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An Exploratory Investigation of Americans' Expression of Gender Bias Before and After the 2016 Presidential Election

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Article in press at *Social Psychological and Personality Science*

The copy of record is available at https://doi.org/10.1177/1948550618776624

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Abstract

Did the 2016 U.S. presidential election's outcome affect Americans' expression of gender bias? Drawing on theories linking leadership with intergroup attitudes, we proposed it would. A pre-registered exploratory survey of two independent samples of Americans pre- and post-election (*N*s=1,098 and 1,192) showed no pre-post differences in modern sexism, concern with the gender pay gap, or perceptions of gender inequality and progress overall. However, supporters of Donald Trump (but not of Hillary Clinton) expressed greater modern sexism post- versus pre-election – which in turn predicted reporting lower disturbance with the gender pay gap, perceiving less discrimination against women but more against men, greater progress toward gender equality, and greater female representation at top levels in the U.S. Results were reliable when evaluated against four robustness standards, thereby offering suggestive evidence of how historic events may affect gender-bias expression. We discuss the theoretical implications for intergroup attitudes and their expression.

Word Count: 148

Keywords: election, Donald Trump, Hillary Clinton, gender bias, sexism, intergroup relations

An Exploratory Investigation of Americans' Expression of Gender Bias Before and After the 2016 Presidential Election

The 2016 U.S. presidential election sparked intense debate about gender bias. Americans questioned what the first nomination of a woman candidate from a major party signalled in terms of gender bias in society, whether the media treated Hillary Clinton differently because of her gender, and whether certain comments from Donald Trump reflected sexism. Such debate raised the question: What effect, if any, would the 2016 presidential election outcome have on the degree to which Americans express gender bias?

The present research explores this question, examining gender bias as expressed through the acceptance and justification of gender inequality (Jost & Kay, 2005; Swim, Aikin, Hall, & Hunter, 1995). By investigating gender-bias expression before and after a one-time historic event, we advance theoretical understandings of factors that may shape bias expression beyond both intra-individual and interpersonal predictors identified in the intergroup-relations literature (Fiske, Cuddy, Glick, & Xu, 2002; Fiske & North, 2015; Swim, Hyers, Cohen, & Ferguson, 2001), and cultural factors described by cross-cultural perspectives (Glick et al., 2000).

Why would a one-time historic event like a national election influence gender-bias expression, given that changing intergroup attitudes is difficult (Devine, 1989; Nosek et al., 2007), and requires targeted interventions (Cundiff, Zawadzki, Danube, & Shields, 2014; Kilmartin et al., 2008) or repeated interactions (Dasgupta & Asgari, 2004)? Theories linking leadership with intergroup attitudes have proposed that authority figures and leaders powerfully influence their ingroup members' social attitudes (Allport, 1954; Hogg, 2001; Sherif, 1962). Drawing on this perspective, we suggest that historic events that elevate a leader (e.g., a popular election) could trigger sense-making processes (Higgins & Bargh, 1987; Tankard & Paluck, 2017) that shape bias expression (Butz & Yogeeswaran, 2011;

Eibach & Ehrlinger, 2006; Norton & Sommers, 2011). More specifically, Americans may have looked to the 2016 election's outcome to inform their perceptions and attitudes about gender in society. Some research indeed suggested that the election of Barack Obama reduced implicit racial bias (Columb & Plant, 2011; Plant et al., 2009; but see Skinner & Cheadle, 2016), although other work suggested it weakened support for redressing racial inequality (Kaiser, Drury, Spalding, Cheryan, & O'Brien, 2009), and that endorsing Obama could license people to subsequently favor Whites over Blacks (Effron, Cameron, & Monin, 2009). These studies could have informed predictions about how the election of America's first female President would affect gender-bias expression, but cannot inform predictions about the effect of Donald Trump's victory.

To explore how gender-bias expression might have changed following the election, we recruited two independent samples of Americans several days before and after the election. Because people may have different psychological responses to elections depending on whether their preferred candidate wins, we explored whether the results depended on the candidate people supported. Our primary outcome measure was *modern sexism* – a subtle, contemporary form of gender bias that involves denying the existence of gender discrimination in society, dismissing women's demands, and resenting them for purportedly receiving special favors (Swim et al., 1995). The modern sexism scale is well-suited to detecting subtle shifts in gender bias because people are more willing to express it than hostile sexism (Glick & Fiske, 1996), which assesses overtly prejudiced negative attitudes toward women (Swim, Mallett, Russo-Devosa, & Stangor, 2005). Moreover, modern sexism assesses perceptions of women and gender in society, and could thus more plausibly be influenced by society-level events (like elections) than measures capturing sexism in intimate relationships (but see Ratliff, Redford, Conway, & Smith, 2017).

