

RESEARCH ARTICLE

Why do women support socio-economic systems that favour men more? A registered test of system justification- and social identity-inspired hope explanations

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abstract

Why do women support social and economic arrangements that disadvantage them? System justification theory (SJT) proposes that an autonomous system-level motive is responsible for this tendency, beyond any group-interested considerations (e.g., hope of future group advancement). The social identity model of system attitudes (SIMSA) disputes the existence of a unique system-level motive and instead argues that hope of future group advancement can explain women's system-justifying attitudes. Meta-analyzed results from three experiments (Studies 1, $N = 200$; 2, $N = 200$; & 3, $N = 700$ women) revealed, consistent with SIMSA's social identity-based explanation, that strongly identified women supported socio-economic systems that historically favor men over women, mostly when they were hopeful about future gender equity. Contrary to SJT's system motive explanation, we did not find consistent evidence across the studies represented in our meta-analysis that women were more supportive of socio-economic realities that undercuts their group's interests when group motives were nonsalient.

KEYWORDS

hope, outgroup and ingroup favoritism, SIMSA, social identity, system justification

1 | INTRODUCTION

Almost half a century ago, Henri Tajfel pioneered an account of prejudice and discrimination that went beyond earlier explanations rooted in realistic competition for resources (Sherif et al., 1961) and authoritarian personality types (Adorno et al., 1950). Tajfel and colleagues proposed that merely categorizing oneself as being part of a social group was sufficient to elicit group-interested attitudes and behaviors. In their classic minimal group experiment, for example, Tajfel et al. (1971) arbitrarily assigned school children to groups, ostensibly on the basis of their preference for the paintings of two artists: Paul Klee and Wassily Kandinsky. Tajfel et al. then required these school children to allocate points to members of the Klee or Kandinsky groups (but not to themselves) using a special points allocation matrix

that gave them the chance to maximize the payoff for their own group; maximize the difference between their group and the other group; or to equalize their allocations across both groups. The children's point allocations generally favored members of the 'artist group' to which they themselves were assigned (i.e., ingroup) relative to the other artist group (i.e., outgroup), and they tended to maximize the difference in favor of their ingroup. This evidence was truly revolutionary because it demonstrated, for the first time, that mere *psychological awareness* of a social group membership can elicit group-interested behaviors (or ingroup favoritism) even outside of a realistic competition between groups. It was this critical piece of evidence that later gave rise to social identity theory (SIT; Tajfel & Turner, 1979).

The generality of Tajfel et al.'s (1971) *ingroup favoritism effect* has been challenged on the basis of the paradoxical tendency for

members of disadvantaged lower status groups to adopt attitudinal preferences and behaviors that favor higher status outgroups (Jost & Banaji, 1994; Jost et al., 2004; see also Sachdev & Bourhis, 1987; Samson, 2018). However, it is important to note that SIT allows for the possibility of outgroup-favoring attitudes (and actually predicts them) when intergroup boundaries are impermeable and the status quo is stable and legitimate (Tajfel & Turner, 1979, pp. 43–44). Nonetheless, Jost et al. (2004) claimed that instances of outgroup-favoring attitudes by members of low status groups represent important evidence against the social identity perspective because they show that people can sometimes act against their own group interests.

Jost et al.'s (2004) argued that outgroup-favoring attitudes should not be dismissed simply as a case of group members accurately reflecting the *social reality* of intergroup status hierarchies by acknowledging higher status groups as having a superior status than lower status groups (e.g., Rubin & Hewstone, 2004; Spears et al., 2001). Consistent with this view, Jost et al. (2004) pointed out that outgroup-favoring attitudes among the disadvantaged are evident not only when explicit ratings are used and accuracy motives would make it difficult to consciously distort social reality, but also when implicit measures are used and accuracy motives should presumably have less influence (see e.g., Hoffarth & Jost, 2017).

1.1 | SJT's system justification motive explanation

In their system justification theory (SJT), Jost and Banaji (1994) argued that a system justification motivation, which operates beyond personal and group interests, is responsible for outgroup-favoring attitudes among the disadvantaged. Jost et al. (2004) extended this explanation, which was largely based on laboratory evidence, to include the puzzling real-world instances in which the disadvantaged (e.g., women) favor higher status outgroups (e.g., men) via, for instance, attitudes that justify the maintenance of social, political and economic realities that favor men more than women. According to these researchers, humans possess a system justification motivation that causes them to embrace an existing social order and to view such arrangements as fair, legitimate and justified, even if it threatens their own social identities (Jost & Hunyady, 2005, p. 260, but see Owuamalam et al., 2019a, 2019b; Owuamalam & Spears, 2020). That is, Jost and Banaji (1994) argued that the system justification motive causes instances of outgroup-favoring attitudes among the disadvantaged, and that this motivation “does not offer an equivalent function that operates in the service of protecting the interests of the self or the group” (p. 10).

In one of the clearest demonstrations of the connection between outgroup favoritism and system justification, Hoffarth and Jost (2017) showed a positive relationship between outgroup favoritism and conservative system-justifying ideologies among (disadvantaged) sexuality minorities. Why would gay, lesbian and bisexual

individuals in America embrace outgroup-favoring attitudes that disadvantage them, if not for an autonomous system justification motivation that operates in opposition to group interests among the disadvantaged?

1.2 | SIMSA's hope-based explanation

Contrary to Jost (2019), the social identity model of system attitudes (SIMSA; Owuamalam et al., 2018a, 2019a, 2019b) proposes that system-justifying attitudes (such as when women support an economic [and socio-political] status quo that favors men more than women) can be more parsimoniously explained by social identity considerations, without recourse to an autonomous system justification motivation. According to Owuamalam et al. (2018a, 2019a, 2019b), one group interest-based explanation is that the search for a positive social identity can sometimes explain instances of system-justifying attitudes among the disadvantaged especially if the system is regarded as a vehicle through which to address social identity concerns and further ingroup goals. It makes little sense to derogate—or dismiss or discount—a system (which is often inescapable for the disadvantaged in any case) that has the potential to optimize benefits to one's group in the future. This is why the disadvantaged may often support social systems that currently favor a competing outgroup, provided they have some hope that their group's outcomes may improve within those arrangements in the future. This *hope for future ingroup status* explanation implies a positive association between ingroup social identification and system justification, especially in situations where a currently stable inequality has a realistic chance of being changed in the long-run. Specifically, SIMSA argues that people who have a strong sense of identification with their disadvantaged group should be most likely to support a system that currently disadvantages their group provided that they perceive that system to offer the hope for a more positive ingroup status in the future.

An unresolved issue in the ongoing debate between system justification scholars (Jost, 2019; Jost et al., 2019) and social identity scholars (Owuamalam et al., 2019a, 2019b) is whether SIMSA's hope for future status explanation is also capable of providing a satisfactory account of instances of outgroup-favoring support of the economic status quo. For example, Jost (2019) argued that:

contrary to Owuamalam and colleagues' supposition, the perceived likelihood of future success—however realistic or unrealistic—does not seem to account for system justification in the economic sphere. (p. 280)

The reason for this objection stems from Jost et al.'s (2017) re-analysis of a small but nationally representative sample of low-income Americans—conducted by Rankin et al. (2009)—which showed that only 24% of low-income Americans believed that they could become rich one day. Hence, this study suggests that about

three-quarters of members of a low status group (i.e., low-income earners) mostly reported little hope for future status improvement. In short, it seems the American dream does not apply to them. In the absence of such hope, why should they justify the economic system?

