ORIGINAL ARTICLE

Achieving Equality or Persisting Inequality: Effects of Framing of Equality on Attitudes Toward Women and Gender Equality Through Identity Threat and Cognitive Unfreezing

Isabel Cuadrado[1] · Andreea A. Constantin[1] · Lucía López-Rodríguez[1] · Lucía Estevan-Reina[1,2]

Abstract

Previous evidence suggests that interventions that raise awareness of gender inequality might have the potential to challenge and undo well-anchored biases but, at the same time, might be threatening and provoke reactance against them. The effects of such interventions might also have a differential impact on women and men and vary depending on their level of neosexism and feminist identification. Extending previous research, two pre-registered studies ($N = 1,895$) were conducted to explore the differential effects of interventions that raise awareness of gender (in)equality with two frames (i.e., gender equality achievement vs. gender inequality persistence) on women's and men's attitudes toward women and gender equality. We also examined whether participants' gender ideology moderates these effects via different psychological mechanisms (identity threat and cognitive unfreezing). Results indicated that for women, the gender inequality persistence framing is more effective (increases cognitive unfreezing) but potentially riskier (enhances identity threat) than the gender equality achievement framing. For men, the gender equality achievement framing seems especially effective as it reduced identity threat, although such effect is contingent on their gender ideology (feminist identification or/and neosexism). These findings have implications for the discourse of practitioners, politicians, and activists who might capitalize on the power of combining gender equality with gender inequality frames to improve attitudes toward women and gender equality depending on the specific goals, the context, and the target of the interventions.

Keywords Awareness-raising interventions · Gender equality · Cognitive unfreezing · Identity threat · Feminist identification · Workplace

Although important advances regarding gender equality have been made in Western societies in the last few decades, inequalities persist. Even in some of the most gender-egalitarian countries, being a woman means having lower median earnings and more precarious and part-time jobs and being less represented in decision-making positions than men (Buckingham et al., 2020). Since the 1960s, a growing body of evidence has revealed the prominent role played by gender stereotypes and sexist attitudes in maintaining these inequalities (e.g., Eagly et al., 2012). In more recent years, researchers have been increasingly interested in interventions designed to reduce gender inequality (see Morgenroth & Ryan, 2018a), focusing in particular on collective actions for women's rights (e.g., Saguy & Szekeres, 2018), the effects of female role models (e.g., Cheryan et al., 2011), and gender-fair language (Sczesny et al., 2016). One promising line of work has focused on stimulating awareness about gender inequality (e.g., Pietri et al., 2017).

The present research aims to explore the effect of different ways of framing interventions on the attitudes of male and female participants toward women and gender equality. We also analyze two mechanisms that may underlie this

✉ Isabel Cuadrado
icuadrad@ual.es

Andreea A. Constantin
ac125@ual.es

Lucía López-Rodríguez
lucialopez@ual.es

Lucía Estevan-Reina
lereina@ual.es

[1] Department of Psychology, University of Almería, 04120 Almería, Spain

[2] Jagiellonian University, Institute of Psychology, Krakow, Poland

effect (i.e., identity threat and cognitive unfreezing) and examine the role of ideological variables in this process. The present research is thus intended to advance the current understanding of *what* types of intervention strategies impact *whom* as well as *how* and *why* these strategies shape attitudes about gender (in)equality.

Interventions to Raise Awareness of Gender (In)Equality: Effectiveness and Reactance

Initiatives oriented toward addressing gender inequality have generally tried to raise awareness of gender biases, improve attitudes toward women, and encourage women's involvement in the STEM field (e.g., Hennes et al., 2018; Moss-Racusin et al., 2016, 2018; Pietri et al., 2017). Research has used interventions that raise awareness of gender inequality via different procedures, including experiential learning about its consequences (e.g., Zawadzki et al., 2014), training programs that address gender-based power mechanisms and underlying ideologies (de Lemus et al., 2014), and watching videos discussing heterosexual/male privileges combined with reflective writing (Case et al., 2014). Offering precise information on past discrimination has also been shown to be especially useful for men (Boring & Philippe, 2021).

Despite these promising findings, there is also evidence that some interventions that raise awareness of gender inequality may have counterproductive effects (e.g., Doolaard et al., 2021): They may generate reactance (Cundiff & Murray, 2020) and negative attitudes toward women who occupy typically male domains (Freedman et al., 2021). Reactance theory (Burgoon et al., 2002; Rains, 2013) suggests that people who are exposed to a view that opposes their attitudes might become defensive and cause them to double down on their attitudes (Dillard & Shen, 2005). Considering this, Cundiff et al. (2018) recommended developing interventions that can decrease gender bias while avoiding defensiveness, and, in fact, they have shown that interventions which produce less reactance may facilitate their effectiveness (Cundiff et al., 2014).

Although research addressing gender inequality has mostly focused on raising awareness about its pervasiveness and negative consequences, we propose that social change could also be achieved through a different approach focused on the positive consequences of such change. Although reminders about the persistence of gender inequality may be associated with negative affect (e.g., anger, sadness, fear), emphasizing the past and future achievements of gender equality may be associated with a positive affect (e.g., hope). Research on the impact of mood on persuasion has revealed that people's positive mood can favor more persuasion and less resistance (e.g., Petty et al., 1993). Individuals can detect very quickly the implications

that a message has for their mood, and the way in which people process the message is motivated by the attainment or maintenance of a positive mood (Hullett, 2005). Based on previous literature, the present work aimed to contrast the effects of different persuasive messages about gender (in)equality, emphasizing either the negative circumstances around gender inequality affecting women or the positive consequences of incorporating women into the labor market for achieving gender equality.

Identity Threat and Cognitive Unfreezing

Changing gender attitudes entails a challenging task because, as other attitudes, they play important motivational functions, and they are entangled into the view that individuals have of themselves. One of the key assumptions in the psychosocial analysis is that people have a deep motivation for seeing themselves as moral, rational, and consistent (Ross et al., 2010). Accordingly, information that questions individuals' worldviews can threaten their identity. Although literature has previously found that the threat arising from the devaluation of the ingroup, for example by questioning its morality, can generate defensive reactions (Branscombe et al., 1999), less is known about how the threat to the personal worldview affects attitudes toward women and gender equality.

Nevertheless, interventions that raise awareness of gender inequality can also encourage a cognitive unfreezing process (i.e., re-evaluation of the individuals' previous beliefs; Bar-Tal et al., 2021) regarding gender (in)equality. Especially within an ideologically polarized society, people may be frozen by their prior judgments, which can hinder attitudinal change (e.g., PytlikZillig et al., 2018; Van Bavel & Pereira, 2018). People with a higher need for closure tend to base their judgments on preexisting signals as they are reluctant to initiate new information processing or to resist persuasive arguments aimed at decreasing individuals' closure and affecting cognitive change (Kruglanski & Webster, 1996). Thus, the motivational process of cognitive unfreezing could be a key concept when addressing change, since this process can encourage us to search for information and process it in greater depth (Tadmor et al., 2012).

In the context of intractable conflicts between ethnic groups with an imbalanced power dynamic, both identity threat and cognitive unfreezing have been shown to be relevant mediators of individuals' change of attitude after being exposed to a paradoxical thinking message (see Bar-Tal et al., 2021). Extending previous literature, the present research aims to examine the mediating and differential role of identity threat and cognitive unfreezing in improving the attitudes toward women and gender equality of both women and men (two social groups also characterized by

imbalanced power dynamics) after being exposed to messages that raise awareness of gender (in)equality.

As discussed in the next section, the effectiveness of interventions and the underlying mechanisms may not only depend on how they are framed, but also on other ideological factors, such as participants' preexisting ideology regarding gender equality.

The Moderating Role of Feminist Identification and Neosexism

Social psychology has long recognized the role of ideologies in maintaining and dismantling inequality (Sidanius et al., 2006). In the context of gender relations, sexism operates as an ideology that reinforces social hierarchies (Pratto & Walker, 2004). Apart from the defense of traditional gender roles, other subtle forms of sexism are present in our contemporary society. Neosexism denies the existence of gender inequalities and questions the claims of women for equality (Tougas et al., 1995). Although neosexism has been found to mediate the relation between masculinity ideology and gender equality for men (Martínez & Paterna-Bleda, 2013), it is not exclusive of men, and it can also be maintained among women (Tougas et al., 1999). Neosexism has been positively related to the rejection of affirmative action both directly (Tougas et al., 1995) and indirectly via men's perception of collective threat (Moya & Expósito, 2001).

Feminism, on the contrary, works as an ideology that promotes social change (Ferrer, 2017). Several studies have shown that feminist identification – which implies awareness of gender inequality and commitment to change in the gender hierarchy (Roy et al., 2007; van Breen et al., 2017) – moderates women's and men's attitudes toward gender (in)equality (e.g., Anisman-Razin et al., 2018) and can be a powerful trigger of social change for both women (Liss et al., 2004; van Breen et al., 2017) and men (Estevan-Reina et al., 2020). For instance, women who weakly identify with women as a group but report a strong feminist identification endorse more radical collective action and critical attitudes toward gender stereotypes than other women (van Breen et al., 2017). Other work shows that women with higher levels of feminist identification tend to react more positively toward a woman who discusses gender inequality (vs. other topics), whereas women with lower levels of feminist identification tend to react more negatively toward a woman who discusses gender inequality (Anisman-Razin et al., 2018).

Previous research has also shown that men who strongly identify with men as a group report higher gender system justification when exposed to protests against gender inequality (Saguy & Szekeres, 2018). Because men tend to be less committed to gender equality and less aware of gender biases than women are (Anisman-Razin et al., 2018; Stewart,

2017), it might be expected that exposure to messages about gender (in)equality is more threatening for men. This tendency might be weaker when men endorse ideologies that promote social change (e.g., feminist identification), but stronger when men endorse ideologies that reinforce social hierarchies (e.g., neosexism), and especially when they are exposed to framings that emphasize the persistence of gender inequality, as it may challenge their worldviews. Accordingly, this research explores whether women's and men's gender ideology moderates the effects of the different intervention framings on their attitudes toward women and gender equality via different psychological mechanisms. The goal of this work is to identify which strategies for raising awareness about gender inequality would work best depending on women's and men's feminist identification and neosexism.

Attitudes Toward Women and Gender Equality

The evaluation of social group members is based on two main dimensions of social perception: warmth and competence (e.g., Fiske et al., 2002). Warmth consists of two sub-dimensions: morality and sociability (Leach et al., 2007). Research has consistently shown that morality plays a primary and distinctive role in group perception and evaluation (Brambilla et al., 2021). Moreover, the negative pole of morality (immorality) has more evaluative weight than the positive pole and should not be considered the opposite of morality (Rusconi et al., 2020). To know whether the interventions shape the attitudes toward women, the present research includes the dependent variable evaluation of women, which consists of the dimensions of morality, immorality, competence, and sociability measured in the present studies.

Because the current research aims to explore the effect of interventions that raise awareness of gender inequality on attitudes toward gender equality, three additional dependent variables are considered: rejection of affirmative actions, the zero-sum perspective of gender status, and openness to information about gender inequality. It is expected that successful interventions are associated with less rejection of affirmative actions, less endorsement of zero-sum perspective beliefs, and more openness to information about gender inequality. Several authors argue that the solution to deeply entrenched gender inequality is the introduction of strong and proactive affirmative action policies (see Morgenroth & Ryan, 2018b). The benefits of such policies in achieving change have been demonstrated, not only in terms of women's representation but also regarding prejudice and attitudes. However, there is still a lack of acceptance of affirmative action policies (e.g., quotas), primarily based on individual beliefs of a lack of meritocracy, particularly by those who believe in a just world

(Morgenroth & Ryan, 2018b), which may impede egalitarian efforts. The perception that reduced discrimination against women corresponds directly with increased discrimination against men could also prevent such efforts. According to Ruthig et al. (2017), this perception is close to a zero-sum perspective in which women's gains (reduced discrimination against women) are thought to be directly related to men's losses (increased discrimination against men). Finally, it could be argued that gender interventions are effective if, as a consequence, people are open to receiving information (openness to information; Hameiri et al., 2018) regarding the persistence of gender inequality (e.g., measuring whether they would be willing to personally meet women who have suffered discriminatory situations and hear their views on the issue).

