition interactions in Lammers and Gast (2017).

Exploratory Comparison Within Experimental Stimuli

A helpful anonymous reviewer noticed that the female dominance texts used in the experimental conditions differed in the degree to which they focus on superior female leadership skills or on the expected mere numerical dominance by women over men. In particular, although some stimuli focus on both superior skills and dominance, Stimulus Text No. 4 taken from FAZ (Frankfurter Allgemeine Zeitung) primarily focuses on superior leadership skills, while Stimulus Text No. 5 taken from the Atlantic primarily focuses on numerical dominance. In an exploratory manner,

to try to disentangle which of the two aspects of the manipulation had the strongest effect, we compared the conditions against each other. An overall omnibus ANOVA testing for differences between any of the experimental conditions suggested that there are no differences in support for affirmative action, $F(4, 242) = 0.93$, $p = .445$, $\eta^2 = .02$. Furthermore, Tukey post hoc tests revealed no significant difference between Stimulus Text Nos. 4 and 5 ($p = .739$). The current data thus do not support the idea that one of these two aspects – superior skills or numeric dominance – is more important in driving the effect.

General Discussion

We replicate earlier evidence that exaggerated claims about female strengths can have harmful effects for women and undermine the goal for more diversity in the workspace (Lammers & Gast, 2017), while also addressing limitations in the original research. Comparing five different texts that highlight stereotypical strengths of female leadership to a control condition, we found that they reduced support for affirmative action. This offers strong evidence that the original effect found by Lammers and Gast (2017) generalizes across stimuli and does not depend on some critical element of the stimuli used in the original study.

In addition to replicating the effect and extending it to other stimuli, our results add cross-cultural support and show that this effect replicates in a German, community sample (rather than an English-speaking sample of paid, professional participants), which provides evidence for the generalizability of the effect. Our findings also qualify some of the findings by Lammers and Gast (2017). Specifically, although Ambivalent Sexism negatively correlated with support for affirmative action, none of the two subscales significantly moderated the effect of the experimental manipulation. This offers evidence against the mechanism proposed by Lammers and Gast (2017) that reading exaggerated claims that women are likely to *take over* liberates people to follow (dormant) sexist beliefs. Instead, these results tentatively suggest that the effect may be driven by the other explanation suggested by Lammers and Gast (2017): If women are expected to be the future dominant group while men are expected to be a minority, further affirmative action violates distributive justice concerns (Rawls, 2009; Tyler, 1994). On the other hand, another explanation why sexism may be relevant is that it is possible that these effects are driven in part by those who hold the (even more subtle sexist) belief that sexism is no longer an issue in the society and that therefore no further action is needed to gain greater gender equality (Begeny et al., 2020). Similar to their findings, people who may have a

priori beliefs about gender equality being already achieved may react stronger to the current manipulation. Future research may test this explanation directly.

Limitations

One given limitation of the study is that, while participants were allowed to give feedback after completion of the study, no explicit suspicion checks were established; therefore, experimenter demand effects cannot be ruled out. Another aspect that should be considered is that the items of the Affirmative Action scale used were not contextualized. Considering the many existing misconceptions about affirmative action, including a clear explanation of affirmative action and its legitimate goals, would have been appropriate. Without context, the wording of some items (e.g., “Governments should force employers to use sex quotas, to ensure more female managers are appointed”) could possibly generate hostility by fostering common misconceptions, e.g., that the policies force companies to hire unqualified women over qualified men. In sum, the lack of contextualization and the wording might have affected participants’ support for affirmative action.

A final limitation is that we continued Lammers and Gast (2017) conflating of two aspects of the manipulation: women’s stereotypical strength in leadership and their pending numeric dominance in leadership. In an exploratory fashion, contrasting one stimulus that focused more on the one against another that focused more on the latter, we did not find support that either is the primary driver of the effect.

Conclusion

We successfully replicated earlier findings that exaggerated claims about the inherent advantages of female over male leadership can paradoxically reduce support for affirmative action (Lammers & Gast, 2017). Furthermore, we went beyond that research by addressing two important limitations of that study: We compared the effect of five different experimental texts and we replicated this with a German community sample.