Although Owuamalam et al. (2019b) have pointed out that the hope explanation is only one of three accounts of system justification under the SIMSA umbrella at present, it is important to note two things. Firstly, the hope mechanism envisaged under the social identity tradition does not necessarily rely on an overwhelming chance (e.g., above 50%) that a change to the status quo would occur—or not (Wright et al., 1990). All that is needed is for there to be some possibility of potential future advancement (Wright et al., 1990). Secondly, Jost et al.'s re-analysis did not offer an optimal test of SIMSA's hope explanation. According to SIMSA, hope for future ingroup status is expected to predict system justification when the social system is perceived to be *stable in the short-term and unstable in the long-term* (Owuamalam et al. 2018a, 2019a, 2019b). Following our reading of Tajfel and Turner (1979), short-term stability predicts whether social competition and collective action will occur in the current situation. We deduced from SIT that collective action should primarily occur when the system is unstable in the short-term. In contrast, long-term instability means that group members perceive the system to be changeable sometime in the future, due to future collective action or some other reasons. Hence, short-term stability answers the question “can we change the system now?” whereas long-term stability answers the question “can the system ever change?” Importantly, the answer to the first question can be “no” (short-term stability) when the answer to the second question is “yes” (long-term instability). It is uncertain how these conditions were addressed in Jost et al.'s (2017) re-analysis of Rankin et al.'s correlational data. It is also the case that the only available supportive evidence for SIMSA's hope explanation (i.e., Owuamalam et al., 2016, Study 2) was based on an inter-status system that Jost (2019) criticized for not being a good example of a social system. Recent evidence for a positive link between hope and system justification (Vasilopoulos & Brouard, 2019) is similarly limited by its correlational nature, coupled with the fact that their hope scale included other positive emotions of *pride* and *enthusiasm* that are only remotely connected to the concept of hope for future ingroup status. Hence, a more rigorous test of the hope for future ingroup status explanation is required.

1.3 | The present research and overview of hypotheses

Jost (2019) has criticized the SIMSA approach for using examples of mundane and trivial groups (such as football teams) to support its arguments, including the hope for future status explanation. According to Jost (2019, p. 279, *our emphasis*), using such inter-status contexts:

drastically misrepresents the psychology of system justification; poor people, *women*, and sexual minorities, among others, do not feel as if they “played” and “lost”. The position taken by Rubin and Hewstone (2004)—and echoed by Owuamalam et al. (2019a, 2019b)—trivializes (and therefore seriously mischaracterizes) problems of social and *economic inequality*—and ignores the many ways in which inequality is legitimated in society.

This criticism guided the primary focus on women and economic system justification in the present investigation. This approach allowed us to test predictions drawn from SJT and SIMSA with the groups that have experienced historical and continuing structural inequality. The economic system is one that is largely seen as legitimate (see Jost et al., 2012) and one on which the livelihoods of women are likely to be highly dependent (see Jost, 2017) and, therefore, fulfils SJT's legitimacy and system dependency caveats (see Friesen et al., 2019; Jost, 2019). According to SIMSA's hope explanation (Owuamalam et al., 2019a, p. 371; Owuamalam et al., 2016, p. 3), gender group identification should be positively related to the justification of the economic system among women when the system is perceived to be stable in the short-term but unstable in the long-term, leading to hope for future economic equality. In contrast, according to SJT, group identification (or social identity needs and interests) should be inversely correlated with women's economic system justification, especially when the system is perceived to be rather stable in both the short- and long-term. According to Jost et al. (2003, p. 17):

There are three factors that seem *relevant* a priori to whether or not disadvantaged group members will exhibit system-justifying patterns of response. One factor is *group identification*, which is a focus of theories of social identification and self-categorization [...]. Past research suggests that for members of low-status or disadvantaged groups a negative relation generally holds between group identification (or group justification) and system justification [...]. *Thus, members of disadvantaged groups should be more likely to engage in system justification when their group interests and identities are relatively low in salience.* (our emphasis)

We know that stability in the short- and long-term is a necessary condition for the proposed inverse relationship between group identification and system justification under SJT, according to Laurin et al. (2013, p. 247) who argued that:

If a person believes his system is *unlikely to change*, then he likely expects that he will continue to be subject to its current status quo. For the same reasons described earlier, then, he may become motivated to perceive this *unchanging, stable* system as fair and good. (our emphasis)

Nevertheless, one might argue that the relationship between group identification and system justification cannot be diagnostic of SIMSA's hope explanation alone, because other identity-related processes might explain this relationship. In particular, it is entirely conceivable that strong group identifiers may hold system-justifying attitudes that currently favor an advantaged outgroup, not due to hope about improvements to their social identity at some point in the *future*, but due to their satisfaction with the relevant system and its groups at *present*. For example, women who are satisfied with their gender group and see themselves in terms of traditional gender roles and expectations of warmth, rather than feminist ideals (e.g., showing that women are as deserving as men), may implicitly accept the societal system that defines what it is to be a woman, along with their roles and outcomes within this arrangement. It is therefore necessary to untangle this satisfaction mechanism from the mechanism of hope that we propose.

In summary, we predicted that the positive association between ingroup identification and justification of the economic system would be most visible when women are primed with hope (rather than with no-hope) of future improvements to their gender identity. In other words, highly identifying women should support the system more strongly when they are hopeful that women's outcomes will improve in the future (based on SIMSA), and weakly identifying women should support the system more strongly when they are less hopeful of improvements to the status quo (based on SJT, see Figure 1). The alternative satisfaction mechanism would cause an increase in system justification when the hope mechanism is weakened and cues to satisfaction with one's social identity are salient. Hence, in Study 1, we piloted a novel manipulation of the hope mechanism. We then compared the extent to which women who received this hope treatment justified an economic system that historically favors men over

women relative to those in a 'no-hope' condition. In Study 2, and the registered replication (Study 3), we directly examined the mediational roles of short and long-term hope for future ingroup status using a moderated-mediation design. We describe our procedure in further detail below.

2 | STUDY 1: PROOF OF CONCEPT

Recall that the satisfaction mechanism implies that women might be resigned to the way things are *currently*, and that this process is different from a system justification induced by the hope of a potentially positive social identity in the *future*. That is, logically, one cannot wish for a change to a reality that one already accepts, and this *satisfied* state of mind should theoretically counteract the prospects of 'wishful thinking' (i.e., the hope mechanism). To present a convincing demonstration of SIMSA's hope mechanism, therefore, it is necessary to show that system justification is most visible among strongly identifying women when the hope mechanism is strengthened, but absent when it is weakened by the satisfaction mechanism.