We also conceptualized modern sexism as an antecedent to a variety of gender-bias outcomes, following previous work (for a review, see Fiske & North, 2015). For example, past research shows that modern sexism predicts poorer detection of sexism in one's day-to-day environment (Swim et al., 2005), inflated perceptions of women's advancement in traditionally male-dominated fields (Swim et al., 1995), and lower support for women's political movements (Becker & Wagner, 2009; Campbell, Schellenberg, & Senn, 1997). We thus examined whether modern sexism would predict outcomes relevant to the national conversation about gender at the time of the election: disturbance with a concrete instance of gender discrimination (the gender pay gap), beliefs about the prevalence of gender discrimination against women and men, perceptions of progress toward gender equality, and perceptions of female representation in top political and business positions. Given our interest in whether the election would affect modern sexism, and the theoretical reasons for expecting modern sexism to predict these other outcomes, we explored whether the election, through modern sexism, could indirectly affect these outcomes.

We wrote an internal pre-registration[1] specifying the targeted sample size, all measures, and methods. We pre-registered directional hypotheses about how our measures might shift after a Clinton win, because these predictions directly followed from past research. We did not formulate hypotheses about the consequences of Trump's election, as previous literature did not clearly suggest directional predictions. Given the election outcome, our investigation is exploratory.

Method

Design

The study has a quasi-experimental, between-subjects, pre-post design. We surveyed different participants pre- and post-election because surveying the same participants twice (a

[1] Uploaded on OSF: https://osf.io/vb637/?view_only=d94baaceee89426b8c95f0085f41bfdc

within-subjects design) could have resulted in high attrition levels, revealed our interest in the election (i.e., create demand characteristics), and pressured participants to provide consistent responses pre- and post-election. We describe robustness checks to ensure the pre- and post-election samples are comparable (e.g., on demographics), which helps address potential third-variable concerns.

Participants

We hired Survey Sampling International to recruit two independent samples of American adults around the November 8th, 2016 Election Day (pre-election: November 4 – November 8 early morning EST; post-election: November 9 EST evening – November 15). Based on a power analysis, we requested 1,200 unique participants. Even in case of substantial attrition, this offers adequate power to detect a small effect of the election (e.g., n = 930 per sample provides 80% power to detect $d = 0.13$ at $p < 0.05$).

We initially set quotas for equal numbers of women and men, and an approximately-proportionate distribution of ethnic groups based on U.S. Census Bureau (2011) estimates – 63.7% Non-Hispanic Whites, 12.2% Non-Hispanic Blacks, 4.7% Non-Hispanic Asians, 16.3% Hispanics or Latinos, and 3.0% others – but relaxed the ethnicity quota in the final hours to meet targeted sample sizes within the timeline (see Supplementary Online Material, SOM, for demographics). Only U.S.-based Americans (indicated by self-reported citizenship and IP address) who consented and, for the post-election survey, had not already completed the pre-election survey, participated.

Prior to analysis, we excluded participants who failed either of two attention checks (pre-registered), provided incomplete responses, or took less than one-third of the median time to complete the study (lab-standard practice)[2], leaving N = 2,290 people (pre-election: $n_{pre\text{-}election}$ = 1,098; M_{Age} = 33.87, SD = 16.63; 531 men, 564 women, 3 other gender; 747

[2] The results' direction and significance level were unchanged when retaining too-fast responses.

European Americans, 157 African Americans, 55 Asian Americans, 97 Hispanic or Latino Americans, 42 other race; post-election: $n_{post\text{-}election}$ = 1,192, M_{Age} = 33.39, SD_{Age} = 17.13; 567 men, 625 women; 807 European Americans, 161 African Americans, 59 Asian Americans, 113 Hispanic or Latino Americans, 52 other race).

Procedure

Participants provided demographics, answered an attention check, and completed the measures below (in which a second attention check was embedded). At the end of the survey, pre-election participants indicated how closely they had followed the election and whether they were registered to vote in the U.S.; post-election participants instead answered these questions at the survey's start to increase the election's salience.

Measures

We compared pre- and post-election responses on the following measures (see Table 1 for descriptive statistics and correlations).

Table 1. *Correlations among, and descriptive statistics for, the outcome variables measured.*

Outcome variables	***M* (*SD*)**	**1**	**2**	**3**	**4**	**5**	**6**
1. Modern Sexism	2.52 (0.86)		-0.62 ***	-0.68 ***	0.23 ***	0.72 ***	0.31 ***
2. Disturbance with the gender pay gap	5.35 (1.62)			0.54 ***	-0.26 ***	-0.57 ***	-0.08 ***
3. Perceptions of gender discrimination against women	6.78 (2.09)				0.03	-0.63 ***	-0.05 *
4. Perceptions of gender discrimination against men	3.99 (2.19)					0.21 ***	0.23 ***
5. Perceptions of progress towards gender equality	3.81 (1.09)						0.16 ***
6. Perceived female representation at top levels	29.97% (18.75%)						

Note. $N = 2{,}290$. *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$, † = $p < 0.10$.

Modern sexism. As noted, we focused on gender bias expressed through the acceptance or justification of gender inequality, operationalized with the eight-item Modern Sexism Scale (Swim et al., 1995; $\alpha = 0.87$). Modern sexism, although unidimensional, captures gender bias in the guise of the denial of ongoing discrimination against women (e.g., "Discrimination against women is no longer a problem in the United States", reverse-scored), antagonism toward women's demands (e.g., "It is easy to understand the anger of women's groups in America"), and resentment about purported special favors for women in society (e.g., "Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences",

reverse-scored). Higher numbers indicate greater modern sexism (1 “Strongly agree” to 5 “Strongly disagree”).