Overview of the Present Research

Previous evidence suggests that interventions that raise awareness of gender inequality might have the potential to unfreeze well-anchored gender biases but, at the same time, might be threatening and provoke reactance. This effect can vary depending on the gender group and the gender ideology of the target of the intervention. The current research examines two frames. The *equality-achievement* frame highlights the positive impact of women's incorporation into the labor market. The *inequality-persistence* frame emphasizes female discrimination in the workplace. No previous research seems to have contrasted the effects of interventions that raise awareness of gender inequality with different frames on attitudes toward women and gender equality, analyzing specific psychological mechanisms (identity threat and cognitive unfreezing) in women and men while considering their gender ideology (neosexism and feminist identification). To fill these gaps in the literature, two pre-registered studies were carried out. All materials and information can be found here: https://osf.io/r4pzs/?view_only=d00453cdc2154a8 3a278bddb394c6304. Our research questions and hypotheses are described in the relevant sections for each study below.

Study 1

In Study 1, we examined the effects of four conditions that differentially frame gender (in)equality: (1) an *equality-achievement condition* (describing the positive impact of women's incorporation into the labor market); (2) an *inequality-persistence condition* (describing aspects related to gender inequality in the workplace); (3) a *reflection condition* (making participants reflect on the impact of the fight for gender equality without framing this impact positively or negatively); and (4) a *control condition* (reflecting on a topic

not related to gender equality). Specifically, we examined how these conditions might impact an array of outcomes, including attitudes toward women (i.e., evaluation of women on competence, sociability, morality, and immorality), and attitudes toward gender equality (i.e., rejection of affirmative action initiatives, zero-sum beliefs around gender status, and openness to information about gender inequality). Analyses also examined (1) the mediating effects of identity threat and cognitive unfreezing and (2) the moderating role of neosexism and feminist identification.

Due to its exploratory nature, Study 1 was pre-registered without differentiating between female and male participants. However, this design involves an intergroup perspective and the variables considered capture attitudes toward women (the traditionally disadvantaged group in the imbalanced power dynamic of gender relations). Previous evidence suggests that men and women may interpret and react differently to the same measures and manipulations (e.g., Ruthig et al., 2017; Spoor & Schmitt, 2011). Framings emphasizing gender equality could lead to men to experience a threat to the gender status quo (e.g., Kteily et al., 2013) or their gender identity by challenging the validity of their beliefs on gender equality (see Bar-Tal et al., 2021). In fact, men whose gender identity is threatened manifest less support for gender equality (Kosakowska-Berezecka et al., 2016). In contrast, Tellhed and Jansson (2018) found that priming women with information regarding progress in gender equality reduces their levels of social identity threat. Further, Spoor and Schmitt (2011) found that men manifest more agitation (a threat-related emotion) than women when the information provided highlights gender *equality* progress over time, whereas for women it is the information about gender *inequality* that leads to them manifesting more agitation than men. Therefore, mixing male and female participants' attitudes toward women might have potential confounding effects. As far as we know, this is the first time that the effect of different framings that raise awareness of gender inequality on attitudes toward women and gender equality is examined via the proposed mediating mechanisms (cognitive unfreezing and identity threat). For this reason, in an exploratory approach we first tested whether participants' gender moderated specific associations of interest for the studied processes. Specifically, two preliminary research questions were established:

> Preliminary Research Question A (Preliminary RQA): Does participants' gender moderate the effect of the condition on identity threat and cognitive unfreezing, as well as on attitudes toward women and toward gender equality?
> Preliminary Research Question B (Preliminary RQB): Does participants' gender moderate the association between identity threat or cognitive unfreezing with the attitudes toward women and toward gender equality?

As significant interaction effects with participants' gender were found (see the "Results" section), the data were stratified by gender to examine the underlying processes for female and male participants and to answer the main Research Questions. Four specific research questions were proposed. The first is intended to determine the effect of the condition on the variables studied. The second aims to address whether the effect of the condition on the mediating and dependent variables is moderated by the neosexism or feminist identification of the participants. The third tackles the mediation effect of cognitive unfreezing and identity threat between the condition and the dependent variables. The fourth address the moderated mediation effect if there is evidence of moderation of neosexism or feminist identification. See Fig. 1.

> Research Question 1 (RQ1): Do messages with a different gender framing (equality-achievement vs. inequality-persistence) have different effects on cognitive unfreezing and identity threat, as well as on attitudes toward women and gender equality?
> Research Question 2 (RQ2): Does neosexism or feminist identification moderate the effect of the condition on the mediators (cognitive unfreezing and identity threat), as well as on attitudes toward women and gender equality?
> Research Question 3 (RQ3): Does identity threat or cognitive unfreezing mediate the effect of the condition on attitudes toward women and gender equality?
> Research Question 4 (RQ4): Does neosexism or feminist identification moderate the indirect effect of the condition via identity threat or cognitive unfreezing on attitudes toward women and gender equality?

Method

Participants

A total of 791 Spanish participants (after removing duplicates, incomplete surveys, and people who failed the attention check, 26 cases) among a sample of national survey panelists completed the study. Following pre-registered criteria, 88 participants (one participant who was under 18 years old and 87 who failed the memory check) were excluded. The final sample was composed of 702 participants mainly born in Spain (659, 93.9%) of which 322 (45.9%) were women, 380 (54.1%) were men, and 0% identified with "other". The participants' ages ranged from 18 to 65 years (women: $M = 40.09$, $SD = 11.59$; men: $M = 42.32$, $SD = 14.53$). Most of the participants were active workers (487, 69.4%) and had completed university (410, 58.4%). The participants self-located around the center-left of the political orientation scale (women: $M = 2.65$, $SD = 0.76$;

men: $M = 2.67$, $SD = 0.82$), ranging from 1 (*extreme left*) to 5 (*extreme right*).

Sensitivity analyses were conducted separately for female and male participants using G*Power (Faul et al., 2007) to determine the effect size that the current study could detect with $\alpha = .05$ and 1-β (power) $= .80$. For an ANOVA with four groups, the minimum effect size was $f = 0.18$ ($\eta_p^2 = .031$) for the female sample ($n = 322$), and $f = 0.17$ ($\eta_p^2 = .028$) for the male sample ($n = 380$). For a multiple regression with three tested predictors for the interaction term and a total of seven predictors, the minimum effect to be detected was $f^2 = .034$ ($\Delta R^2 = .033$) for the female sample, and $f^2 = .029$ ($\Delta R^2 = .028$) for the male sample.

Experimental Manipulation and Procedure

The questionnaire was designed in Qualtrics® and distributed through the Netquest survey company. Approval from the Bioethics Committee for Human Research of the University of Almería was obtained before data collection. Participation in the study was voluntary and anonymous, and participants were debriefed after finishing. The average time taken to complete the questionnaires was 12.52 minutes.

After providing consent, participants were randomly assigned to one of the four experimental conditions: inequality-persistence, equality-achievement, reflection, or control. In the *inequality-persistence condition*, participants read the following text:

> "Recent official data from different public institutions, such as the Spanish National Institute of Statistics and the International Labour Organization (ILO), reveal that the inequality between men and women in the Spanish workplace is still very present. For example, the data support that nowadays: 1) Women earn an average of 22% less than men for performing the same job and have more difficulties in reconciling family and work life; 2) The presence of women in positions of power is significantly lower than the presence of men; 3) Women are those who perform to a greater extent precarious jobs (part-time and temporary contracts) and/or jobs related to caring for others."

In the *equality-achievement condition*, participants read the following text:

> "Recent official data from different public institutions, such as the Spanish National Institute of Statistics and the International Labour Organization (ILO), reveal that the incorporation of women into the Spanish labor market over the last few decades has had a very positive effect on the Spanish society in general, especially concerning the achievement of real equality between men and women. For example, the data support that

Research Question 1

Research Question 2

Research Question 3   Research Question 4
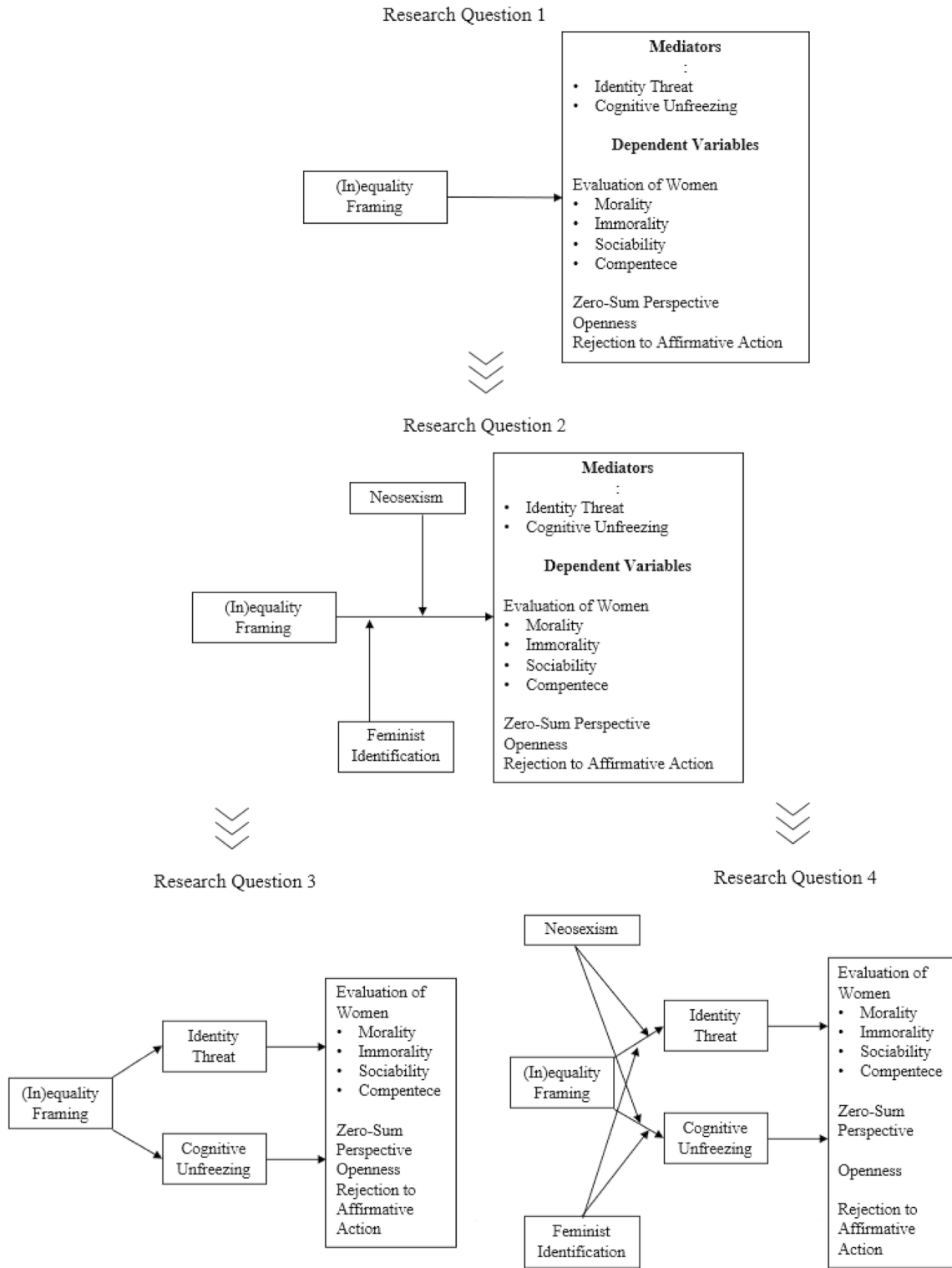
Note. The figure represents all the relations tested in the current research. However, to test the RQ2 and the RQ4 we run the models twice, one for each moderator (neosexism or feminist identification).

Fig. 1 Diagram of the Research Questions 1 to 4

the incorporation of women into the world labor: 1) Promotes greater autonomy and economic independence for women; 2) Contributes to the modification of traditional gender roles (female caretaker, male worker); 3) Facilitates the development of more egalitarian relations between men and women."