Importantly, SJT does not predict any effect of a manipulation of hope for future ingroup status, because "the perceived likelihood of future success—however realistic or unrealistic—does not seem to account for system justification *in the economic sphere*" among the disadvantaged (Jost, 2019, p. 280, our emphasis). Instead, SJT predicts that economic system justification will be strongest among weakly identifying women, when there is little (or no hope) for gender equality in the future. Weak identifiers are often construed as individuals who are *not content* with their group membership, which is why it is easier for them to relinquish their group motives in favor of the system motive (Jost et al. 2003, 2004). It is precisely for this reason that we expected, if the SJT account holds, that weakly identifying women would be most likely to support the (economic) system especially strongly, when the system is chronically stable (i.e., also in the long term) and, therefore, there is no realistic hope about a change to the status quo. Figure 1 shows the expected pattern of results for the hope mechanism for SIMSA versus SJT.

To unpack these contrasting propositions, we orthogonally manipulated the hope and satisfaction mechanisms in order to investigate their effects on system justification among strongly (as per SIMSA) and weakly (as per SJT) identifying women, and focused on *economic* system justification to provide a fair and incisive test of the system justification thesis.

2.1 | Method

2.1.1 | Participants

Two-hundred American women were recruited from Prolific.ac for this experiment. They were paid £5 per hour (pro-rata) for their time ($M_{\text{age}} = 34.06$ years, $SD_{\text{age}} = 12.15$ years; see also power sensitivity test in Appendix A, Table A1, and Table A2 for other demographic details).

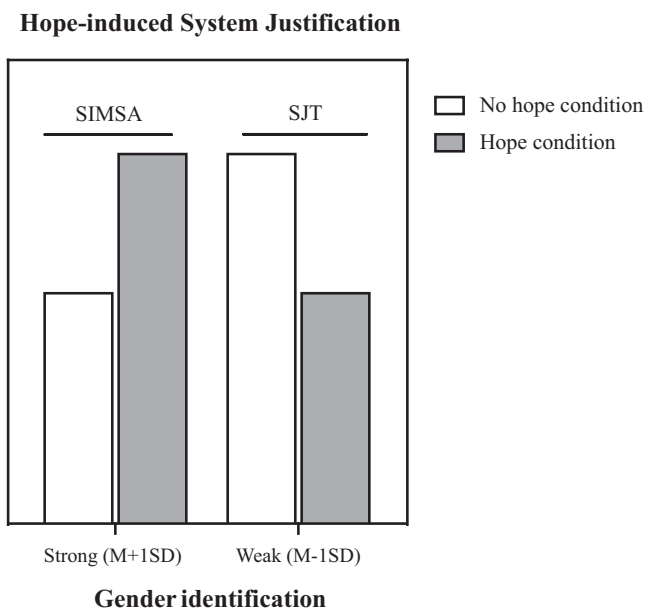


FIGURE 1 SIMSA's versus SJT's predictions for system justification among strong and weak identifiers when hope mechanism is active (if satisfaction mechanism is weakened/absent)

2.1.2 | Design and procedure

A 2 (hope vs. no-hope) \times 3 (satisfaction cue: absent vs. with gender group vs. with country) between-participants design was used in which satisfaction cue and hope for future ingroup status were experimentally manipulated as described in the following section.

Manipulating the satisfaction mechanism

We manipulated the satisfaction mechanism by strengthening cues to satisfaction with participants' gender group ($n = 68$) or with a different social group (country) that is remotely connected to their gender ($n = 67$), and we compared responses across these conditions to a third condition in which these cues were absent ($n = 65$). That is, we heightened the salience of satisfaction with participants' gender group (and outcomes associated with this identity) by asking them to indicate their agreement with six questions known to tap group satisfaction (e.g., "Being a woman is a positive experience"; "I am proud to be a woman," Leach et al., 2008). Previous research in the area of self-affirmation has shown that completing scales such as self-esteem measures can improve people's sense of satisfaction with themselves (for a review, see McQueen & Klein, 2006). This treatment has the potential to enact a sense of satisfaction among women who are strongly invested in their gender identity, which permits a meaningful test of assumptions based on social identity. Corroborating this assumption, we found that, for those in the gender group satisfaction cue condition, their gender group satisfaction scores and a measure of their gender group identification—measured towards the end of the experiment—were strongly correlated ($r(68) = .63, p < .001$). Gender group identification was measured with the membership and importance subscales of the collective self-esteem scale in order to unconfound it from the questions that we used to heighten satisfaction cues (1 = *strongly disagree*; 7 = *strongly agree*; 8-item, $\alpha = 0.82$; $M = 5.19, SD = 0.98$). In a second condition, a sense of participants' satisfaction with the overarching system in which the gender order is embedded (i.e., country) was also enacted in the same way, with the satisfaction questions now tied to country rather than gender (e.g., "being an American is a positive experience"; "I am proud to be an American"). These treatments were absent in a third condition, in which participants were simply exposed to a relaxing video of an auto advert.

Inducing the hope for future ingroup status: a fact-based approach

Participants in the hope [vs. no-hope] condition were informed that:

A recent Pew Research Center report (28th December 2017) found that gender inequality has been steadily decreasing [vs. *has not changed much over the last 30 years*] in the United States. The gender ratio in the workforce has been steadily decreasing [vs. *has not decreased much*], with more equal [vs. *unequal*] numbers of men and women employed in most occupations. The figure below, which we have copied from Pew Research report, illustrates this

trend. So, there is reason for people to be hopeful [vs. *pessimistic*] that gender inequality will be a thing of the past in the near future.

In particular, the figure in the hope condition was manipulated to provide a convincing visual summary of the downward trajectory of gender inequality over a 30-year period (between 1987 and 2017; see Figure 2a), in a way that accommodated SIMSA's conditions of short-term system stability but long-term system instability (Owuamalam et al. 2018a, 2019a, 2019b). Specifically, in the hope condition designed to address SIMSA's propositions ($n = 101$), the figure depicted a relatively stable level of inequality over a 15-year period, which was then followed by a sharp decline in the 8-year period from 2010 to 2017 (see Figure 2a). Hence, although it was clear that the gender gap ratio would not reach equality in the short-term, the trend suggested that equality was possible in the longer-term. In contrast, in the pessimism condition that is more relevant to SJT's propositions ($n = 99$), participants could see that gender inequality in both the short- and long-term were rather stable (see Figure 2b).

Support for America's economic system

We used a 9-item¹ measure of economic system justification designed by Jost and colleagues (Jost & Thompson, 2000; see also Feygina et al., 2010). An example item is "I feel that different social groups earn the economic position they get" (1 = *strongly disagree*; 7 = *strongly agree*; $\alpha = 0.92$; $M = 2.99, SD = 1.20$). Hence, women who support the American economic system, which currently favors men more than women (as the 2018 Global Gender Gap Report indicates; World Economic Forum, 2018), are engaging in system justification. For a complete item listing for each scale, visit our OSF registration page @ <https://osf.io/tjgxz/>.

2.2 | Results and discussion

A 2 (hope vs. no-hope) \times 3 (satisfaction cue: absent vs. with gender vs. with country) ANCOVA was conducted, in which gender identification (mean centered) was specified as a moderating covariate. Results revealed no significant relationship between gender identification and system justification, $F(1, 188) = 0.89, p = .347, \eta_p^2 < 0.01$. However, and consistent with SIMSA, the relationship between gender identification and economic system justification was qualified by hope induction and satisfaction cue in a three-way interaction, $F(2, 188) = 5.70, p = .004, \eta_p^2 = 0.06$. To understand this interaction, we investigated the hope \times identification interaction when gender/nation satisfaction was either absent or present (see Figure 3).