Because modern sexism predicts a range of consequential gender-bias-related outcomes (Fiske and North, 2015; also see Georgeac & Rattan, 2018), we also conceptualized it as a potential mediator of indirect effects on the following measures.

Disturbance with the gender pay gap. Participants indicated how disturbed they felt by each of six factual statistics about the gender pay gap (e.g., “across all jobs, women who work full-time earn 78 cents for every dollar a man earns for the same work”; 1 “Not at all disturbed” to 7 “Extremely disturbed”; $\alpha = 0.97$; Georgeac & Rattan, 2018; full scale in SOM Appendix).

Perceptions of gender discrimination against women and men. Participants indicated how much they thought women and men were “the victims of discrimination in the United States these days,” using separate 10-point scales for each gender (1 “Not at all” to 10 “Very much”; adapted from Norton & Sommers, 2011). We analysed each item separately.

Perceptions of progress toward gender equality. Four items assessed perceived progress toward gender equality in the U.S. (e.g., “How much improvement has there been in equality for women in the U.S. in the last 10 years?”; 4 items; $\alpha = 0.74$; adapted from Brodish, Brazy, & Devine, 2008). Higher numbers indicate greater perceived progress toward gender equality (e.g., 1 “Little improvement” to 7 “A lot of improvement”).

Perceived female representation at top levels. Participants estimated the percentage (on a slider scale of 1% increments) of women “in the top levels of U.S. politics (the President, the Vice President, the Cabinet, Congress, governors, and others at the top of the leadership hierarchy in the government),” and “in the top levels of U.S. organizations (CEOs, Boards of Directors, Senior Vice Presidents, and others at the top of the leadership hierarchy

in the workplace)" (Georgeac & Rattan, 2018). The two items were highly correlated (r = 0.80, $p < 0.001$) and averaged.

We expected modern sexism to predict feeling less disturbed about the gender pay gap, and perceiving less discrimination toward women, more discrimination toward men, more progress toward gender equality, and greater female representation at top levels of society.

Potential moderator: Candidate support. We also assessed whether the election's effect would depend on the candidate supported. We categorized people as supporting Trump ($n_{pre\text{-}election}$ = 351; $n_{post\text{-}election}$ = 432) or Clinton ($n_{pre\text{-}election}$ = 622; $n_{post\text{-}election}$ = 605) based on whom they planned to vote for (in the pre-election survey) or had voted for (in both surveys).

Finally, participants provided additional demographics (see SOM) and reported their political ideology (-3 = "Extremely liberal" to +3 = "Extremely conservative").

Results

Participant gender did not significantly moderate any of the following results (see SOM).

No Main Effect of Survey Time

The timing of the survey (pre- versus post-election) had no significant main effects on the dependent measures, $|t\text{s}| \leq 1.60$, $p\text{s} \geq 0.11$, $d\text{s} \leq 0.07$ (see Table 2).

Table 2. *Comparison of pre- versus post-election samples across variables measured.*

Outcome variables	Pre-election *M* (*SD*)	Post-election *M* (*SD*)	Mean difference (*SE*)	95% CI		*t*	*df*	*p*	*Cohen's d*
				Lower bound	Upper bound				
1. Modern Sexism	2.50 (0.83)	2.54 (0.88)	0.04 (0.04)	-0.03	0.11	1.21	2288	0.23	0.05
2. Disturbance with the gender pay gap	5.34 (1.57)	5.35 (1.66)	0.01 (0.07)	-0.12	0.14	0.14	2288	0.89	0.01
3. Perceptions of gender discrimination against women	6.80 (2.02)	6.76 (2.15)	-0.04 (0.09)	-0.21	0.13	-0.48	2287.16	0.63	0.02
4. Perceptions of gender discrimination against men	3.91 (2.15)	4.06 (2.23)	0.15 (0.09)	-0.03	0.33	1.60	2288	0.11	0.07
5. Perceptions of progress towards gender equality	3.80 (1.05)	3.82 (1.13)	0.02 (0.05)	-0.07	0.11	0.36	2287.98	0.72	0.02
6. Perceived female representation at top levels	29.84% (18.57%)	30.08% (18.93%)	0.24% (0.78%)	-1.30%	1.78%	0.30	2288	0.76	0.01

Note. $N = 2{,}290$. Where *df* are not a whole number, the test does not assume equality of variances.

Different Effects of Survey Time for Clinton versus Trump Supporters

The following analyses have a smaller sample size (N = 2,010; $n_{pre\text{-}election}$ = 973, $n_{post\text{-}election}$ = 1,037) because some participants supported alternative candidates or reported they would not or did not vote (see SOM, Table S1 for *M*s and *SD*s).