In the *reflection condition*, participants answered three "yes/no" questions: Do you think that the fight for equality between men and women has any impact on your daily life?; Do you think that the fight for equality between men and women has any effect on the labor market?; Do you think that the fight for equality between men and women affects men in the workplace in any way?. No indication about the current state of affairs regarding gender (in)equality (e.g., pervasiveness of gender inequality) was provided. In the *control condition*, participants answered three "yes/no" questions regarding their opinion about the possible effects of the new technologies on their daily life, the society in general, and the labor market.

In the inequality-persistence and equality-achievement conditions, participants were asked to summarize the information and indicate whether they agreed with such information in the form of a "yes/no" question. In all conditions, participants were asked to justify their responses. After the manipulation, participants in all conditions responded to the following measures.

Variables and Measures

All measures used a five-point response scale ranging from 1 (*not at all*) to 5 (*very much*) in four variables (evaluation of women, openness to information about gender inequality, cognitive unfreezing, feminist identification) and from 1 (*strongly disagree*) to 5 (*strongly agree*) in five variables (rejection of affirmative actions, zero-sum perspective of gender status, identity threat, neosexism, empathy).

Dependent Variables

Evaluation of Women Nine items (adapted to Spanish by López-Rodríguez et al., 2013, from Leach et al., 2007) were used to measure how women were perceived on the dimensions of sociability (likable, friendly, warm; women: $\alpha = .86$; men: $\alpha = .83$), competence (competent, intelligent, skillful; women: $\alpha = .90$; men: $\alpha = .86$), and morality (honest, sincere, trustworthy; women: $\alpha = .87$; men: $\alpha = .92$), and three items (Sayans-Jiménez et al., 2017) to measure immoral qualities (malicious, treacherous, false; women: $\alpha = .88$; men: $\alpha = .90$).

Rejection of Affirmative Actions Participants completed a seven-item scale adapted to Spanish by back-translation

from Case (2007; e.g., "Affirmative action causes men to lose jobs that should be theirs"; "Affirmative action policies require employers to hire unqualified women over qualified men") and an additional item (reversed) from the scale developed by Tougas et al. (1995) adapted to Spanish by Moya and Expósito (2001): "In general, to what extent are you in favor of the implementation of equal opportunities programs for women?" (women: $\alpha = .74$; men: $\alpha = .81$).

Zero-Sum Perspective of Gender Status Participants completed a seven-item scale adapted to Spanish by back-translation from Ruthig et al. (2017) –for example: "The more power women gain, the less power men have"; "More good jobs for women mean fewer good jobs for men." In addition, we created an item ad hoc: "More decision-making power in the workplace for women means less decision-making power for men in the workplace" (women: $\alpha = .88$; men: $\alpha = .92$).

Openness to Information about Gender Inequality Participants answered two questions adapted from Hameiri et al. (2018) from the context of intractable conflict to the context of relations between men and women: To what extent would you be willing to expose yourself to information (e.g., movies, flyers, television programs, banners) about inequality between men and women?; To what extent would you be willing to personally meet women who have suffered situations of discrimination and listen to their opinions on the subject? [women: $r(320) = .61$, $p < .001$; men: $r(378) = .59$, $p < .001$].

Mediating Variables

Identity Threat To assess the extent to which participants felt threatened by the message/questions presented, they completed a three-item identity threat scale adapted from the context of intractable conflict (Hameiri et al., 2018) to the context of relations between men and women. The items are: "The message/questions I have just read threatens/threaten my worldview"; "The message/questions I have just read makes/make me feel threatened"; "The message/questions I have just read threatens/threaten my perception of how Spanish society behaves toward women" (women: $\alpha = .88$; men: $\alpha = .84$).

Cognitive Unfreezing Participants completed a three-item scale created from the work developed by Hameiri et al. (2018) regarding this construct in the context of intractable conflict and adapting it to the context of relations between men and women. The items are: "To what extent did the message/questions you just read/answered make you re-evaluate your beliefs regarding the fight for equality between women and men?"; "To what extent did the message/questions you just read/answered make you rethink your attitudes

toward the fight for equality between women and men?"; "To what extent did the message/questions you just read/ answered make you question your views on the fight for equality between women and men?" (women: α = .94; men: α = .93).

Moderating Variables

Neosexism Participants completed the 11-item scale of the Spanish adaptation (Moya & Expósito, 2001) of the Neosexism scale (Tougas et al., 1995) –for example: "Discrimination against women in the labor force is no longer a problem in Spain" "Women's requests in terms of equality between the sexes are simply exaggerated" (women: α = .78; men: α = .82).

Feminist Identification Participants answered two questions adapted for Spanish by Estevan-Reina et al. (2020) from Doosje et al. (1998): "To what extent do you identify with feminists?", and from Leach et al. (2008): "To what extent do you feel a bond with feminist people?" [women: $r(320) = .92$, $p < .001$; men: $r(378) = .91$, $p < .001$]. Participants also indicated their level of agreement with three items that measure emotional empathy toward women (e.g., "I get offended when people make macho jokes about women"), but due to its low reliability (women: α = .55; men: α = .54), this variable was not included in the analyses.

Sociodemographic Variables The participants indicated their gender (women, men, other), age, level of education, main occupation, country of birth, nationality, position regarding the fight for equality between men and women, and political orientation.

Attention and Memory Checks

Participants were asked to select a specific number hidden among other items as an attention check, and to identify the condition they read as a memory check. Those who failed the attention check, the memory check, or both were excluded following the pre-registered exclusion criteria to guarantee the quality of the data (see Supplementary Information – SI). The results of memory checks show that 299 of the women (82.6%) and 357 of the men (83.5%) correctly identified the condition they had been randomly assigned to; 24 (6.6%) of women and 23 (5.4%) of men did not remember the condition to which they had been assigned, and 39 (10.8%) of women and 48 (11.1%) of men identified it incorrectly.

Participants that incorrectly identified the condition they had been assigned to were excluded.

Data Analyses

To address the Preliminary RQA, we conducted several 4 (condition: inequality-persistence, equality-achievement, reflection, control) × 2 (participants' gender: women, men) ANOVAs. To address the Preliminary RQB, simple moderation analyses (using Model 1 of the macro PROCESS for SPSS; Hayes, 2018) were performed for each condition. In light of the findings obtained with these preliminary tests (see the "Results" section), the rest of the analyses were conducted with the sample stratified by participant gender.

To address RQ1, ANOVAs and MANOVAs were carried out. To address RQ2, moderation analyses (using Model 1 of PROCESS) were conducted. Depending on the answer to RQ2, we address RQ3 and RQ4. Specifically, when the moderations of ideological variables (participants' level of neosexism or feminist identification) on the mediators were not significant mediation analyses (using Model 4 of PROCESS) were conducted to address RQ3. And when the moderations of ideological variables (participants' level of neosexism or feminist identification) on the mediators were significant moderated mediation analyses (using Model 7 of PROCESS) were conducted to answer RQ4. See Fig. 1.

For moderation, mediation, and conditional process analysis, the indicator coding system was used to define the relative effects, with the control condition taken as the reference group, coded as (0), and each experimental condition coded as (1). To draw inferences about the effects, 5,000 bootstrap samples to estimate 95% percentile confidence intervals (CI) were used. The effects are significant when the 95% CI does not include zero.

Results

Preliminary Analyses: Testing for Gender Moderation

Effects of the Condition on Identity Threat, Cognitive Unfreezing and Dependent Variables Moderated by Gender (RQA)

With regard to Preliminary RQA, an interaction effect of the experimental manipulation with gender on identity threat was found, $F(3,694) = 5.61$, $p < .001$, $\eta_p^2 = .024$. In the inequality-persistence condition, women ($M = 2.87$, $SD = 1.19$) manifested more identity threat ($p < .001$) than men ($M = 2.30$, $SD = 1.06$). A significant interaction effect was also found on openness to information, $F(3,694) = 4.02$, $p = .007$, $\eta_p^2 = .017$. In the equality condition, more openness to information about gender inequality was manifested by women ($M = 3.99$, $SD = 0.92$) than by men ($M = 3.47$,

$SD = 1.01$, $p = .002$). No other significant interaction effects were found on cognitive unfreezing ($p = .592$) or the remaining dependent variables ($ps > .059$).

Relations between Mediating and Dependent Variables Moderated by Gender (RQB)

Identity Threat With regard to Preliminary RQB, in the equality condition, participants' gender moderated the association of identity threat with morality, $b = 0.31$, $SE = .14$, $t(154) = 2.28$, $p = .024$, zero-sum beliefs, $b = -0.35$, $SE = .15$, $t(154) = -2.32$, $p = .021$, and rejection of affirmative actions, $b = .30$ $SE = .15$, $t(154) = 2.05$, $p = .042$. For men, identity threat was negatively associated with morality, $b = -0.36$, $p < .001$, and positively related to endorsement of zero-sum beliefs, $b = 0.46$, $p < .001$, whereas the relations were not significant for women ($ps > .317$). Yet, identity threat was positively related to women's rejection of affirmative actions, $b = 0.49$, $p < .001$, whereas for men the relation was not significant ($p = .06$).

In the reflection condition, participants' gender moderated the association of identity threat with morality, $b = 0.53$, $SE = .14$, $t(177) = 3.82$, $p = .002$, immorality, $b = -0.41$ $SE = .15$, $t(177) = -2.73$, $p = .001$, zero-sum beliefs, $b = -0.52$, $SE = .16$, $t(177) = -3.25$, $p = .001$, and rejection of affirmative actions, $b = -0.45$, $SE = .11$, $t(177) = -3.95$, $p < .001$. For men, identity threat was negatively associated with morality, $b = -0.49$, $p < .001$, and positively related to immorality, $b = 0.49$, $p < .001$, endorsement of zero-sum beliefs, $b = 0.73$, $p < .001$, and rejection of affirmative actions, $b = 0.54$, $p < .001$, whereas for women the relations were not significant ($ps > .05$).

Gender did not moderate the association of identity threat with the dependent variables in the inequality condition ($ps > .149$) nor in the control condition ($ps > .237$).

Cognitive Unfreezing In the reflection condition, gender moderated the association of cognitive unfreezing with morality, $b = 0.31$, $SE = .14$, $t(177) = 2.17$, $p = .032$, and competence, $b = 0.25$, $SE = .10$, $t(177) = 2.38$, $p = .018$. For women, cognitive unfreezing was positively related to morality, $b = 0.19$, $p = .014$, and competence, $b = 0.21$, $p = .010$, whereas the relations were not significant for men ($ps > .335$).

The association of cognitive unfreezing with the dependent variables was not moderated by gender in the equality condition ($ps > .052$), the inequality condition ($ps > .302$), nor the control condition ($ps > .074$).

These findings show the role of participants' gender in some of the meaningful relations examined in the study, and, accordingly, the remaining analyses were performed separately for men and women to minimize any potential confounding effect. The results are presented accordingly.

Main Analyses: Women

Effects of the Condition on Mediating and Dependent Variables (RQ1)

With regard to RQ1, we found significant effects of the condition on cognitive unfreezing, identity threat, openness to alternative information and rejection of affirmative actions. We did not find a significant effect of the condition on evaluation of women and zero-sum perspective of gender status beliefs (see SI).

Effects of the Condition on Mediating and Dependent Variables Moderated by Neosexism or Feminist Identification (RQ2)

With regard to RQ2, neither women's neosexism nor feminist identification moderated the effect of the manipulation on unfreezing and on identity threat (see SI).

Women's level of feminist identification did not moderate the effect of the manipulation on any of the dependent variables, whereas the level of neosexism only moderated the effect of the manipulation on immorality (see SI).

Effects of the Condition on Dependent Variables Mediated by Identity Threat and Cognitive Unfreezing (RQ3)

For women, the ideological variables did not moderate the effects of the manipulation on the mediators (RQ2), therefore, it was exclusively tested whether identity threat and cognitive unfreezing acted as mediators of the effect of the manipulation on the dependent variables (RQ3). As shown in Fig. 2, the analyses revealed that, compared to the *control* condition, women who read about the pervasiveness of inequality between men and women (*inequality-persistence* condition), the positive impact of gender equality achievement (*equality-achievement* condition), or simply reflected on these issues (*reflection* condition) reported more cognitive unfreezing, which, in turn, was associated with more positive evaluations of women (as more moral, sociable, and competent), more openness to information about gender inequality, and less rejection of affirmative action for women.