¹We chose slightly more than half the items on this 17-item scale to shorten the study's completion time along with associated recruitment costs on Prolific, especially given that all 17 items on the scale are designed to (and reliably) draw on the same psychological reality (Feygina et al., 2010).

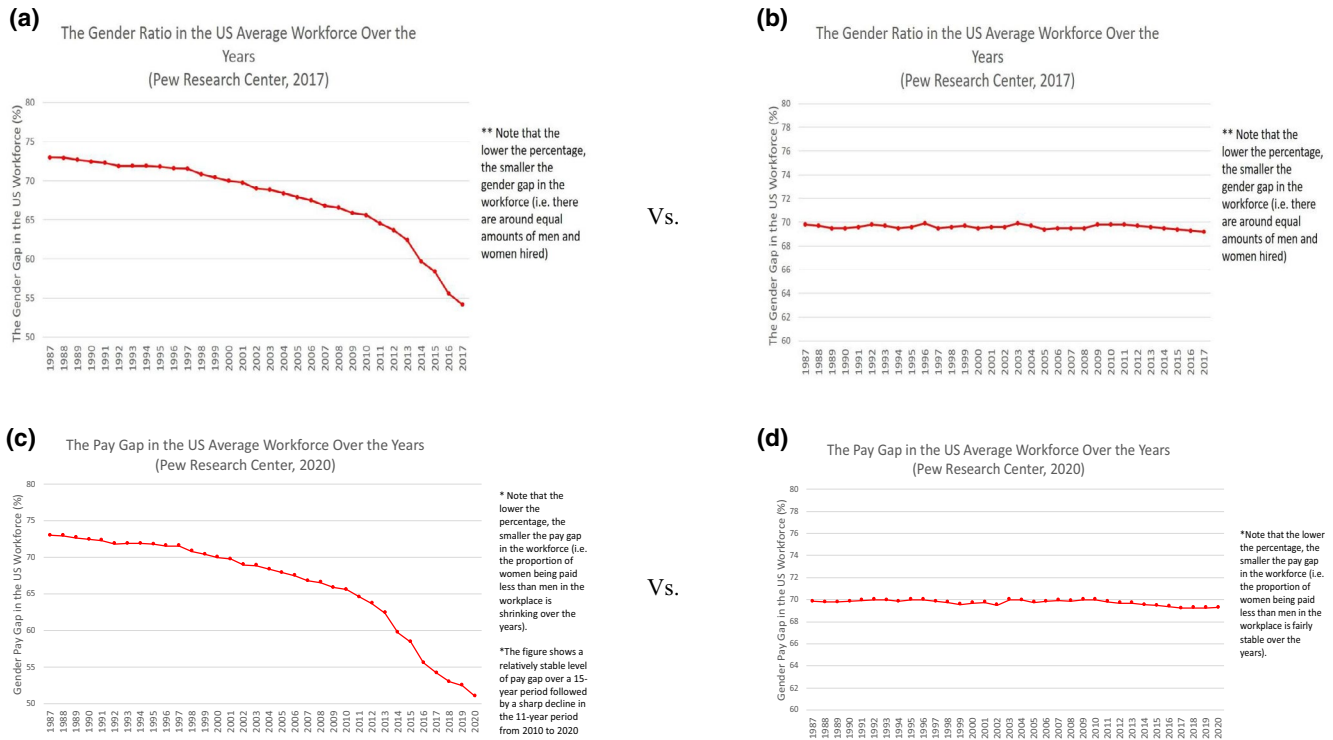


FIGURE 2 Information for the hope (a & c) versus no hope (b & d) conditions. Figures (a) and (b) were used in Studies 1-2, while (c) and (d) were used in Study 3

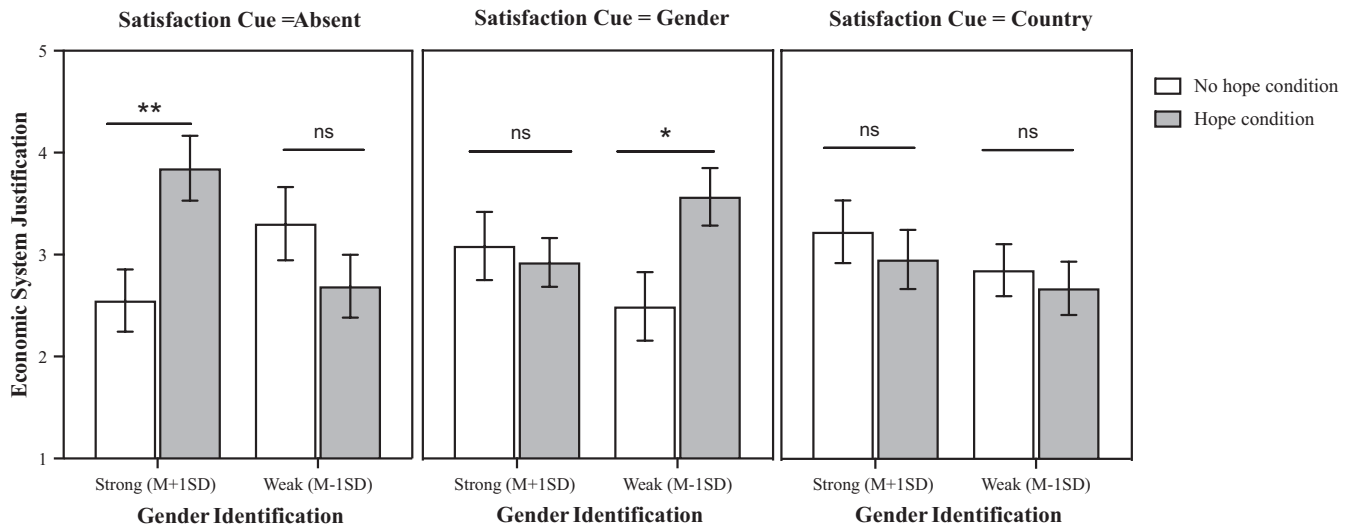


FIGURE 3 Effect of hope induction on the justification of America's economic system among weakly ($M - 1SD$) and strongly ($M + 1SD$) identifying women depends on the degree to which cues to satisfaction with gender or country are salient versus nonsalient (absent). Error bars are standard errors. ns, nonsignificant; * $p < .050$; ** $p < .010$

When satisfaction mechanism was absent/weakened. Results revealed a significant hope induction \times identification interaction, $F(1, 188) = 7.41, p = .007, \eta_p^2 = .04$. Consistent with SIMSA's hope explanation, strongly identifying women supported the American economic system that favors men more than women to a greater extent in the hope (than in the no-hope) condition, $F(1, 188) = 8.62, p = .004, \eta_p^2 = 0.04$, see Figure 3). Although system justification among weakly identifying women was slightly higher in the no-hope (than hope) condition,

consistent with SJT, this difference was not reliably different from zero, $F(1, 188) = 1.67, p = .198, \eta_p^2 = 0.01$ (see Figure 3).