Modern sexism. A 2 X 2 ANOVA yielded a significant Survey time X Candidate support interaction, $F(1, 2006) = 6.25$, $p = 0.012$, $\eta_p^2 = 0.003$ (see Table 3). Trump supporters endorsed modern sexism significantly more post-election, $M_{Pre} = 2.93$, $SD = 0.80$, $M_{Post} = 3.05$, $SD = 0.81$, $F(1, 2006) = 4.27$, $p = 0.039$, $\eta_p^2 = 0.002$, 95% CI [0.01; 0.23], whereas Clinton supporters did not, $M_{Pre} = 2.26$, $SD = 0.76$, $M_{Post} = 2.20$, $SD = 0.77$, $F(1, 2006) = 2.02$, $p = 0.16$, $\eta_p^2 = 0.001$, 95% CI [-0.15; 0.02].

Perceptions of gender discrimination against women and men. Candidate support also significantly moderated the effect of survey time on perceived discrimination against women, $F(1, 2006) = 4.47$, $p = 0.035$, $\eta_p^2 = 0.002$ (see Table 3). Whereas Clinton supporters reported perceiving significantly more discrimination against women post-election, $M_{Pre} = 7.36$, $SD = 1.77$, $M_{Post} = 7.59$, $SD = 1.74$, $F(1, 2006) = 4.56$, $p = 0.033$, $\eta_p^2 = 0.002$, 95% CI [0.02; 0.45], Trump supporters did not, $M_{Pre} = 5.77$, $SD = 2.08$, $M_{Post} = 5.63$, $SD = 2.19$, $F(1, 2006) = 1.01$, $p = 0.32$, $\eta_p^2 = 0.001$, 95% CI [-0.41; 0.13]. This finding is consistent with a concurrent investigation (Does, Gündemir, & Shih, in press).

Whereas only Trump supporters expressed greater modern sexism post-election, only Clinton supporters perceived greater discrimination against women post-election. Given the negative correlation between modern sexism and perceived discrimination of women ($r = -0.68$, $p < 0.001$), these two effects appear complementary.

The survey time by candidate support interaction was not significant for any other measure, Fs ≤ 2.29, ps ≥ 0.13, $\eta_p^2 \leq 0.001$ (see Table 3). However, it is possible this

interaction had a theoretically-meaningful indirect effect on these measures through modern sexism (Rucker, Preacher, Tormala, & Petty, 2011), which we test next.

Table 3. *Tests of Survey time x Candidate support interactions on each of the outcome variables, and corresponding simple slopes.*

Outcome variables			**Pre-election** ***M*** **(*SD*)**	**Post-election** ***M*** **(*SD*)**	**Mean difference (*SE*)**	**95% CI** **Lower bound**	**Upper bound**	***F***	***p***	η_p^2
1. Modern Sexism	Survey time							0.54	0.46	< 0.001
	Candidate support							451.05	< 0.001	0.18
	Interaction							6.25	0.012	0.003
	Simple slopes analysis	Donald Trump supporters	2.93 (0.80)	3.05 (0.81)	0.12 (0.06)	0.01	0.23	4.27	0.039	0.002
		Hillary Clinton supporters	2.26 (0.76)	2.20 (0.77)	-0.06 (0.05)	-0.15	0.02	2.02	0.16	0.001
2. Disturbance with the gender pay gap	Survey time							0.10	0.76	< 0.001
	Candidate support							247.44	< 0.001	0.11
	Interaction							0.33	0.57	< 0.001

Note. N = 2,010. All between-groups degrees of freedom were equal to 1, and all within-groups degrees of freedom were equal to 2,006.

Table 3 Continued.

Outcome variables			Pre-election *M* (*SD*)	Post-election *M* (*SD*)	Mean difference (*SE*)	95% CI Lower bound	95% CI Upper bound	*F*	*p*	η_p^2
3. Perceptions of gender discrimination against women	Survey time							0.30	0.59	< 0.001
	Candidate support							407.48	< 0.001	0.17
	Interaction							4.47	0.035	0.002
	Simple slopes analysis	Donald Trump supporters	5.77 (2.08)	5.63 (2.19)	-0.14 (0.14)	-0.41	0.13	1.01	0.32	0.001
		Hillary Clinton supporters	7.36 (1.77)	7.59 (1.74)	0.23 (0.11)	0.02	0.45	4.56	0.033	0.002
4. Perceptions of gender discrimination against men	Survey time							4.11	0.043	0.002
	Candidate support							27.59	< 0.001	0.014
	Interaction							0.54	0.46	< 0.001

Note. N = 2,010. All between-groups degrees of freedom were equal to 1, and all within-groups degrees of freedom were equal to 2,006.

Table 3 Continued.

Outcome variables		Pre-election *M* (*SD*)	Post-election *M* (*SD*)	Mean difference (*SE*)	95% CI Lower bound	95% CI Upper bound	*F*	*p*	η_p^2
5. Perceptions of progress towards gender equality	Survey time						0.70	0.40	< 0.001
	Candidate support						421.73	< 0.001	0.17
	Interaction						2.29	0.13	0.001
6. Perceived female representation at top levels	Survey time						0.01	0.93	< 0.001
	Candidate support						4.36	0.037	0.002
	Interaction						1.43	0.23	0.001

Note. N = 2,010. All between-groups degrees of freedom were equal to 1, and all within-groups degrees of freedom were equal to 2,006.