Although the *inequality-persistence* condition was associated with more cognitive unfreezing compared to the *control* condition, it was also associated with more identity threat (see Fig. 2). That is, the inequality-persistence frame seems to have the potential for re-evaluating previous beliefs, but it may also threaten women's identity. Identity threat was associated with a worse evaluation of women (as less moral and competent) and with a higher endorsement of zero-sum beliefs, less openness to information about gender inequality, and more rejection of affirmative action for women (see Fig. 2 and Table 1 for indirect effects).
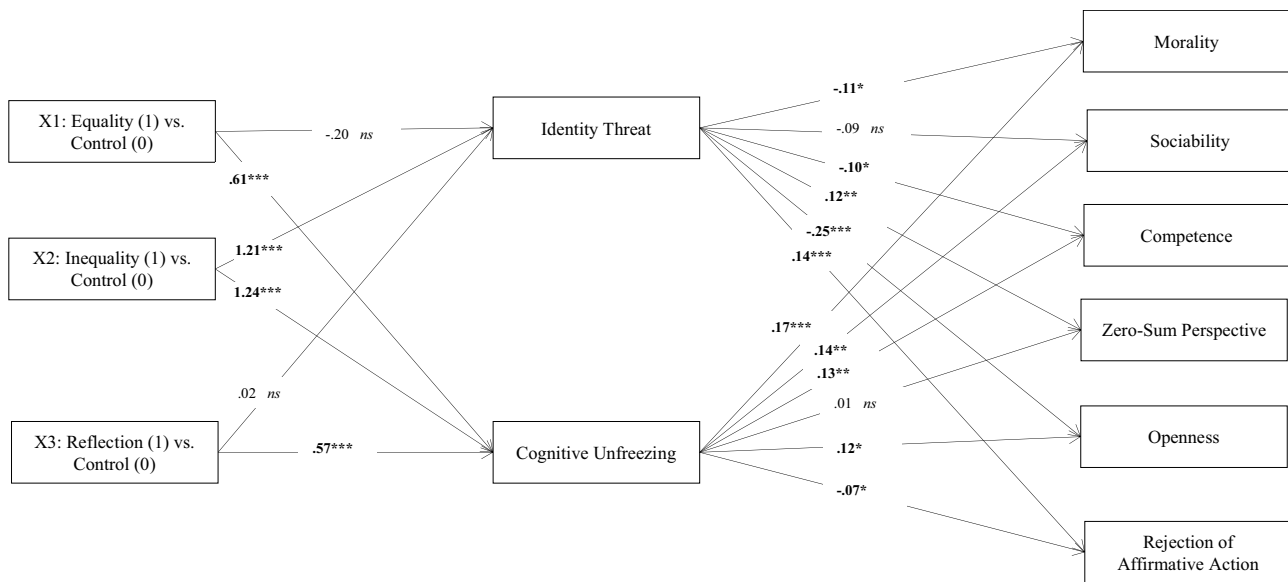
Note. Unstandardized coefficients are presented. Bolded coefficients are statistically significant.

*p < .05, **p < .01, ***p < .001.

Fig. 2 Effects of Framing Condition on the Dependent Variables through Identity Threat and Cognitive Unfreezing (Study 1, Women)

Main Analyses: Men

Effects of the Condition on Mediating and Dependent Variables (RQ1)

With regard to RQ1, we found significant effects of the condition on cognitive unfreezing and identity threat. No significant effects of the condition on the dependent variables were found (see SI).

Effects of the Condition on Mediating and Dependent Variables Moderated by Neosexism or Feminist Identification (RQ2)

With regard to RQ2, men's feminist identification moderated the effect of the manipulation on identity threat. Men's neosexism did not moderate the effect of the manipulation on identity threat. The effect of the manipulation on cognitive unfreezing was neither moderated by men's neosexism nor feminist identification (see SI).

The effect of the manipulation on the dependent variables was not moderated by neosexism, whereas men's level of feminist identification only moderated the effect of the manipulation on the perceived competence of women (see SI).

Effects of the Condition on Dependent Variables Mediated by Identity Threat and Moderated by Feminist Identification (RQ4)

For men, the effect of the manipulation on identity threat was moderated by their feminist identification (RQ2). Therefore, the indirect effects of the manipulation via identity threat on the outcome variables moderated by men's feminist identification (moderated mediation model) were examined to address RQ4. The index of moderated mediation (Table 2) revealed that the relative indirect effects of the condition (*inequality-persistence* vs. *control*, *equality-achievement* vs. *control*, and *reflection* vs. *control*) were contingent on men's feminist identification. Men who reported weaker feminist identification and read about gender inequality (*inequality-persistence* condition) or gender equality (*equality-achievement* condition), but not those who simply reflected on these issues (*reflection* condition), felt more identity threat than their counterparts in the *control* condition. In turn, feeling more identity threat was associated with perceiving women as less moral, sociable, and more immoral, less openness to information about gender inequality, more endorsement of zero-sum perspective beliefs, and more rejection of affirmative action for women. Men who reported higher feminist identification reported less identity threat when they read about gender equality

Table 1 Total, Direct, and Indirect Effects of Framing Condition on the Dependent Variables through Identity Threat and Cognitive Unfreezing (Study 1, Women)

Focal predictor	Effects		Morality B (SE) [95% CI]	Sociability B (SE) [95% CI]	Competence B (SE) [95% CI]	Zero-Sum perspective B (SE) [95% CI]	Openness B (SE) [95% CI]	Rejection to affirmative actions B (SE) [95% CI]
X1: Equality (1) vs. Control (0)	Total effect		**.25 (.12) [.004, .49]**	**.25 (.12) [.005, .49]**	**.24 (.11) [.03, .46]**	-.18 (.10) [-.37, .01]	**.45 (.16) [.14, .76]**	-.13 (.10) [-.34, .07]
	Direct effect		.12 (.12) [-.13, .36]	.14 (.12) [-.10, .39]	.15 (.11) [-.08, .37]	-.16 (.10) [-.37, .04]	**.33 (.16) [.007, .65]**	-.06 (.10) [-.26, .14]
	Indirect effects	via Identity Threat	.02 (.02) [-.005, .06]	.02 (.02) [-.00, .06]	.02 (.02) [-.004, .06]	-.02 (.02) [-.06, .005]	.05 (.03) [-.01, .12]	-.03 (.02) [-.07, .01]
		via Unfreezing	**.11 (.04) [.04, .19]**	**.08 (.04) [.02, .16]**	**.08 (.03) [.02, .16]**	.008 (.02) [-.04, .05]	**.07 (.04) [.004, .17]**	**-.04 (.02) [-.10, -.01]**
X2: Inequality (1) vs Control (0)	Total effect		.08 (.11) [-.14, .30]	.007 (.11) [-.21, .22]	.10 (.11) [-.11, .32]	-.11 (.10) [-.32, .09]	20 (.16) [-.11, .52]	**-.24 (.10) [-.43, -.05]**
	Direct effect		.004 (.13) [-.25, .26]	-.05 (.13) [-.31, .21]	.06 (.13) [-.20, .32]	-.28 (.12) [-.51, -.05]	**.36 (.18) [.01, .71]**	**-.32 (.12) [-.55, -.09]**
	Indirect effects	via Identity Threat	**-.14 (.06) [-.26, -.03]**	-.11 (.06) [-.25, .001]	**-.12 (.06) [-.24, -.01]**	**.15 (.05) [.05, .27]**	**-.31 (.09) [-.48, -.15]**	**.17 (.06) [.08, .29]**
		via Unfreezing	**.22 (.06) [.11, .34]**	**.17 (.06) [.06, .29]**	**.16 (.05) [.06, .28]**	.02 (.05) [-.07, .11]	**.15 (.08) [.01, .31]**	**-.09 (.04) [-.18, -.02]**
X3: Reflection (1) vs. Control (0)	Total effect		-.07 (.12) [-.30, .17]	-.03 (.12) [-.27, .20]	.08 (.12) [-.16, .31]	.10 (.11) [-.12, .32]	-.13 (.18) [-.48, .21]	.02 (.10) [-.17, .22]
	Direct effect		-.16 (.12) [-.40, .07]	-.11 (.12) [-.35, .14]	.005 (.12) [-.24, .25]	.09 (.11) [-.13, .31]	-.19 (.18) [-.54, .15]	.06 (.10) [-.13, .26]
	Indirect effects	via Identity Threat	-.002 (.02) [-.04, .03]	-.002 (.01) [-.03, .03]	-.002 (.01) [-.03, .03]	.002 (.02) [-.03, .04]	-.005 (.04) [-.08, .06]	.003 (.02) [-.04, .05]
		via Unfreezing	**.10 (.03) [.04, .17]**	**.08 (.03) [.02, .14]**	**.07 (.03) [.02, .14]**	.007 (.02) [-.04, .05]	**.07 (.04) [.004, .15]**	**-.04 (.02) [-.09, -.01]**

Unstandardized coefficients are presented. The significance of an effect is supported by the absence of zero within the 95% CI. Bolded coefficients are statistically significant

Table 2 Relative Direct and Indirect Effects of Framing Condition on the Dependent Variables through Identity Threat as a Function of Men's Feminist Identification (Study 1, Men)

Focal predictor	Effects		Morality	Immorality	Sociability	Zero-Sum perspective	Openness	Rejection to affirmative actions
			B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]
X1: Equality (1) vs. Control (0)	Direct effect		-.09 (.13) [-.34, .16]	-.08 (.14) [-.35, .20]	-.12 (.11) [-.35, .10]	.26 (.13) [-.01, .52]	.09 (.15) [-.21, .40]	.05 (.12) [-.19, .29]
	Indirect effects	Low Femin. Ide	**-.08 (.04) [-.18, -.01]**	**.07 (.04) [.002, .16]**	**-.05 (.03) [-.11, -.001]**	**.12 (.07) [.003, .27]**	**-.06 (.04) [-.16, -.001]**	**.06 (.04) [.002, .15]**
		High Femin. Ide	**.08 (.04) [.01, .17]**	**-.07 (.04) [-.15, -.001]**	**.05 (.03) [.001, .11]**	**-.12 (.06) [-.25, -.01]**	**.06 (.04) [.002, .14]**	**-.06 (.04) [-.15, -.01]**
	Index of moderated mediation		**-.07 (.03) [.02, .13]**	**-.05 (.03) [-.11, -.01]**	**.04 (.02) [.008, .08]**	**-.10 (.04) [-.19, -.03]**	**.05 (.02) [.01, .11]**	**-.05 (.02) [-.11, -.01]**
X2: Inequality (1) vs. Control (0)	Direct effect		**.25 (.13) [.00, .50]**	-.22 (.13) [-.19, .34]	-.001 (.11) [-.22, .22]	-.04 (.13) [-.01, .51]	.30 (.16) [-.01, .22]	-.15 (.12) [-.38, .08]
	Indirect effects	Low Femin. Ide	**-.20 (.06) [-.33, -.09]**	**.16 (.06) [.06, .30]**	**-.12 (.05) [-.22, -.04]**	**.30 (.08) [.15, .48]**	**.15 (.06) [-.30, -.04]**	**.16 (.06) [.06, .28]**
		High Femin. Ide	-.07 (.05) [-.17, .01]	.06 (.04) [-.008, .14]	-.04 (.03) [-.11, .004]	.11 (.06) [-.01, .24]	-.06 (.04) [-.15, .01]	.06 (.04) [-.01, .13]
	Index of moderated mediation		**.05 (.03) [.01, .11]**	**-.04 (.02) [-.10, -.003]**	**.03 (.02) [.002, .07]**	**-.08 (.04) [-.16, -.01]**	**.04 (.02) [.002, .09]**	**-.04 (.02) [-.09, -.002]**
X3: Reflection (1) vs. Control (0)	Direct effect		-.15 (.12) [-.39, .10]	.08 (.14) [-.19, .34]	-.12 (.10) [-.32, .08]	.25 (.13) [-.01, .51]	.26 (.15) [-.04, .57]	-.05 (.12) [-.28, .18]
	Indirect effects	Low Femin. Ide	-.05 (.03) [-.01, .09]	.04 (.04) [-.02, .14]	-.03 (.03) [-.09, .02]	.08 (.07) [-.04, .23]	-.04 (.04) [-.13, .02]	.04 (.04) [-.02, .12]
		High Femin. Ide	**.12 (.04) [.05, .21]**	**-.10 (.04) [-.19, -.03]**	**.07 (.03) [.02, .14]**	**-.18 (.06) [-.31, -.08]**	**.09 (.04) [.02, .18]**	**-.09 (.03) [-.18, -.04]**
	Index of moderated mediation		**.07 (.03) [.02, .14]**	**-.06 (.03) [-.12, -.01]**	**.04 (.02) [.009, .08]**	**-.11 (.04) [-.20, -.04]**	**.05 (.03) [.01, .11]**	**-.06 (.02) [-.11, -.02]**

Unstandardized coefficients are presented. The significance of an effect is supported by the absence of zero within the 95% CI. Bolded coefficients are statistically significant

(*equality-achievement* condition) or reflected on these issues (*reflection* condition), but not when they read about gender inequality (*inequality-persistence* condition), compared to those in the *control* condition. In turn, identity threat for men higher in feminist identification was associated with perceiving women as more moral, sociable, and less immoral, more openness to information about gender inequality, less agreement with zero-sum beliefs, and less rejection of affirmative actions for women (see Fig. 3).