When gender satisfaction cue was salient. The hope induction \times identification interaction reliably predicted system justification in this condition, $F(1, 188) = 3.98, p = .047, \eta_p^2 = 0.02$. Simple effect analysis revealed that this interaction emerged because economic system justification was higher in the hope (than in the no-hope) condition, only among weakly identifying women, $F(1, 188) = 6.02, p = .015, \eta_p^2 = 0.03$. Consistent with the

theorized opposition between the satisfaction and hope mechanisms, there was no discernible trend among strongly identifying women, $F(1, 188) = 0.15, p = .695, \eta_p^2 < 0.01$ (see Figure 3).

When country satisfaction cue was salient.² Here, the hope induction \times identification interaction did not have a reliable effect on system justification, $F(1, 188) = 0.03, p = .860, \eta_p^2 = 0.001$, and this was true for both strong and weak identifiers (see Figure 3).

It is possible that these results may have come about only because women from higher social economic classes (i.e., the privileged) are the ones justifying the status quo given that it serves their economic interests to do so (Jost et al., 2004). So, an argument can be made that system-justifying tendencies in the foregoing analysis do not extend to the average woman. Hence, we recalculated our models, this time controlling for socio-economic class by fixing participants' self-reported income bands to the average income. Results did not deviate meaningfully from those that we have reported earlier.

Summary of key findings. The evidence corroborates SIMSA's proposition and shows that when optimism about gender equality at some point in the future is not diluted by satisfaction with one's gender group at present, strongly identifying women were especially likely to justify an economic system that currently favors men more than it does women. Hence, we untangle the hope explanation from the satisfaction explanation for the positive effect of gender identification on support for an economic system that favors men more than women. For SJT, results are less clear: although the pattern of results expected for weak identifiers somewhat emerged when satisfaction cues were absent, this tendency was not statistically reliable, even when a single-tailed test was applied. Jost's (2019) contention that hope has nothing to do with system justification did not receive support, especially given that a hope-induced system justification was also visible even among weakly identifying women.

3 | STUDY 2: FURTHER EVIDENCE

An even more conclusive test of SIMSA's hope explanation should verify the mediational role of hope in light of the absence of a manipulation check for our novel hope induction in Study 1. For example, our hope induction could also have heightened uncertainty, given

²Some might look at the pattern of results in Study 1 and conclude that strongly identifying women should have also shown greater system justification in the hope relative to no-hope conditions regardless of satisfaction cues (see Figure 3), and that the absence of this trend is evidence against SIMSA. As we have explained in the theoretical section, the hope for future ingroup status is envisaged to be counteracted by the satisfaction mechanism. This means that any effect of a heightened sense of future positive ingroup status on system justification may be thwarted by satisfaction with the here and now. Hence, consistent with our theorizing, satisfaction with the status quo at present ostensibly reined in the potential impact of wishful thinking about future in-group prospects on system justification, leading to a null effect of the hope treatment. If anything, the current evidence that the hope mechanism was only visible when the satisfaction mechanism was nonsalient provides a firmer, more filtered support for SIMSA, because it shows that countervailing forces of satisfaction with the system at present do weaken it.

the instability implied by the fluctuating gender gap in the workplace over the years, as depicted in Figure 2. Because uncertainty increases system justification (Jost et al. 2012), one might question whether the effects were down to the mechanism of hope or to that of uncertainty, which is why a mediational model that directly isolates the hope mechanisms envisaged under SIMSA is needed. SIMSA predicts that experiencing a social system that is stable in the short-term but unstable in the long-term should cause a relatively high hope for future ingroup status to manifest, which should then be positively associated with system justification, especially for high identifiers. Hence, to provide a more precise test, we distinguished between short-term hope (hope for ingroup advancement in the near future) and long-term hope (hope for ingroup advancement in the distant future). We expected long-term hope to represent the diagnostic mediator for strong identifiers because only people who are invested in their social identity should persevere (or tolerate the system) long enough to achieve improvements to their social identity.

A further qualm with Study 1 is that although economic system justification is at the heart of the debate between Jost (2019; Jost et al., 2019) and Owuamalam et al. (2019a, 2019b), it might be seen by some as not being sufficiently specific to relations between men and women (see Sengupta et al. 2015, status-legitimation caveat). Hence, from this perspective, one might argue that SJT's prediction should come about when measurements of system justification are more closely tied to gender relations. In this study, we chose to focus on gender system justification and system-justifying (hostile) sexist ideology (Glick & Fiske, 1996) because they are closely tied to the gender status quo, in addition to the economic system justification that we examined in Study 1.

We also changed the hope manipulation slightly to refer to the gender pay gap rather than the ratio of men and women in employment. We felt that this change provides a more explicit link to the economic system. A further consideration concerns the potentially conflicting hope-inspired predictions even within the social identity tradition. For example, recent research by Hasan-Aslih et al. (2019) has shown that some types of hope provoke a system-challenging orientation while some others promote a system-justifying orientation. We compared the mediational roles of short- and long-term hope with Hasan-Aslih et al.'s (2019) harmony-focused hope and another ad-hoc measure of realistic hope. Because there is, as yet, no known measure of short- and long-term hope, we conducted the current study to refine our instruments, while also aiming to provide preliminary insights into the proposed mechanisms.

3.1 | Method

3.1.1 | Participants

Two-hundred American women were recruited from Prolific Academic for this experiment. They were paid £5 per hour (pro-rata) for their time ($M_{\text{age}} = 34.21$ years, $SD_{\text{age}} = 11.70$ years, see Table A2 for other demographic details).

3.1.2 | Design and procedure

This was a moderated mediation design (Hayes, 2017), in which hope (hope vs. no-hope; the focal independent variable) was experimentally manipulated as in Study 1, while gender identification was measured using the importance/identity subscale of Luthanen and Crocker's (1992) collective self-esteem scale ($\alpha = 0.86$, $M = 5.07$, $SD = 1.29$; all the measures in this study adopted a 7-point scale: 1 = *strongly disagree*, 7 = *strongly agree*). As indicated earlier, the fact-based hope induction that we used in Study 1 was modified slightly (in bold) to make it more explicitly focused on gender pay inequality with regard to the economic system:

A recent Pew Research Center report (28 December 2017) found that gender inequality has been steadily decreasing [vs. *has not changed much over the last 30 years*] in the United States. The gender **pay gap** in the workforce has been steadily decreasing [vs. *has not decreased much*], with more equal [vs. *unequal*] **pay** for men and women employed in most occupations. The figure below, which we have copied from the Pew Research report, illustrates this trend. So, there is reason to be hopeful [vs. *pessimistic*] that gender inequality, especially in the **economic sphere**, will be a thing of the past in the near future.

In short, the figures presented to participants were similar to the ones that we used in Study 1, and the only difference with our hope induction in the current study is the switch from gender ratio to gender pay gap. Hence, across both hope conditions (the focal independent variable), women were reminded of their relative disadvantage to men in the economic sphere, and it was only in the hope-inducing condition ($n = 100$) and not in the no-hope condition ($n = 100$) that they could realistically expect a future positive social identity (the proposed mediator). We predicted that this hope should then cause an increase in system justification (the outcome) for strongly identifying women (moderator).