Potential Consequences of Modern Sexism as a Function of Survey Time and Candidate Support

Confirmatory factor analysis. We first tested whether modern sexism represents a distinct construct from the other measures. Suggesting it does, modern sexism loaded onto a different factor from the other measures in a confirmatory factor analysis (see SOM). It was thus informative to test whether modern sexism mediated any indirect effects of survey time on the other measures.

Indirect effects of survey time through modern sexism. A meaningful conditional indirect effect can arise in the absence of a significant total effect (e.g., due to power or suppression effects; Rucker et al., 2011; Shrout & Bolger, 2002; Zhao, Lynch, & Chen, 2010). We thus examined indirect effects conditional on candidate support, using a moderated mediation analysis. Specifically, we tested whether an indirect effect from survey time (X), via modern sexism endorsement (M), to each of the other outcomes (Y) depended on candidate support (W), which could moderate the X-M link or the X-Y link (see Figure 1; Model 8 in Hayes, 2013). We effect-coded survey time (pre-election=-1; post-election=1) and candidate support (Clinton=-1; Trump=1), and mean-centered the mediator, modern sexism. The coefficients reported below are indirect effects and their bias-corrected, bootstrapped 95% CIs, computed with 10,000 resamples using the PROCESS macro (Hayes, 2013).

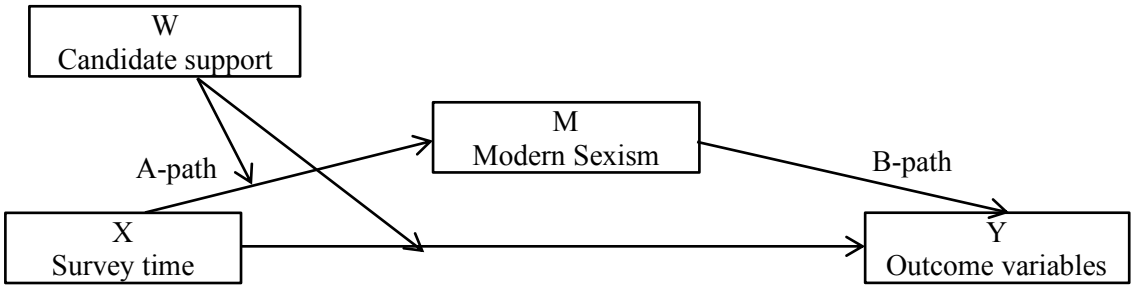

Figure 1. Model for the conditional process analyses conducted (corresponding to Model 8 in Hayes (2013)).

For each of the five outcome variables, the indirect effect from survey time via modern sexism endorsement was significantly larger for Trump supporters than for Clinton supporters, as indicated by significant indices of moderated mediation (see Table 4). Specifically, Trump supporters' greater modern sexism endorsement post-election predicted less disturbance with the gender pay gap, $b = -0.06$, $SE = 0.03$, 95% CI [-0.12; -0.003], lower perceived discrimination against women, $b = -0.09$, $SE = 0.04$, 95% CI [-0.17; -0.004], higher perceived discrimination against men, $b = 0.03$, $SE = 0.02$, 95% CI [0.002; 0.07], greater perceived progress toward equality for women, $b = 0.05$, $SE = 0.02$, 95% CI [0.002; 0.10], and greater perceived female representation at top levels in the U.S., $b = 0.45$, $SE = 0.23$, 95% CI [0.02; 0.92].

No indirect effects were significant for Clinton supporters, $|bs| \leq 0.25$ (see Table 4), because as noted, survey time did not significantly predict Clinton supporters' expressed modern sexism.

Table 4. *Results of the moderated mediation analyses, IV = Survey time, W = Candidate support, M = Modern Sexism (mean-centered).*

Outcome variables	**Sub-sample**		**A path**	**B path**	**Indirect effect**	**Direct effect**	**Difference in indirect effects (Index of moderated mediation)**
1. Disturbance with the gender pay gap	Trump supporters	*b*	0.06	-1.06	-0.06	0.05	-0.10 (0.04) [-0.171; -0.020]
		(SE)	(0.03)	(0.04)	(0.03)	(0.05)	
		95% CI	[0.003; 0.113]	[-1.132; -0.992]	[-0.122; -0.003]	[-0.036; 0.141]	
		p	0.039	< 0.001		0.24	
	Clinton supporters	*b*	-0.03	-1.06	0.03	-0.003	
		(SE)	(0.02)	(0.04)	(0.02)	(0.04)	
		95% CI	[-0.075; 0.012]	[-1.132; -0.992]	[-0.012; 0.080]	[-0.073; 0.067]	
		p	0.16	< 0.001		0.93	
2. Perceptions of gender discrimination against women	Trump supporters	*b*	0.06	-1.48	-0.09	0.02	-0.13 (0.05) [-0.240; -0.029]
		(SE)	(0.03)	(0.04)	(0.04)	(0.05)	
		95% CI	[0.003; 0.113]	[-1.565; -1.394]	[-0.171; -0.004]	[-0.091; 0.124]	
		p	0.039	< 0.001		0.76	
	Clinton supporters	*b*	-0.03	-1.48	0.05	0.07	
		(SE)	(0.02)	(0.04)	(0.03)	(0.04)	
		95% CI	[-0.075; 0.012]	[-1.565; -1.394]	[-0.016; 0.111]	[-0.016; -0.155]	
		p	0.16	< 0.001		0.11	
3. Perceptions of gender discrimination against men	Trump supporters	*b*	0.06	0.59	0.03	0.10	0.05 (0.02) [0.012; 0.099]
		(SE)	(0.03)	(0.06)	(0.02)	(0.08)	
		95% CI	[0.003; 0.113]	[0.475; 0.714]	[0.002; 0.071]	[-0.047; 0.255]	
		p	0.039	< 0.001		0.18	
	Clinton supporters	*b*	-0.03	0.59	-0.02	0.08	
		(SE)	(0.02)	(0.06)	(0.01)	(0.06)	
		95% CI	[-0.075; 0.012]	[0.475; 0.714]	[-0.046; 0.006]	[-0.360; 0.203]	
		p	0.16	< 0.001		0.17	