Discussion

These findings indicate that reading or thinking about gender (in)equality may prompt cognitive unfreezing among women, which is associated with a more positive evaluation of women, more openness to information about gender inequality, and less rejection of affirmative action for women. Emphasizing the pervasiveness of gender inequality has a stronger effect on cognitive unfreezing compared to the control condition, but it may also create more opportunities for identity threat among women, and, consequently, could worsen their perception of women and lead them endorse a zero-sum perspective on gender, less openness

to information about gender inequality, and more rejection of affirmative action for women. These findings support previous evidence regarding both the beneficial effects of the interventions highlighting gender inequality (e.g., Moss-Racusin et al., 2016) and their potentially counterproductive effects (e.g., Doolaard et al., 2021) among women. The findings also reveal potential underlying mechanisms that could operate simultaneously but in opposite directions: promoting or discouraging favorable attitudes toward women and gender equality. It should be noted that the strategy based on making visible the progress in gender equality has no such counterproductive effects given that it does not increase women's identity threat, although, at the same time, it appears to have less cognitive unfreezing potential.

In men, the results demonstrated that for those with a lower level of feminist identification, both the *inequality-persistence* and the *equality-achievement* framing threatened their identity and, consequently, worsened their attitudes toward women and gender equality (compared with the control condition). In contrast, for men with a higher level of feminist identification, the gender equality framing or simply reflecting on gender (in)equality decreased their identity threat, which, in turn, resulted in more positive attitudes toward women and gender equality. Thus, for
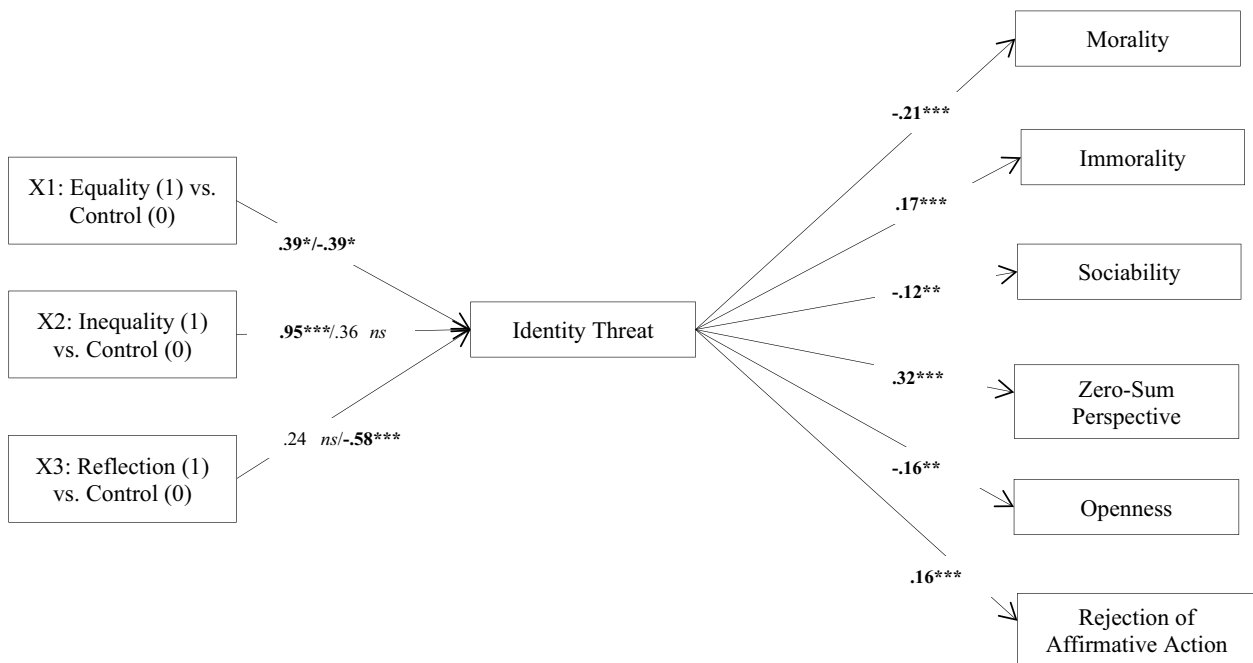
Note. Low feminist identification/High feminist identification. Unstandardized coefficients are presented. Bolded coefficients are statistically significant.
*p < .05, **p < .01, ***p < .001.

Fig. 3 Effects of Framing Condition on the Dependent Variables through Identity Threat for Men who Endorse High (above) and Low (below) Levels of Feminist Identification (Study 1, Men)

men, their feminist identification might not only buffer the counterproductive effects of the *inequality-persistence* framing but might also potentiate the beneficial effects of the *equality-achievement* framing on attitudes toward women and gender equality.

Taken together, these findings suggest that the same intervention strategies have different effects on men and women, which can be explained through different mechanisms. Although cognitive unfreezing seems to be a more relevant and consistent mechanism for women, identity threat seems to be more relevant for men. Furthermore, the effects depend on men's ideological beliefs. Ultimately, these findings emphasize the importance of considering the psychological mechanisms that underlie the effectiveness of the interventions, as well as the target at whom they are aimed, and underscore the importance of feminist identification and identity threat for understanding people's responses to these interventions.

One of the limitations of this study is the small sample size per condition given the complexity of the analyses performed. Study 2 sought to replicate these findings with a larger sample size. In addition, given that the reflection condition mostly replicated the results of the equality-achievement condition in Study 1, we dropped it from Study 2 to simplify the design. Thus, in Study 2, we considered three experimental conditions: inequality-persistence, equality-achievement, and control.

Study 2

The previous study revealed that, for women, emphasizing progress in gender equality showed less cognitive unfreezing potential than raising awareness of gender inequality. However, we should not ignore that the latter strategy also threatens women's identity, which entails counterproductive effects (a worse evaluation of women, a higher endorsement of zero-sum beliefs, less openness to information about gender inequality, and more rejection of affirmative action for women). Study 2 aims to contrast the effects of these two strategies within a larger sample. Given that Study 1 found intriguing exploratory evidence that different processes might operate for female and male participants, the second study was pre-registered with different hypotheses for female participants (Study 2a, pre-registered) and male participants (Study 2b, pre-registered) to test the consistency and replicability of the findings of Study 1 for men and women separately and to increase confidence in the results. As preliminary tests, we combined the female and male samples to test for gender moderation as in Study 1. Importantly, these preliminary exploratory moderation analyses were not pre-registered in either of the studies. As significant interaction effects

with participants' gender were found (see the "Results" section), the data were analyzed for women and men separately to test the following pre-registered hypotheses:

Hypothesis 1 (H1): For women, we expected an indirect effect of condition on the outcome variables through cognitive unfreezing. Specifically, it was anticipated that the inequality-persistence condition would increase cognitive unfreezing compared to the control condition, which in turn would be associated with more positive evaluations of women (i.e., more moral, sociable, competent, and less immoral) and more positive attitudes toward gender equality (i.e., less zero-sum beliefs, more openness to information about gender inequality, and less rejection of affirmative actions for women). A similar pattern of results, but with weaker effects, for the equality-achievement condition compared to the control condition was expected.

Hypothesis 2 (H2): We also expected an indirect effect of condition on the outcome variables through identity threat in women. Specifically, we expected that the inequality-persistence condition would increase identity threat compared to the control condition, which in turn would be associated with more negative evaluations of women and more negative attitudes toward gender equality.

Hypothesis 3 (H3): For men, we expected an indirect effect of condition on the outcome variables through identity threat and moderated by men's level of feminist identification. Specifically, we expected that, compared to the control condition:

(a) the inequality-persistence condition would increase identity threat, which in turn would be associated with more negative evaluations of women, and more negative attitudes toward gender equality, but only for men with low levels of feminist identification (H3a);

(b) the equality-achievement condition would reduce identity threat, which in turn would be associated with more positive evaluations of women and more positive attitudes toward gender equality when men manifest high levels of feminist identification (H3b);

(c) the equality-achievement condition would increase the levels of identity threat, which in turn would be associated with more negative evaluations of women and more negative attitudes toward gender equality, for men with low levels of feminist identification (H3c).

We did not find support for the role of neosexism as a moderator of the effect of condition in Study 1. However, the sensitivity analyses in Study 1 showed that for a multiple

regression with three tested predictors for the interaction term and a total of seven predictors, effect sizes smaller than .029 could not be detected. Additionally, power analyses conducted via G*Power (Faul et al., 2007) for the same regression model showed that to detect a small effect size (.02) with a sample of 322 (female sample Study 1) or 380 (male sample Study 1), the power does not reach the conventionally expected value of .80 (e.g., Cárdenas Castro & Arancibia Martini, 2016). For women the value was .54 and for men it was .62. Therefore, given the lower power of the previous study, the moderator role of neosexism was further examined in Study 2.

Method

Participants

A total of 1,461 Spaniards (after removing 463 cases due to duplicates, incomplete surveys, and people who failed the attention check) were recruited among the panelists of the Netquest survey company. Approval from the Bioethics Committee for Human Research of the University of Almería was obtained before data collection. Following the pre-registered criteria, 268 participants were excluded (i.e., one participant was under 18 years old, 14 did not confirm their gender, and 253 failed the memory check). The final sample was composed of 1,193 participants aged between 18 and 65: 583 (48.9%) women (94.5% born in Spain; $M_{age} = 42.63$, $SD = 11.02$), 610 (51.15) men (94.4% born in Spain; $M_{age} = 44.28$, $SD = 10.84$), and 0 participants indicated other gender. Most participants (407 women: 69.8%; 531 men: 84.1%) were active workers, 40 women (6.9%) and 19 men (3.1%) were students, and 310 women (53.2%) and 322 men (52.8%) had completed university. The participants self-located around the center-left of the political orientation scale (women: $M = 2.58$, $SD = 0.76$; men: $M = 2.68$, $SD = 0.85$), ranging from 1 (*extreme left*) to 5 (*extreme right*).

Sensitivity analyses were conducted separately for women and men using G*Power (Faul et al., 2007) to determine the effect size that the current study could detect with $\alpha = .05$ and 1-β (power) = .80. For an ANOVA with three groups the minimum effect size was $f = .128$ ($\eta_p^2 = .014$) for women ($n = 697$) and $f = .126$ ($\eta_p^2 = .014$) for men ($n = 791$). For a multiple regression with two tested predictors for the interaction term and a total of five predictors, the minimum effect that could be detected was $f^2 = .017$ ($\Delta R^2 = .016$) for women and $f^2 = .016$ ($\Delta R^2 = .016$) for men.