Mediators

The experience of hope for future ingroup status was measured using the following items for short-term hope ("I am hopeful that women will achieve equal pay with men in the next two years" and, "I'm not very hopeful that women's pay will reach the same level as men's in the next two years." Reverse coded, $r = .73$, $p < .001$; $M = 3.49$, $SD = 1.70$); and for long-term hope ("I hopeful that women will achieve equal pay with men in the next 20 years." and "I'm not very hopeful that women's pay will reach the same level as men's in the next 20 years. Reverse coded, $r = .64$, $p < .001$; $M = 5.35$, $SD = 1.31$). This temporal distinction of hope for future ingroup status was designed to offer a more stringent test of SIMSA for one reason. Although hoping that the gender pay gap will close sometime soon (e.g., in 2 years) should motivate most group members to tolerate the prevailing arrangements, only those women who care

deeply for their gender group and its outcomes should persevere in their faith in the system even when equality is expected at a more distant time in the future (say in 20 years). Hence, showing that strongly identifying women support existing pay arrangements that favor men more than women, and may even be prepared to wait up to 20 years for equality to materialize, would provide strong evidence for SIMSA, because it demonstrates an *active* commitment to the system as a *vehicle* for a positive change (see Owuamalam et al., 2019a, p. 374).

We also included Hasan-Aslih et al.'s (2019) harmony-focused hope that we adjusted to accommodate the current context of gender relation, also making specific reference to the future ("How hopeful are you for a better future regarding a smaller gender pay gap between men and women in society?"; $M = 5.25$, $SD = 1.45$). Finally, we added three ad-hoc items of realistic hope ("It seems realistic to think that the gender pay gap will get much smaller in the future based on emerging statistics that continue to show improvements year on year"; "It is certainly possible that one day, women will earn equal pay as men do for the same job based on emerging trends"; and "It's unrealistic to think that we will ever be able to achieve equal pay for women in the future based on emerging trends," reverse coded, $\alpha = 0.87$; $M = 5.06$, $SD = 1.35$).

Positive controls/assumption checks

The hope manipulation was designed to accentuate the perception of short-term stability and long-term instability—a key assumption underlying SIMSA's hope explanation. Hence, it is important to check whether participants could distinguish between short- and long-term stability when prompted to do so, given the contention by SJT researchers that "it is incoherent to talk about stability through time as anything other than stability in the long term, because 'stable, but only in the short term' seems oxymoronic" (Jost, 2019, p. 283). We were unable to verify that this assumption was met in Study 1 because we did not examine whether participants could distinguish between short- and long-term stability in ways that are empirically discernible. To address this limitation, we included measures of perceived stability in the short-term ("It is unlikely that the gender pay gap will change dramatically in the next two years" and "The gender pay gap is likely to stay roughly the same in the next two years." $r = .73$, $p < .001$; $M = 5.12$, $SD = 1.44$) and long-term ("It is unlikely that the gender pay gap will change dramatically in the next 20 years," and "The gender pay gap is likely to stay roughly the same in the next 20 years," $r = .78$, $p < .001$; $M = 2.68$, $SD = 3.10$). Assuming that it is "incoherent" to talk about stability through time, then participants should perceive no difference between short- and long-term stability of the gender pay gap.

Dependent measures

We included the same economic system justification measure that we used in Study 1 (9-item, $\alpha = 0.92$, $M = 2.68$, $SD = 1.11$), in addition to gender system justification (8-item, $\alpha = 0.88$, $M = 3.41$, $SD = 1.12$) and system-justifying hostile sexist ideology (10-item, $\alpha = 0.92$, $M = 2.50$, $SD = 1.25$). For a complete item listing for each scale, visit our OSF registration page @ <https://osf.io/tjgxz/>.

3.2 | Results and discussion

3.2.1 | Preliminary analyses

Is it incoherent to talk about stability through time?

Jost (2019) assumed that it is, while SIMSA researchers assume that it is not, because “people [who] perceive that their disadvantage is ongoing and unlikely to end in the long term [i.e. stable in the long-term], ... will have little hope of a brighter future” (Owuamalam et al., 2019a, p. 374). That is, long-term hope should be a negative function of long-term stability because the later provides little scope for a more enduring hope to operate, while short-term stability should also be inversely related to short-term hope. To address this theoretical disagreement, one should show, according to SIMSA, that the two types of stability exhibit sufficient discriminant validity with respect to their relations to related constructs. Long-term stability should exert a negative influence on long- but not short-term hope when we hold constant people's belief that the status quo is only short-lived. Likewise, short-term stability should negatively correlate with short- but not long-term hope when beliefs that the prevailing order will linger for a while are accounted for.

With regard to the foregoing prediction, we performed a confirmatory factor analysis (to be certain that the items mapped onto their theorized latent components) and a correlational analysis (to ascertain their relations to constructs that are theorized to be inversely related to them). First, results from the confirmatory factor analysis showed that a two-factor solution along the theorized lines, $\chi^2_{(1)} = 0.16$, $p = .686$, CFI = 1.00, AIC = 2,639, fitted the data better than a one-factor alternative that envisaged all four stability items as tapping a single latent construct, $\chi^2_{(2)} = 104$, $p < .001$, CFI = 0.74, AIC = 2,741 (Δ AIC = 102; see Hu & Bentler, 1999).

Second, results from a partial correlation revealed a strong negative association between long-term stability and long-term hope ($r_{xy.c} = -.51$, $p < .001$) but not short-term hope ($r_{xy.c} = .01$, $p = .859$), when short-term stability was held constant. Meanwhile, short-term stability was strongly negatively correlated with short-term hope ($r_{xy.c} = -.57$, $p < .001$) but not long-term hope ($r_{xy.c} = -.14$, $p = .057$) when long-term stability was held constant. Hence, consistent with SIMSA, we showed that short- and long-term stability are differentially associated with two types of hope for future ingroup status that also differed with respect to their longevity.

Are the conditions right for a diagnostic test of SIMSA's hope explanation?

According to SIMSA, the disadvantaged should be more likely to support an outgroup-favoring status quo when it is stable in the short-term but unstable in the long-term. Although we programmed this assumption into the hope condition in Study 1, we were not able to verify that this manipulation affected perceptions of system stability, which is why we measured perceived short- and long-term stability in the current study. We predicted that:

1. Perceived system stability (both short- and long-term) would be higher in the pessimism condition than in the hope condition because the gender pay gap (i.e., prevailing order) is rigged to be stable in both the short- and long-term in the no-hope condition.
2. Within the hope-inducing condition, we predicted that perceived short-term system stability would be higher than perceived long-term system stability, which would meet the conditions for SIMSA's hope for future ingroup status explanation.