Note. The A and B paths refer to the paths depicted in Figure 1. $N = 2{,}010$. Confidence intervals (CIs) were computed with the bias-corrected bootstrap method with 10,000 resamples.

Table 4 Continued.

Outcome variables	Sub-sample		A path	B path	Indirect effect	Direct effect	Difference in indirect effects (Index of moderated mediation)
4. Perceptions of progress towards gender equality	Trump supporters	*b*	0.06	0.82	0.05	-0.03	0.07 (0.03) [0.016; 0.134]
		(SE)	(0.03)	(0.02)	(0.02)	(0.03)	
		95% CI	[0.003; 0.113]	[0.781; 0.865]	[0.002; 0.095]	[-0.085; 0.020]	
		p	0.039	< 0.001		0.23	
	Clinton supporters	*b*	-0.03	0.82	-0.03	-0.03	
		(SE)	(0.02)	(0.02)	(0.02)	(0.02)	
		95% CI	[-0.075; 0.012]	[0.781; 0.865]	[-0.062; 0.009]	[-0.069; 0.015]	
		p	0.16	< 0.001		0.21	
5. Perceived female representation at top levels	Trump supporters	*b*	0.06	7.81	0.45	0.11	0.70 (0.29) [0.158; 1.308]
		(SE)	(0.03)	(0.52)	(0.23)	(0.65)	
		95% CI	[0.003; 0.113]	[6.789; 8.829]	[0.023; 0.916]	[-1.172; 1.393]	
		p	0.039	< 0.001		0.87	
	Clinton supporters	*b*	-0.03	7.81	-0.25	-0.24	
		(SE)	(0.02)	(0.52)	(0.17)	(0.52)	
		95% CI	[-0.075; 0.012]	[6.789; 8.829]	[-0.599; 0.085]	[-1.261; 0.776]	
		p	0.16	< 0.001		0.64	

Note. The A and B paths refer to the paths depicted in Figure 1. $N = 2{,}010$. Confidence intervals (CIs) were computed with the bias-corrected bootstrap method with 10,000 resamples.

Critically Evaluating Exploratory Findings With Robustness Checks

Exploratory correlational research must be evaluated against strong standards of robustness if any insights are to be drawn. Therefore, we conducted robustness checks to address potential concerns regarding (1) the choice of moderator, (2) selection bias across the pre- and post-election samples, and (3) multiple hypothesis testing.

(1) Choice of moderator. Our main analyses focused on candidate support as a moderator. Candidate support ought to overlap with political ideology; indeed, more-conservative participants tended to support Trump in our sample, though this relationship was only modest in size ($r = 0.56$, $p < 0.001$). Our political ideology measure allows us to address two questions regarding robustness.

First, how stable were our results across conceptually-related measures of the moderating variable? If the results did *not* arise solely due to chance, then they should replicate in new analyses replacing candidate support with political ideology. The new analyses replicated the modern sexism findings. We observed a significant interaction between survey time and political ideology on modern sexism, $b = 0.02$, $SE = 0.01$, $t(2,286) = 2.04$, $p = 0.042$, 95% CI [0.001; 0.04]. Those on the conservative side of the scale (tested at +1*SD*) expressed significantly greater modern sexism post-election, $b = 0.05$, $SE = 0.02$, $t(2,286) = 1.98$, $p = 0.047$, 95% CI [0.001; 0.09], whereas those on the liberal side of the scale (tested at -1*SD*) did not, $b = -0.02$, $SE = 0.02$, $t(2,286) = -0.90$, $p = 0.37$, 95% CI [-0.07; 0.03]. The indirect effects of survey time via modern sexism on the other measures were significant or (in one case) marginally significant among conservatives (see SOM). Thus, our findings on modern sexism hold when we use political ideology rather than candidate support as a moderator.