Experimental Manipulation and Procedure

The three experimental conditions and the procedure were almost identical to those of Study 1 with two exceptions: (1) in

the control condition participants had to read a text describing the impact of new technologies on the economy; (2) participants' agreement with the information read and resumed was measured on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The results regarding the memory check are available in <u>SI</u>. They show that 451 of the women (77.36%) and 456 of the men (74.63%) correctly identified the condition they had been randomly assigned to; 42 of women (7.25%) and 37 of men (5.94%) did not remember the condition to which they had been assigned, and 89 of women (15.38%) and 118 of men (19.42%) identified it incorrectly. Participants that incorrectly identified the condition they had been assigned to were excluded.

Variables and Measures

The same measures as in Study 1 were used, except for the empathy scale (due to its low reliability). The measures showed adequate reliability coefficients: identity threat (women: $\alpha = .83$; men: $\alpha = .81$); cognitive unfreezing (women: $\alpha = .94$; men: $\alpha = .93$); zero-sum perspective of gender status (women: $\alpha = .89$; men: $\alpha = .91$); morality (women: $\alpha = .84$; men: $\alpha = .86$); sociability (women: $\alpha = .80$; men: $\alpha = .82$); competence (women: $\alpha = .84$; men: $\alpha = .82$); immorality (women: $\alpha = .84$; men: $\alpha = .87$); openness to information about gender inequality (women: $r[581] = .59$, $p < .001$; men: $r[608] = .59$, $p < .001$); rejection of affirmative actions (women: $\alpha = .75$; men: $\alpha = .82$); neosexism (women: $\alpha = .76$; men: $\alpha = .83$); and feminist identification (women: $r[581] = .91$, $p < .001$; men: $r[608] = .92$, $p < .001$).

Data Analyses

The same steps for the data analyses as in Study 1 were followed for preliminary analyses. For main analyses, H1 and H2 (women) were tested using Model 4 of PROCESS (Hayes, 2018), and H3a, H3b, and H3c (men) were tested using Model 7 of PROCESS.

Results

Preliminary Analyses: Testing for Gender Moderations

Effects of the Condition on Identity Threat, Cognitive Unfreezing and Dependent Variables Moderated by Gender (RQA)

With regard to Preliminary RQA, an interaction effect of the experimental manipulation with participants' gender on identity threat was found, $F(2,1187) = 7.94$, $p < .001$, $\eta_p^2 = .013$. In the inequality-persistence condition, women ($M = 2.86$, $SD = 1.13$) manifested more identity threat

($p < .001$) than men ($M = 2.28$, $SD = 1.03$). Furthermore, men manifested less identity threat in the equality-achievement condition ($M = 1.56$, $SD = 0.62$) than in the inequality-persistence condition ($M = 2.28$, $SD = 1.03$) and the control conditions ($M = 2.26$, $SD = 0.90$). Women manifested less identity threat in the equality-achievement condition ($M = 1.69$, $SD = 0.86$) than in the other two conditions (inequality: $M = 2.86$, $SD = 1.13$; control: $M = 2.39$, $SD = 0.92$), and more identity threat in the inequality-persistence condition than in the control condition. No other significant interactions effects were found on cognitive unfreezing ($p = .272$) or the remaining dependent variables ($ps > .155$).

Relations between Mediating and Dependent Variables Moderated by Gender (RQB)

Identity Threat Participants' gender moderated the associations of the mediators with some of the dependent variables (Preliminary RQB). In the equality condition, participants' gender moderated the association of identity threat with morality, $b = 0.31$, $SE = .10$, $t(358) = 3.07$, $p = .002$, sociability, $b = 0.23$, $SE = .10$, $t(358) = 2.35$, $p = .019$, competence, $b = 0.28$, $SE = .10$, $t(358) = 2.92$, $p = .004$, immorality, $b = -0.28$, $SE = .11$, $t(358) = -2.50$, $p = .013$, rejection of affirmative actions, $b = -0.22$, $SE = .09$, $t(358) = -2.58$, $p = .010$, and zero-sum beliefs, $b = -0.36$, $SE = .11$, $t(358) = -3.33$, $p = .001$. For men, identity threat was negatively associated with morality, $b = -0.27$, $p < .001$, sociability, $b = -0.19$, $p = .008$, and competence, $b = -0.27$, $p < .001$, and positively related to immorality, $b = 0.32$, $p < .001$, and rejection of affirmative actions, $b = 0.29$, $p < .001$, while for women the associations were not significant ($ps > .222$). Identity threat was positively associated to zero sum beliefs for both men and women, but the association was stronger for men, $b = 0.52$, $p < .001$, than for women, $b = 0.16$, $p = .036$.

In the inequality condition participants' gender did not moderated the association of identity threat with the dependent variables ($p > .084$).

In the control condition, participants' gender moderated the association of identity threat with morality, $b = 0.19$, $SE = .09$, $t(350) = 2.06$, $p = .041$. For men, identity threat was negatively associated with morality, $b = -0.16$, $p = .014$, while for women the association was not significant ($p = .661$).

Cognitive Unfreezing In the equality condition, participants' gender moderated the relation of cognitive unfreezing with morality, $b = 0.16$, $SE = .07$, $t(358) = 2.21$, $p = .028$, sociability, $b = 0.22$, $SE = .07$, $t(358) = 3.54$, $p < .001$, competence, $b = .18$, $SE = .07$, $t(358) = 2.78$, $p = .005$, and zero-sum beliefs, $b = -0.20$, $SE = .08$, $t(358) = -2.41$, $p = .017$. The associations of cognitive unfreezing with morality were not

significant for neither men ($p = .186$) or women ($p = .061$). However, for women, cognitive unfreezing was positively associated with sociability, $b = 0.12$, $p = .041$, and competence, $b = 0.09$, $p = .024$, while for men the relation with sociability was negative, $b = -0.10$, $p = .029$, and for competence was not significant ($p = .068$). Cognitive unfreezing was positively associated with zero-sum beliefs, $b = 0.22$, $p = .003$, for men, but not for women ($p = .548$).

In the inequality condition, participants' gender did not moderate the association of cognitive unfreezing with the dependent variables ($ps > .052$).

In the control condition, participants' gender moderated the association of cognitive unfreezing with morality, $b = 0.22$, $SE = .08$, $t(350) = 2.75$, $p = .006$, and sociability, $b = 0.18$, $SE = .08$, $t(350) = 2.29$, $p = .023$. Cognitive unfreezing was positively associated with morality for women, $b = 0.09$, $p = .047$, but not for men ($p = .053$), and negatively associated with sociability for men, $b = -0.12$, $p = .047$, but not for women ($p = .223$).

As in Study 1, these findings reveal the influence exerted by participants' gender on some of the meaningful relations examined in the study. Accordingly, we proceed to present our results separately for women and men.

Main Analyses: Women

Effects of the Condition on Mediating and Dependent Variables (RQ1)

With regard to RQ1, we found significant effects of the condition on cognitive unfreezing, identity threat, and zero-sum beliefs. We did not find significant effects of the condition on evaluation of women, openness to alternative information, and rejection of affirmative actions for women (see SI).

Effects of the Condition on Mediating and Dependent Variables Moderated by Neosexism or Feminist Identification (RQ2)

With regard to RQ2, neither women's neosexism nor feminist identification moderated the effect of the manipulation on unfreezing and on identity threat (see SI).

The effect of the condition on the dependent variables was not contingent on either women's level of neosexism or feminist identification (see SI).

Indirect Effect of Condition on the Dependent Variables through Cognitive Unfreezing (H1)

The analyses to test H1 about the indirect effect through *cognitive unfreezing* revealed that, compared to the *control*

condition, both *inequality-persistence* and *equality-achievement* conditions were related to more cognitive unfreezing in women, which, in turn, was positively associated with women being perceived as more moral and sociable, and with less rejection of affirmative actions for women (see Fig. 4). Compared to the *control* condition, the *inequality-persistence* condition also indirectly increased openness to information about gender inequality via cognitive unfreezing. Moreover, the indirect effects of the *inequality-persistence* condition (vs. the *equality-achievement* condition) relative to the control one on the outcome variables through cognitive unfreezing were stronger (see Table 3). These results support H1.

Indirect Effect of Condition on the Dependent Variables through Identity Threat (H2)

The analyses to test H2 about the indirect effect through *identity threat* revealed that, compared to the *control* condition, the *equality-achievement* condition is associated with a lower identity threat, whereas, supporting H2, the *inequality-persistence* condition is related to a higher identity threat, which, in turn, was positively related to women's agreement with zero-sum gender status beliefs (Fig. 4). Thus, compared to the *control* condition, both the *equality-achievement* and the *inequality-persistence* condition influenced women's agreement with zero-sum gender status beliefs via identity threat, but in the opposite direction: Exposure to content about the positive effects of gender equality achievement (*equality-achievement* condition) reduced it, whereas exposure to content on the pervasiveness of gender inequality (*inequality-persistence* condition) increased it (see Table 3).

Main Analyses: Men

Effects of the Condition on Mediating and Dependent Variables (RQ1)

With regard to RQ1, we found significant effects of the condition on cognitive unfreezing and identity threat. We did not find significant effects of the condition on evaluation of women, openness to alternative information, zero-sum perspective of gender status beliefs, and rejection of affirmative actions for women (see SI).

Effects of the Condition on Mediating and Dependent Variables Moderated by Neosexism or Feminist Identification (RQ2)

With regard to RQ2, the effects of the manipulation on identity threat and cognitive unfreezing were moderated by men's levels of neosexism and feminist identification (see SI).

Men's level of neosexism moderated the effect of the manipulation only on perceived sociability and competence of women. The perceived competence of women was also moderated by men's level of feminist identification (see SI). We found no further moderation effects on the dependent variables.

Conditional Indirect Effects of the Inequality-Persistence Framing (H3a)

The relative indirect effect of the *inequality-persistence* (vs. *control*) condition via identity threat was not contingent on
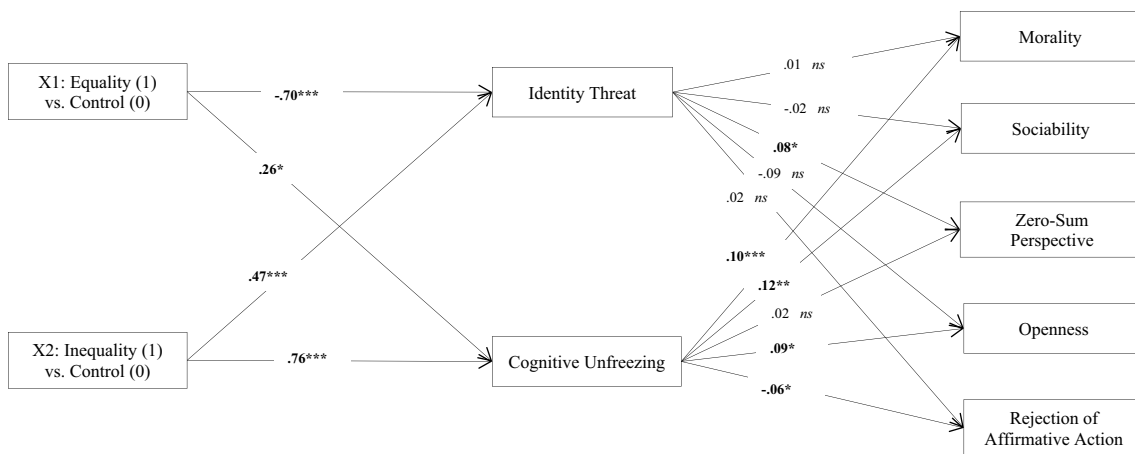
Note. Unstandardized coefficients are presented. Bolded coefficients are statistically significant. The relative indirect effect of equality vs. control condition via cognitive unfreezing on openness was not significant (Table 3) although both paths were significant.

*p < .05, **p < .01, ***p < .001.