With regard to Prediction 1, the results from an independent t test showed that participants in the no-hope condition perceived greater system stability overall than those in the hope condition (short-term stability: $t(199) = 6.04$, $\bar{d} = 1.13$, $SE\bar{d} = 0.19$, $p < .001$, $d_{\text{Cohen}} = 0.86$, 95% CI = [0.77, 1.51]; long-term stability: $t(199) = 8.53$, $\bar{d} = 1.58$, $SE\bar{d} = 0.19$, $p < .001$, $d_{\text{Cohen}} = 1.21$, 95% CI = [1.22, 1.95], see Appendix A, Table A3 for descriptive statistics). With respect to Prediction 2, a paired t test conducted among women in the hope condition showed that perceived short-term stability was significantly stronger than perceived long-term system stability ($t(99) = 15.31$, $\bar{d} = 2.25$, $SE\bar{d} = 0.15$, $p < .001$, $d_{\text{Cohen}} = 1.56$, 95% CI = [1.24, 1.82]). Hence, the current data is able to offer diagnostic information about SIMSA's hope explanation, and patterns that deviate from its prediction should be taken as evidence against the theory.

3.2.2 | Main analyses

Analytical approach

SIMSA proposes that hope for a future positive social identity is one reason why members of disadvantaged groups engage in system justification, and that such a trend should be especially visible among strong identifiers when the system is stable in the short-term but not in the long-term. Hence, we needed to show that our hope manipulation increased the experience of hope for future ingroup status, which in turn increased system-justifying attitudes, especially among strongly identifying women. To tease apart these core processes, we adopted a combination of the causal approach to testing mediation recommended by Baron and Kenny (1986) and the bootstrap method (Hayes, 2018). We used this combined approach following Yzerbyt et al.'s (2018) recommendation to estimate (and report) the paths that constitute a mediation model, rather than simply estimating the indirect effect alone (see Hayes, 2009, who argued against the need for estimating constituent paths of a mediation model). In short, we adopted a combined approach to be more transparent about the nature of the unique relationships that constitute the mediation model, while estimating the indirect effects of interest also.

Does the hope induction increase the experience of hope for future ingroup status?

Results from an independent t test revealed that our hope induction increased participants' short- and long-term hope for future ingroup status, harmony-based hope, and realistic hope (see Table 1). Hence,

our fact-based hope induction caused an increase in four different types of hope.

Does the experience of hope predict system-justifying attitudes?

To answer this question, we examined the correlations between the three system-justifying attitudes and the four types of hope. Consistent with SIMSA's proposition, we found positive (and mostly significant) relationships between short- and long-term hope and all three system-justifying attitudes (see Table 2). We also found that harmony-based hope reliably predicted only 1 out of 3 system-justifying attitudes ($b_{\text{gender}} = 0.18, se = 0.05, p = .001, 95\% \text{ CI} = [0.07, 0.28]$; $b_{\text{economic}} = 0.10, se = 0.05, p = .057, 95\% \text{ CI} = [-0.003, 0.21]$; $b_{\text{sexist-ideology}} = 0.02, se = 0.06, p = .803, 95\% \text{ CI} = [-0.11, 0.14]$). Realistic hope also reliably predicted one out of the three indices of system justification ($b_{\text{gender}} = 0.21, se = 0.06, p < .001, 95\% \text{ CI} = [0.10, 0.32]$; $b_{\text{economic}} = 0.09, se = 0.06, p = .135,$

$95\% \text{ CI} = [-0.03, 0.20]$; $b_{\text{sexist-ideology}} = 0.10, se = 0.07, p = .148, 95\% \text{ CI} = [-0.03, 0.22]$). Hence, only the short- and long-term hope measures exerted a consistently reliable influence on the three indices of system-justifying attitudes in this study. Therefore, our subsequent indirect effect estimation focused on short- and long-term hope for future ingroup status as reliable mediators.

Does hope for future ingroup status explain the effect of our hope treatment on system justification?

To answer this question, we performed a moderated mediation analysis in which our hope induction was specified as the focal predictor, short- and long-term hope for future ingroup status were simultaneously entered as parallel mediators, and system justification was the outcome variable. Gender identification (centered) was specified as a moderator of the path from hope (mediator) to the outcomes (see Figure 4). We ran 3 moderated

TABLE 1 The effect of the hope induction on various measures of hope

	Hope induction		t value	p-value	d_{Cohen}	95% CI	
	Hope	No-hope				Lower limit	Upper limit
Study 2							
Short-term hope	3.91 (1.69)	3.07 (1.69)	3.60	<.001	0.51	0.38	1.30
Long-term hope	5.83 (1.01)	4.87 (1.40)	5.60	<.001	0.79	0.63	1.31
Harmony-focused hope	5.75 (1.05)	4.75 (1.62)	5.19	<.001	0.73	0.62	1.38
Realistic hope	5.82 (0.78)	4.31 (1.38)	9.55	<.001	1.35	1.20	1.83
Study 3							
Short-term hope	4.04 (1.63)	3.41 (1.62)	5.14	<.001	0.39	0.24	0.54
Long-term hope	5.53 (1.18)	4.80 (1.48)	7.27	<.001	0.55	0.40	0.70

Note: Under the hope conditions, values in parentheses are standard deviations and those outside parentheses are means.

TABLE 2 Zero-order correlations among measured variables (Study 2)

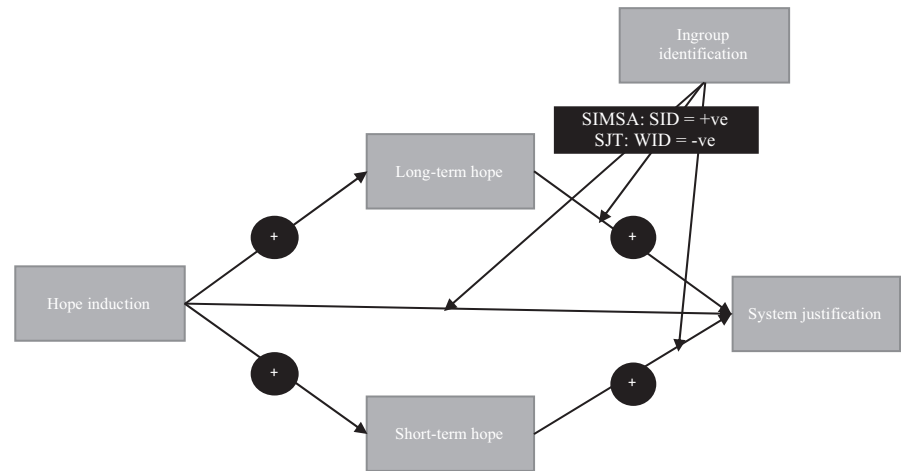
	1	2	3	4	5	6	7	8	9
1. Gender identification	--								
2. Short-term hope	-0.01	--							
3. Long-term hope	0.04	0.47***	--						
4. Harmony-focused hope	0.07	0.48***	0.60***	--					
5. Realistic hope	-0.01	0.42***	0.54***	0.60***	--				
6. Short-term stability	-0.08	0.19**	0.06	0.04	0.00	--			
7. Long-term stability	0.06	-0.09	-0.05	-0.07	-0.06	-0.03	--		
8. Economic system justification	-0.04	0.37***	0.19**	0.14	0.11	0.16 ⁺	0.04	--	
9. Gender system justification	-0.09	0.37***	0.26***	0.23***	0.25***	0.13 ⁺	0.05	0.77***	--
10. System-justifying hostile sexist ideology	-0.04	0.34***	0.09	0.02	0.10	0.15 ⁺	-0.06	0.64***	0.57***

* $p < .050$.