By contrast, our findings on perceived discrimination against women were less robust. While political ideology marginally moderated the effect of survey time on perceived

discrimination against women, b = -0.05, SE = 0.03, t(2,286) = -1.86, p = 0.064, 95% CI [-0.09; 0.003], survey time did not have a significant effect for either liberals, b = 0.07, SE = 0.06, t(2,286) = 1.25, p = 0.21, 95% CI [-0.04; 0.19], or conservatives, b = -0.08, SE = 0.06, t(2,286) = -1.38, p = 0.17, 95% CI [-0.20; 0.03].

A second question we can address with the political ideology measure is whether there is an effect of candidate support on our dependent variables above and beyond political ideology, or whether candidate support is just a proxy for political ideology. Suggesting our results can be attributed specifically to candidate support above and beyond political ideology, the survey time by candidate support interactions on modern sexism and perceived discrimination against women remained significant even after including political ideology as a covariate (see SOM).

(2) Potential selection bias. Because different individuals participated before and after the election without random assignment, systematic differences in sample characteristics could have confounded our results. We tested whether any measured demographics differed between our pre- and post-election samples; socioeconomic status differed significantly, and education differed marginally. We addressed this issue in two ways (see SOM).

First, we redid our main analyses controlling for each of these variables in turn, as well as for both variables simultaneously. None of the results previously reported changed meaningfully. Second, we used propensity score matching, a technique widely used in non-experimental research to simultaneously correct for demographic differences between two samples. For Trump supporters, results revealed statistically indistinguishable demographics pre- versus post-election (ps $\geq$ 0.15), suggesting that the results reported above for Trump supporters are reliable. For Clinton supporters, results revealed potentially confounding demographic differences across pre- and post-election samples, but accounting for these differences produced similar results as above: Clinton supporters reported perceiving

marginally greater discrimination against women post-election. Thus, selection bias cannot account for the results.

(3) Multiple hypothesis testing. Recall that candidate support moderated the effects of survey time on two of six measures. Conducting the same moderation test on multiple measures raises the family-wise error rate (FWE) above $\alpha = 0.05$. To quantify how much, we conducted the Bonferroni adjustment, which is the most well-known, and the Tukey-Ciminera-Heyes (TCH) adjustment, which is designed for correlated measures like ours. The results delineate a range of possible FWEs because, in our situation, Bonferroni is too conservative and TCH is too liberal (Sankoh, Huque, & Dubey, 1997).

The survey wave by candidate support interaction on modern sexism remained significant or marginally significant after adjusting for multiple testing, α for FWE = 0.029 (THC) to 0.072 (Bonferroni). Thus, this effect was robust.

The survey wave by candidate support interaction on discrimination against women was non-significant or marginally significant after adjusting for multiple testing, α for FWE = 0.084 (THC) to 0.21 (Bonferroni). Thus, this effect was again less robust.

Overall evaluation of robustness checks. To summarize, among Trump supporters, the effect of survey time on reported modern sexism was robust across four robustness checks, as were the indirect effects of survey time on other outcomes through modern sexism. These findings can thus be considered reliable. In contrast, among Clinton supporters, the effect of survey time on perceived discrimination against women was less robust, and thus cannot be deemed reliable (but see Does et al., in press).

General Discussion

Did Americans express different amounts of gender bias before versus after the 2016 U.S. presidential election? Our findings suggest the answer may depend on which candidate they supported. Whereas Clinton supporters' expressions of gender bias were not reliably

different post-election, Trump supporters showed a small but statistically significant increase in modern sexism post-election, which in turn predicted reporting lower disturbance with the gender pay gap, perceiving a lower prevalence of discrimination against women but more against men, perceiving greater progress towards gender equality, and reporting greater female representation at top levels of U.S. politics and organizations. These results were reliable across four robustness standards, thereby offering evidence that the 2016 U.S. presidential election outcome could have shaped gender-bias expression.

Theoretical Implications

To our knowledge, the present research represents the first large-sample, direct investigation of changes in gender-bias endorsement in the wake of a real-world historic event. Although the effects we observed could be considered small by traditional social psychology standards (Richard, Bond, & Stokes-Zoota, 2003), we suggest they are meaningful. Intergroup attitudes such as modern sexism are difficult to change (Clark, Wegener, Briñol, & Petty, 2009; Devine, 1989; Nosek et al., 2007), suggesting that even a small shift in their expression within 12 days could be theoretically important (Prentice & Miller, 1992).

The present research also expands our understanding of what factors may influence gender-bias expression. By examining a one-time historic event, we move beyond the intra-individual, interpersonal or cultural factors traditionally examined (Fiske et al., 2002; Fiske & North, 2015; Glick et al., 2000; Swim et al., 2001). Additionally, whereas intergroup research has investigated the effects of political events signalling societal change (Columb & Plant, 2011; Effron et al., 2009; Kaiser et al., 2009; Plant et al., 2009; Sawyer & Gampa, 2018; Skinner & Cheadle, 2016; Tankard & Paluck, 2017), the present work suggests that a political event signalling the confirmation of the gender status quo (i.e., the election of a male U.S. president) may shape intergroup attitude expression above and beyond self-reported

political ideology, at least among those who supported the winning candidate. Thus, these findings offer novel theoretical insights into the study of when people express gender bias.