Fig. 4 Effects of Framing Condition on the Dependent Variables through Identity Threat and Cognitive Unfreezing (Study 2, Women)

Table 3 Total, Direct, and Indirect Effects of the Conditions on the Dependent Variables through Identity Threat and Cognitive Unfreezing (Study 2, Women)

Focal predictor	Effects		Morality B (SE) [95% CI]	Sociability B (SE) [95% CI]	Zero-Sum perspective B (SE) [95% CI]	Openness B (SE) [95% CI]	Rejection to affirmative actions B (SE) [95% CI]
X1: Equality (1) vs. Control (0)	Total effect		.04 (.08) [-.12, .19]	-.05 (.08) [-.20, .10]	-.14 (.07) [-.27, .00]	.04 (.10) [-.16, .25]	-.11 (.07) [-.24, .03]
	Direct effect		.02 (.08) [-.14, .18]	-.09 (.08) [-.25, .06]	-.09 (.08) [-.24, .06]	-.05 (.12) [-.27, .18]	**-.08 (.07) [.22, .07]**
	Indirect effects	via Identity Threat	-.01 (.02) [-.06, .04]	.01 (.02) [-.03, .06]	**-.05 (.05) [-.11, -.01]**	.07 (.04) [-.001, .14]	-.01 (.02) [-.06, .03]
		via Unfreezing	**.03 (.01) [.003, .06]**	**.03 (.02) [.003, .07]**	.01 (.01) [-.01, .02]	.02 (.02) [-.001, .06]	**-.01 (.01) [-.04, -.0001]**
X2: Inequality (1) vs. Control (0)	Total effect		.06 (.07) [-.08, .19]	-.04 (.07) [-.17, .09]	.06 (.07) [-.08, .21]	-.02 (.10) [-.21, .17]	.02 (.07) [-.11, .15]
	Direct effect		-.03 (.07) [-.17, .11]	-.12 (.07) [-.26, .02]	.01 (.07) [-.13, .15]	-.04 (.11) [-.25, .17]	.05 (.07) [-.09, .19]
	Indirect effects	via Identity Threat	.007 (.02) [-.02, .04]	-.01 (.01) [-.04, .02]	**.04 (.02) [.003, .07]**	-.04 (.03) [-.10, .001]	.01 (.02) [-.02, .04]
		via Unfreezing	**.08 (.02) [.03, .13]**	**.09 (.02) [.05, .14]**	.02 (.02) [-.02, .06]	**.07 (.03) [.01, .13]**	**-.04 (.02) [-.09, -.01]**

Unstandardized coefficients are presented. The significance of an effect is supported by the absence of zero within the 95% CI. Bolded coefficients are statistically significant

men's feminist identification or neosexism. This finding does not support H3a. However, the relative indirect effect via cognitive unfreezing was moderated by both feminist identification and neosexism (see Table 4). As shown in Fig. 5, men in the *inequality- persistence* condition (vs. *control*) manifested more cognitive unfreezing, which, in turn, was related to more openness to information about gender inequality and less rejection of affirmative actions for women. These effects became stronger as they were more identified with feminism (see conditional indirect effects in Table 4). However, the higher levels of cognitive unfreezing triggered by the *inequality- persistence* (vs. *control*) condition were associated in men with the perception of women as being less immoral (Fig. 5), regardless of their feminist identification (Table 4). Moreover, in the *inequality-persistence* (vs. *control*) condition, men with low neosexism manifested more cognitive unfreezing, which, in turn, was related to perceiving women as less immoral and to manifesting more openness to information about gender inequality and less rejection of affirmative actions for women (Table 4), something that did not happen among high neosexists.

Conditional Indirect Effects of the Equality-Achievement Framing (H3b, H3c)

As indicated by the indexes of moderated mediation (see Table 4), the indirect effects of the *equality-achievement* (vs. *control*) condition via identity threat were contingent on men's feminist identification and neosexism: They expressed less identity threat, which, in turn, was associated with a more positive perception of women (as more moral, sociable, competent, and less immoral), and with manifestly more openness to information about gender inequality, less zero-sum gender status beliefs, and less rejection of affirmative actions for women. These indirect effects became stronger as men were more identified with feminism or were less neosexist (see conditional indirect effects in Table 4). Therefore, these results support H3b, but do not support H3c. The relative indirect effect of the *equality-achievement* (vs. *control*) condition via cognitive unfreezing was not moderated by feminist identification or by neosexism.
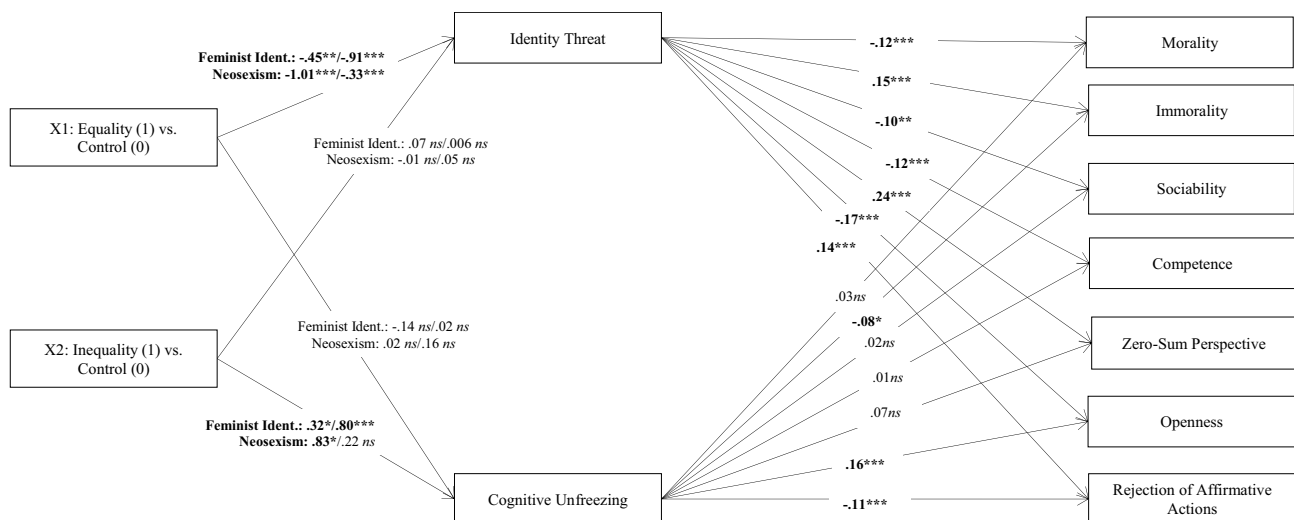
Discussion

Study 2 generally supported the hypotheses tested for women (H1 and H2). Though the inequality-persistence framing led to more cognitive unfreezing facilitating more positive attitudes, it simultaneously activated identity threat, a mechanism that reinforces the belief that women's gains come from men's losses. The equality-achievement framing also activated cognitive unfreezing associated with an attitude change, but to a lesser extent, and also reduced female

Table 4 Relative, Direct, and Indirect Effects of Framing Condition on the Dependent Variables through Identity Threat and Cognitive Unfreezing as a Function of Men's Neosexism and Feminist Identification (Study 2, Men)

Focal Predictor	Effects	Moderator	Dependent variables						
			Morality	Immorality	Sociability	Competence	Zero-Sum perspective	Openness	Rejection to affirmative actions
			B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]	B (SE) [95% CI]
X1: Equality (1) vs. Control (0)	Direct		-.09 (.09) [-.27, .08]	**.25 (.10) [.05, .44]**	-.03 (.08) [-.19, .12]	.01 (.08) [-.14, .16]	.04 (.09) [-.14, .22]	-.01 (.12) [-.25, .23]	.16 (.09) [-.02, .33]
	Indirect via Identity Threat	Low Femin. Ide	**.06 (.02) [.02, .11]**	**-.07 (.03) [-.12, -.02]**	**.05 (.02) [.01, .09]**	**.05 (.02) [.02, .10]**	**-.11 (.04) [-.19, -.04]**	**.08 (.04) [.02, .16]**	**-.06 (.03) [-.12, -.02]**
		High Femin. Ide	**.11 (.04) [.05, .19]**	**-.13 (.04) [-.21, -.06]**	**.08 (.03) [.03, .15]**	**.11 (.03) [.05, .18]**	**-.21 (.04) [-.31, -.14]**	**.15 (.05) [.07, .25]**	**-.13 (.04) [-.20, -.06]**
		IMM	**.02 (.01) [.004, .05]**	**-.03 (.01) [-.06, -.004]**	**.02 (.01) [.003, .04]**	**.02 (.01) [.004, .05]**	**-.04 (.02) [-.08, -.01]**	**.03 (.01) [.01, .06]**	**-.02 (.01) [-.05, -.01]**
		Low Neosexism	**.13 (.04) [.05, .21]**	**-.15 (.04) [-.24, -.07]**	**.10 (.03) [.04, .17]**	**.12 (.04) [.06, .19]**	**-.24 (.05) [-.34, -.16]**	**.17 (.05) [.07, .28]**	**-.14 (.04) [-.22, -.07]**
		High Neosexism	**.04 (.02) [.01, .09]**	**-.05 (.02) [-.10, -.01]**	**.03 (.02) [.01, .07]**	**.04 (.02) [.01, .08]**	**-.08 (.04) [-.15, -.02]**	**.05 (.03) [.01, .12]**	**-.05 (.02) [-.10, -.01]**
		IMM	**-.06 (.02) [-.11, -.02]**	**.08 (.03) [.03, .14]**	**-.05 (.02) [-.09, -.01]**	**-.06 (.02) [-.11, -.02]**	**.12 (.04) [.06, .20]**	**-.09 (.03) [-.16, -.03]**	**.07 (.03) [.03, .12]**
X2: Inequality (1) vs. Control (0)	Direct		-.08 (.08) [-.24, .09]	**.21 (.09) [.02, .39]**	-.06 (.07) [-.20, .08]	.00 (.08) [-.15, .15]	-.13 (.09) [-.30, .05]	-.13 (.11) [-.35, .09]	.04 (.09) [-.13, .21]
	Indirect via Unfreezing	Low Femin. Ide	.01 (.01) [-.01, .04]	**-.02 (.02) [-.06, -.0001]**	.01 (.01) [-.01, .03]	.004 (.01) [-.01, .05]	.02 (.02) [-.002, .06]	**.05 (.02) [.01, .10]**	**-.04 (.02) [-.08, -.01]**
		High Femin. Ide	.03 (.03) [-.02, .09]	**-.06 (.03) [-.13, -.004]**	.02 (.02) [-.03, .07]	.01 (.02) [-.03, .06]	.05 (.03) [-.004, .12]	**.15 (.05) [.05, .23]**	**-.09 (.03) [-.17, -.03]**
		IMM	.01 (.01) [-.01, .02]	-.01 (.01) [-.04, .0002]	.004 (.01) [-.006, .02]	.002 (.01) [-.01, .02]	.01 (.01) [-.001, .03]	**.03 (.02) [.003, .07]**	**-.02 (.01) [-.05, -.002]**
		Low Neosexism	.03 (.03) [-.02, .09]	**-.06 (.03) [-.13, -.004]**	.02 (.02) [-.03, .07]	.01 (.02) [-.03, .06]	.05 (.03) [-.004, .12]	**.13 (.05) [.05, .23]**	**-.09 (.03) [-.17, -.04]**
		High Neosexism	.01 (.01) [-.01, .03]	-.02 (.01) [-.05, .004]	.01 (.01) [-.01, .02]	.002 (.01) [-.01, .02]	.02 (.01) [-.01, .05]	.03 (.02) [-.01, .09]	-.03 (.02) [-.06, .01]
		IMM	-.02 (.02) [-.05, .01]	**.03 (.02) [.002, .08]**	-.009 (.01) [-.04, .01]	-.005 (.01) [-.05, .02]	-.03 (.02) [-.07, .002]	**-.07 (.03) [-.14, -.02]**	**.05 (.02) [.01, .10]**

Unstandardized coefficients are presented. The significance of an effect is supported by the absence of zero within the 95% CI. Bolded coefficients are statistically significant. IMM: Index of Moderated Mediation. Only the significant relative conditional indirect effects are presented

Identity Threat

Feminist Ident.: -.45**/-.91***
Neosexism: -1.01***/-.33***

X1: Equality (1) vs. Control (0)

Feminist Ident.: .07 *ns*/.006 *ns*
Neosexism: -.01 *ns*/.05 *ns*

X2: Inequality (1) vs. Control (0)

Feminist Ident.: -.14 *ns*/.02 *ns*
Neosexism: .02 *ns*/.16 *ns*

Feminist Ident.: .32*/.80***
Neosexism: .83*/.22 *ns*

Cognitive Unfreezing

-.12***
.15***
-.10**
-.12***
.24***
-.17***
.14***
.03*ns*
-.08*
.02*ns*
.01*ns*
.07*ns*
.16***
-.11***

Morality
Immorality
Sociability
Competence
Zero-Sum Perspective
Openness
Rejection of Affirmative Actions

Note. Low levels/High levels. Unstandardized coefficients are presented. Bolded coefficients are statistically significant.

p < .05, **p* < .01, ***p* < .001

Fig. 5 Effects of Framing Condition on the Dependent Variables through Identity Threat and Cognitive Unfreezing at Low and High Levels of Feminist Identification and Neosexism (Study 2, Men)

participants' identity threat to the message consequently improving their attitudes toward women and gender equality. In women, the effect of the framings on cognitive unfreezing and identity threat were not moderated by the ideological variables.