References

- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Begeny, C. T., Ryan, M. K., Moss-Racusin, C. A., & Ravetz, G. (2020). In some professions, women have become well represented, yet gender bias persists—Perpetuated by those who think it is not happening. *Science Advances*, 6(26), eaba7814. <https://doi.org/10.1126/sciadv.aba7814>
- Bloomberg Business. (2012). *Behind every great woman*. Bloomberg. <http://www.bloomberg.com/bw/magazine/behind-every-great-woman-01042012.html#p1>
- Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review*, 62(3), 193–217. <https://doi.org/10.1037/h0047470>
- Business Week. (2003). *The new gender gap*. Bloomberg.
- Catalyst. (2021). *Women CEOs of the S&P 500*. <https://www.catalyst.org/research/women-ceos-of-the-sp-500/>
- Chamorro-Premuzic, T., & Gallop, C. (2020, April 1). Leadership lessons men can learn from women. *Harvard Business Review*. <https://hbr.org/2020/04/7-leadership-lessons-men-can-learn-from-women>
- Eagly, A. H. (2007). Female leadership advantage and disadvantage: Resolving the contradictions. *Psychology of Women Quarterly*, 31(1), 1–12. <https://doi.org/10.1111/j.1471-6402.2007.00326.x>
- Eagly, A. H., & Carli, L. (2003). The female leadership advantage: An evaluation of the evidence. *The Leadership Quarterly*, 14(6), 807–834. <https://doi.org/10.1016/j.leaqua.2003.09.004>
- Eagly, A. H., Johannesen-Schmidt, M. C., & van Engen, M. L. (2003). Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. *Psychological Bulletin*, 129(4), 569–591. <https://doi.org/10.1037/0033-2909.129.4.569>
- Eagly, A. H., & Johnson, B. T. (1990). Gender and leadership style: A meta-analysis. *Psychological Bulletin*, 108(2), 233–256. <https://doi.org/10.1037/0033-2909.108.2.233>
- Fiedler, K. (2011). Voodoo correlations are everywhere—Not only in neuroscience. *Perspectives on Psychological Science*, 6(2), 163–171. <https://doi.org/10.1177/1745691611400237>
- Frankfurter Allgemeine Zeitung. (2021, January 2). *Frauen in Führung gestalten die Zukunft*. <https://www.faz-konferenzen.de/frauen-in-fuehrung-gestalten-die-zukunft/>
- Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, 70(3), 491–512. <https://doi.org/10.1037/0022-3514.70.3.491>
- Heiß, M. (2012, March 10). *Die Zukunft ist weiblich*. *Die Welt*. https://www.welt.de/print/die_welt/finanzen/article13913910/Die-Zukunft-ist-weiblich.html
- Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, 60(6), 581–592. <https://doi.org/10.1037/0003-066X.60.6.581>
- Hymowitz, K. S. (2012). *Manning up: How the rise of women has turned men into boys*. Basic Books.
- Judd, C. M., Westfall, J., & Kenny, D. A. (2017). Experiments with more than one random factor: Designs, analytic models, and statistical power. *Annual Review of Psychology*, 68(1), 601–625. <https://doi.org/10.1146/annurev-psych-122414-033702>
- Lammers, J., & Gast, A. (2017). Stressing the advantages of female leadership can place women at a disadvantage. *Social Psychology*, 48(1), 28–39. <https://doi.org/10.1027/1864-9335/a000292>
- Lammers, J., & Schulte, A. (2022). *Data and materials for “Stressing the advantages of female leadership can place women at a disadvantage: A replication and extension of Lammers and Gast (2017)”*.
- Mischke, R. (2010, September 30). *Die Vorteile weiblicher Führungskräfte*. *Die Welt*. <https://www.welt.de/wirtschaft/karriere/article9854311/Die-Vorteile-weiblicher-Fuehrungskraefte.html>
- Mundy, L. (2012). *The richer sex: How the new majority of female breadwinners is transforming sex, love and family*. Simon & Schuster
- Oberhofer, P. (2009, May 29). *Unternehmen brauchen Frauen im Management*. Business Wissen. <https://www.business-wissen.de/artikel/diversity-unternehmen-brauchen-frauen-im-management/>
- Rawls, J. (2009). *A theory of justice*. Harvard University Press.

- Rosin, H. (2012). *The end of men*. Atlantic Media. <https://www.theatlantic.com/magazine/archive/2010/07/the-end-of-men/308135/>
- Schein, V. E. (1973). The relationship between sex role stereotypes and requisite management characteristics. *Journal of Applied Psychology*, 57(2), 95–100. <https://doi.org/10.1037/h0037128>
- Schein, V. E. (1975). Relationships between sex role stereotypes and requisite management characteristics among female managers. *Journal of Applied Psychology*, 60(3), 340–344. <https://doi.org/10.1037/h0076637>
- Tyler, T. R. (1994). Psychological models of the justice motive: Antecedents of distributive and procedural justice. *Journal of Personality and Social Psychology*, 67(5), 850–863. <https://doi.org/10.1037/0022-3514.67.5.850>
- Vecchio, R. P. (2002). Leadership and gender advantage. *The Leadership Quarterly*, 13(6), 643–671. [https://doi.org/10.1016/S1048-9843\(0200156-X](https://doi.org/10.1016/S1048-9843(0200156-X)

History

Received January 21, 2022

Revision received June 1, 2022

Accepted July 1, 2022

Published online October 27, 2022

Authorship

Daria Mousavi, data collection (as part of her bachelor's thesis); Daria Mousavi and Anna Schulte, data analysis; Daria Mousavi, manuscript drafting; Anna Schulte and Joris Lammers, critical revisions. All authors approved the final version of the manuscript for submission.

Open Data

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. All data and materials are accessible online (<https://osf.io/fydwj>; Lammers & Schulte, 2022).

ORCID

Anna Schulte

 <https://orcid.org/0000-0002-7841-5447>

Daria Mousavi

University of Cologne
Department of Psychology
Richard-Strauss-Str. 2
50931 Cologne
Germany
daria.mousavi@outlook.de