Potential Mechanisms

Although the present results may have been driven in part by Donald Trump as an individual, other mechanisms – about which our data only allow us to speculate – may also have been at play. A first explanation is based on the idea that leaders rise to power because they best embody their ingroup prototype, and that followers change their attitudes to approximate this ingroup prototype (Hogg, 2001; Tajfel & Turner, 1979; van Knippenberg & Hogg, 2003). If Trump supporters interpreted Trump's win as a validation of the ingroup prototype he showcased, they may have expressed greater modern sexism post-election to approximate his perceived positions on gender issues. By contrast, Clinton supporters' gender attitudes may not have changed insofar as they did not perceive Trump as an ingroup prototype.

A second possibility is that Trump's election affected perceptions of social norms about gender bias. Research conducted concurrently to ours indeed found that explicit prejudice against groups negatively-targeted by Donald Trump's campaign (e.g., Muslims) was perceived as more acceptable post-election (Crandall, Miller, & White, 2018) – although this research did not assess norms about gender bias broadly. Building on this perspective, given the accusations of sexism throughout the campaign, Trump's election may have signalled to his supporters that gender equality is not a central concern among other Trump supporters. Consequently, they may have "tuned" their gender attitudes towards this perceived in-group norm and expressed greater modern sexism (Echterhoff, Higgins, & Levine, 2009; Hardin & Conley, 2001; Hardin & Higgins, 1996). Clinton supporters would not engage in such "social tuning" (Lowery, Hardin, & Sinclair, 2001) because Trump's

election did not inform them about the gender attitudes of other Clinton supporters – their reference group.

A related possibility is that a shift in the perceived norms about gender bias did not actually affect Trump supporters' attitudes *per se*, but rather increased their willingness to express attitudes they already had. People generally strive to inhibit themselves from expressing views that could seem prejudiced – unless they believe they can express such views without discrediting themselves (Crandall & Eshleman, 2003; Miller & Effron, 2010). Given Trump's opposition to "political correctness" (Conway, Repke, & Houck, 2017), Trump supporters may have interpreted his election as a signal that expressing "politically incorrect" views about gender was no longer discrediting, and may thus have felt licensed post-election to voice gender-related attitudes that they previously kept private. For this explanation to fit our data, Trump supporters would have to be more likely than Clinton supporters to hold modern sexist views about gender pre-election, or to interpret the election as a license to express modern sexism.

Finally, the observed shift in people's perceptions of gender in society could reflect people's motivation to justify the social and political systems in which they are embedded – particularly when these systems' legitimacy is questioned (Jost & Banaji, 1994; Jost & Hunyady, 2003, 2005; Kay et al., 2009). Trump supporters likely interpreted Trump's election as a victory of the better candidate, rejecting allegations that America treated Clinton unfairly because of her gender. They may then have supported this interpretation by denying the existence of gender discrimination in the U.S. social and political system, dismissing women's demands as illegitimate, and resenting them for asking for purported special favors – i.e., by endorsing modern sexism (Swim et al., 1995). In contrast, Clinton supporters may not have felt the same tendency to justify the system upon witnessing the defeat of a woman they presumably perceived as highly competent.

These different possibilities offer fruitful directions for future research using different sources of data, events, and facets of gender bias (e.g., ambivalent sexism; Glick & Fiske, 1996) to determine the processes by which historic events may influence gender-bias expression.

Limitations and Future Directions

Of course, this work has limitations. First, although previous research shows that gender-biased attitudes predict behavior (Fiske & North, 2015), the present study's focus on attitudes cannot speak to whether the election outcome shaped gender-biased behavior (e.g., interpersonal interactions). Second, because it is impossible to experimentally manipulate one-time historic events, this work cannot draw causal conclusions about the effects of the election outcome on gender-bias expression, and should be considered suggestive until confirmatory work is conducted. However, the quasi-longitudinal nature of this study ensures that reverse causation is impossible, and the narrow time window during which the study was conducted minimizes the possibility that unmeasured variables may better explain the reported attitudinal shifts than the election outcome. Third, we recruited different participants pre- and post-election, which, unlike a longitudinal design, prevents us from examining whether gender-bias endorsement among the same participants increased post-election. However, compared to a longitudinal design, this study's cross-sectional pre-/post-election design has the advantage of minimizing the risk of consistency bias and demand characteristics, and the propensity-score analysis reduces concerns that differences in the pre- and post-samples' observed characteristics confounded our results. Despite these limitations, we suggest that exploratory correlational work, when taken as such and held to high standards of robustness, can meaningfully inform our understanding of whether and how historic events (e.g., elections) could influence intergroup attitudes.

Conclusion

This research informs a topical debate about whether the 2016 presidential election affected gender-bias expression in the U.S. Exploratory analyses suggest that Trump supporters, but not Clinton supporters, reported increased modern sexism post- versus pre-election. This increase in turn predicted perceiving less discrimination against women but more against men, perceiving greater progress towards gender equality, believing more women occupy top levels of politics and organizations, and reporting less disturbance with the gender pay gap. Together, these results, which held against four robustness standards, emphasize the importance of considering historic events – not just individuals, dyads, groups, or cultures – for understanding the psychology of intergroup attitudes.

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