For men, different framings of gender (in)equality activated different mechanisms, and these effects were moderated by their levels of neosexism and feminist identification. No indirect effect of *inequality-persistence* condition (vs. control) through identity threat on the outcomes was observed, therefore H3a was not supported. However, unlike Study 1, we did find that men's exposure to inequality-persistence framing (vs. control) led to more cognitive unfreezing, which was associated with perceiving women as less immoral, as well as being more open to information about gender inequality and to less rejection of affirmative action for women. These effects were found for men with low levels of neosexism and for men with both high and low levels of feminist identification (for the latter, the effect was weaker).

Supporting H3b, for egalitarian men (high in feminist identification or low in neosexism), the *equality-achievement* framing (vs. control) reduced their identity threat and consequently improved men's perception of women and their attitudes toward gender equality. Contrary to H3c, although the effect became weaker among those with low levels of feminist identity, it was still significant. This suggests that the equality-achievement framing may be beneficial even for those men with a low level of

feminist identification given its reduced threatening impact. Therefore, the equality-achievement framing seems to allow men's self-affirmation of their egalitarian values (and thus their morality; Shnabel & Nadler, 2015) without threatening their identity, which in the end can be a more comfortable framing because it prevents focusing on the questioning of male privileges that maintain gender inequalities (even for more egalitarian men).

Taken together, these findings suggest that, for women, the equality-achievement and inequality-persistence strategies have the potential to change the attitudes toward women and gender equality and could be combined as a function of the goals pursued at each moment and in each context depending on the different structures of power inequality. For men, although the equality-achievement framing has positive effects (vs. control) given its low threatening impact, the inequality-persistence framing provokes positive effects (vs. control) given its major cognitive unfreezing. Therefore, both approaches might also be useful depending on the objectives and context of the interventions. However, we should be cautious since for men the effects were more consistent for the equality-achievement than for the inequality-persistence framing. In addition, for men who endorse neosexist beliefs more strongly, the inequality-persistence framing does not provoke cognitive unfreezing or positive effects, whereas the equality-achievement framing does. In light of this, the equality-achievement framing might be more effective for men who tend to deny the prevalence of gender inequality.

General Discussion

The present research has considered the complexity of promoting gender equality in women and men and examined the differential effects of interventions framed in terms of equality-achievement versus inequality-persistence on men's and women's attitudes toward women and gender equality, as well as potential mechanisms (i.e., identity threat vs. unfreezing) that may carry these effects and potential moderators of these effects. The findings indicate that the framings operate differently on women's and men's attitudes toward women and gender equality. Moreover, these framings function through different mechanisms: mainly cognitive unfreezing for women and identity threat for men. Also, while some framings seem more effective, they may also be potentially riskier than others. Specifically, emphasizing the persistence of gender inequality has a stronger positive impact on women's cognitive unfreezing compared to emphasizing the positive effects of gender equality, and when cognitive unfreezing is higher, attitudes toward women and gender equality are also more positive.

However, the findings also show (Study 2), in line with previous work (e.g., Spoor & Schmitt, 2011), that the inequality-persistence framing also increases women's identity threat and consequently worsens their attitudes toward women and gender equality, whereas the equality-achievement framing did not trigger identity threat in women. In fact, although the inequality-persistence framing led them to a stronger endorsement of zero-sum gender status beliefs by increasing women's identity threat, the equality-achievement framing had the opposite effect: It reduced women's identity threat and, in turn, their agreement with zero-sum gender perspective beliefs. Thus, for women, emphasizing gender equality achievement not only has beneficial effects but it also has the potential to avoid defensive reactions. However, it should be borne in mind that the identity threat derived from emphasizing gender inequality probably has different meanings for women and men. Interestingly, the effects of both the inequality-persistence and the equality-achievement framings were independent of women's gender ideology.

In general, the present findings are in line with previous evidence indicating that interventions that raise awareness of gender inequality can have both positive (e.g., Zawadzki et al., 2014) and counterproductive (e.g., Doolaard et al., 2021) effects due to their potential to generate reactance (e.g., Cundiff & Murray, 2020). However, in the present research, the role of identity threat was less consistent than that of cognitive unfreezing (the re-evaluation of one's beliefs about women and gender equality) among women. Indeed, cognitive unfreezing was the main mediator of the effect of the interventions (especially of the inequality-persistence

framing) on women's change in attitudes. This finding is in line with the results obtained in other areas of intergroup relations characterized by imbalanced power dynamics, such as intractable conflicts (see Bar-Tal et al., 2021).

Women, as members of a disadvantaged group, are more aware of gender inequality than men are, and more likely to be involved in promoting change (e.g., Huddy et al., 2000; Stewart, 2017). On the one hand, being aware that gender inequality persists in contexts with high levels of gender equality (e.g., Spain; European Institute of Gender Equality (EIGE), 2021) could generate surprise, which can trigger cognitive unfreezing (Hameiri et al., 2018). This could lead women to re-evaluate their beliefs on the current situation, reactivating the idea that inequality persists (see also the role of injustice in collective action; van Zomeren et al., 2008) and therefore that there is still a need for change. On the other hand, being aware of the positive effects of achieving gender equality could indicate to women that change is possible (see also the role of efficacy in collective action; van Zomeren et al., 2008) and that gender inequality can be overcome, thus safeguarding threatened identity while prompting cognitive change (Hennes et al., 2018).

In terms of women's ideology, although the lack of moderating effects of neosexism could be explained by a floor effect, the lack of feminist identification effects is intriguing. Previous work has found that politicized identities play a key role in predicting social change (van Zomeren et al., 2008). Feminist identification is related to attitudes such as support for collective action (e.g., Liss et al., 2004), whereas identification with women predicts attitudes toward group characteristics and both can interact in predicting gender attitudes (van Breen et al., 2017). Future research could benefit from addressing this issue by exploring identification with the gender ingroup alongside feminist identification.

The inequality-persistence framing indirectly led egalitarian men (i.e., low in neosexism or high in feminist identification; Study 2) to adopt more positive attitudes toward women and gender equality and, as occurred with women, its effects were mainly mediated by cognitive unfreezing. It is not surprising that the pattern found for egalitarian men is similar (although less consistent) to that found for women since these men might be as aware as women of the persistence of gender inequality and might be motivated to act to achieve gender equality. Although both feminist and nonfeminist women may share the goals of gender equality, feminist identification for men entails higher levels of motivation and commitment to gender-egalitarian goals than it does for nonfeminist men (van Breen et al., 2021). Thus, stimulating feminist identification in men exposed to inequality persistence-based interventions could be of great

importance in promoting alternative ways of thinking about gender relations (see van Breen et al., 2021).

In contrast, in the context of equality-achievement framing, identity threat emerged as a consistent mediator of its effect, which was also dependent on men's feminist identification or neosexism. As members of the advantaged group, men can feel threatened by the fight for gender equality and its achievement (Kteily et al., 2013), and might harden their beliefs in the opposite direction (Dillard & Shen, 2005) to preserve the gender status quo. However, research has also shown that feminist identification has led men to support gender equality through the activation of the egalitarian motivation (Estevan-Reina et al., 2020). The current findings support this idea and show that especially for gender-egalitarian men (high in feminist identification [Studies 1 and 2] or low in neosexism [Study 2]), being aware of the positive consequences of gender equality achievement consistently reduces their identity threat and leads them to hold more positive attitudes toward women and gender equality. This positive effect was also found for men with nonegalitarian views (low in feminist identification), but only in Study 2. Therefore, future studies should clarify the circumstances under which such interventions may move nonegalitarian men.

Limitations and Future Research Directions

Notwithstanding its contributions, the current research also presents some limitations that future investigations could address. First, the content presented in the manipulation mainly focused on work and labor gender (in)equalities, although gender inequality cuts across multiple domains (e.g., education, health). Thus, to extend these findings, future research could manipulate the content of the framings taking other domains of gender (in)equality into consideration.

Second, the study was developed in a country relatively high in gender equality in the domain under consideration (EIGE, 2021). Gender belief systems can be different across cultures (Wood & Eagly, 2012), and recent research has stressed the importance of conducting cross-cultural studies to avoid the ethnocentrism of psychological research (Valved et al., 2021). Therefore, replicating our research in cultural contexts with low(er) gender equality levels would contribute to determining the universality and/or the specificity of the effects found, especially regarding its impact on identity threat.

Third, as a limitation of the manipulation, equality-achievement and inequality-persistence frames might be working as appraisals of success versus failure. Future studies should verify or discard this possibility. They could also examine whether the equality-achievement and inequality-persistence framings are connected to psychosocial mechanisms such as collective efficacy and perceived injustice, two of the main predictors of collective action (e.g., SIMCA model; van Zomeren et al., 2008). Moreover, it would be advisable to examine whether a combined intervention with equality-achievement and inequality-persistence frames together might capitalize on the strengths of both approaches and counteract and canalize the threatening aspects of the inequality-persistence condition.

Fourth, the manipulation did not directly impact the outcome variables. The effect of the interventions on attitudes toward women (evaluation of women) and toward gender equality (zero-sum perspective of gender status, openness to information about gender inequality, and rejection of affirmative actions for women) happened only indirectly through cognitive unfreezing and identity threat. Future research should develop interventions that impact directly on these outcomes and not only indirectly via the mechanisms described in this work (cognitive unfreezing and identity threat).

Practice Implications

The findings of the current research have some practice implications. First, the interventions that promote cognitive unfreezing and reduce identity threat may have positive consequences for attitudes toward women and gender equality. Second, the results constitute a warning regarding the potential boomerang effect of the intervention, stressing the gender inequality-persistence framing and the need to consider the gender and the gender ideology of the target of the interventions. Third, this work provides less risky alternatives (equality-achievement framing) for highly neosexist men. Practitioners, politicians, and gender equality activists' discourse might capitalize on the power of combining equality-achievement with gender inequality-persistence frames to improve attitudes toward women and gender equality depending on the specific goals, the context, and the target of the interventions. They can decide when the use of strategies with more unfreezing potential, but which are more threatening, might be most effective for advancing toward gender equality.

Conclusion

The main findings of this research contribute to the literature on interventions aimed at raising awareness of gender inequality by showing that the way the gender (in)equality is framed (either as the achievements of gender equality or the persistence of gender inequality) may have different effects form women and men on a broad and diverse array

of attitudes toward women and gender equality, ranging from cognitive (e.g., evaluation of women) to behavioral intentions (e.g., policy support, agreement with affirmative action). Notably, we found that the inequality-persistence framing may be more effective but potentially riskier than others to use, and that the effects of framing of gender (in) equality operate through cognitive unfreezing and identity threat. Further, the effects of the framing on men's attitudes toward women and gender equality are dependent on men's endorsement of feminist identification and neosexist beliefs. Overall, these results provide robust evidence that the most effective framing for raising awareness of gender equality that might stick will depend on whether the framing evokes threat or open-mindedness and individual differences in gender ideology.

Compliance with Ethical Standards

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