** $p < .010$.

*** $p < .001$.

FIGURE 4 Conceptual model for SIMSA's and SJT's hope-related explanations. SID, strong identifiers; WID, weak identifiers



mediation models (Hayes' 2018, Model 15 via PROCESS) for each of the three system justification measures using 5,000 bootstrap resamples. We report both the unstandardized estimate (b) and the percentile 95% confidence intervals (recommended by Biesanz et al., 2010). An indirect effect is deemed reliable (i.e., statistically significant) if zero lies outside the upper and lower limits of the bootstrapped 95% confidence interval for this estimate (Preacher & Hayes, 2004).

Economic system justification. Consistent with SIMSA, only strongly identifying women ($b_{IE} = 0.21$, $se = 0.11$, 95% CI = [0.02, 0.44]), but not weakly identifying women ($b_{IE} = -0.06$, $se = 0.11$, 95% CI = [-0.28, 0.15]), supported the economic system as a result of their longer-term hope that things will be better for their gender group. Short-term hope for future ingroup status also reliably explained the effect of our hope manipulation on support for America's economic system, but this effect was not unique to strongly identifying women ($M + 1SD$; $b_{IE} = 0.15$, $se = 0.07$, 95% CI = [0.02, 0.31]). It was also apparent among weakly identifying women ($M - 1SD$; $b_{IE} = 0.24$, $se = 0.09$, 95% CI = [0.09, 0.44]; see Figure 5a for model results).

Importantly, and consistent with SIMSA, the *direct* effect of our hope manipulation on system justification among high identifiers was not statistically significant, suggesting that the experience of hope for future ingroup status fully explained the effect of our hope induction on system justification for high identifiers (Baron & Kenny, 1986; Yzerbyt et al., 2018). In contrast, and consistent with SJT, weakly identifying women supported the system more strongly in the no-hope condition than in the hope condition (see Figure 5a). This finding suggests that although hope (especially of the short-term type) may play a part in weakly identifying women's justification of the economic system, there may be other processes unconnected to hope that help to boost their support for the status quo.

Gender system justification. Again, only strongly identifying women justified the unequal gender relations between men and women

due to their longer-term hope for improvements to their gender group ($b_{IE} = 0.24$, $se = 0.11$, 95% CI = [0.04, 0.48]). This mediation effect was not significant among weak identifiers ($b_{IE} = 0.03$, $se = 0.12$, 95% CI = [-0.19, 0.26]). Furthermore, short-term hope for future ingroup status reliably explained the effect of our hope manipulation on support for the gender system that favors men more than women, for both strongly ($b_{IE} = 0.16$, $se = 0.08$, 95% CI = [0.03, 0.33]) and weakly ($b_{IE} = 0.17$, $se = 0.08$, 95% CI = [0.04, 0.36]) identifying women (see Figure 5b for model results).

The *direct* positive effect of the hope treatment on system justification among strong identifiers was not statistically significant, suggesting that hope for future ingroup status fully explained the effect of our hope induction on system justification for high identifiers (see Figure 5b). However, weakly identifying women *seemed* to support the system marginally more in the no-hope than in the hope condition (see Figure 5b).

System-justifying hostile sexist ideology. Interestingly, and contrary to SIMSA, the data showed that long-term hope for future positive identity did not reliably explain the endorsement of system-justifying hostile sexist ideology for either strongly ($b_{IE} = -0.01$, $se = 0.12$, 95% CI = [-0.26, 0.24]) or weakly ($b_{IE} = -0.09$, $se = 0.11$, 95% CI = [-0.32, 0.12]) identifying women. Short-term hope for future ingroup status, however, reliably explained the effect of our hope manipulation on support for system-justifying sexist ideology, for strongly ($b_{IE} = 0.19$, $se = 0.09$, 95% CI = [0.04, 0.38]) and weakly ($b_{IE} = 0.29$, $se = 0.12$, 95% CI = [0.09, 0.55]) identifying women alike (see Figure 5c for model results).

Moreover, and consistent with SIMSA, the *direct* positive effect of the hope treatment on system justification among strong identifiers was not significant, implying once more, that short-term hope for future ingroup status fully mediated the effect of our hope induction for strong identifiers (see Figure 5c). In contrast, and consistent with SJT, weakly identifying women supported the system more strongly in the no-hope condition than in the hope condition (see Figure 5c).

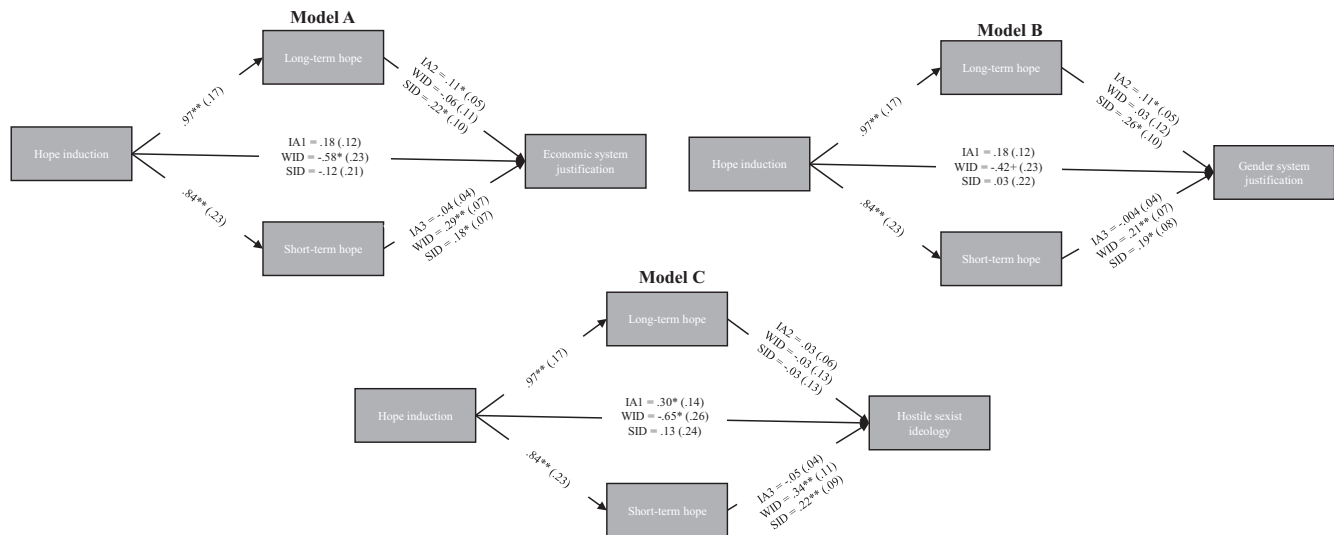


FIGURE 5 The effect of hope induction on economic system justification (a), gender system justification (b) and hostile sexist ideology (c), when hope for future ingroup status is a mediator. IA1, hope induction × gender identification interaction; IA2, longer-term hope × gender identification; IA3, short-term hope × gender identification; WID, weak identifiers ($M - 1SD$); SID, strong identifiers ($M + 1SD$). WID and SID are simple slope estimates (not conditional indirect effects). * $p < .10$; ** $p < .050$; *** $p < .010$ [Corrections made on 14 January 2022, after first online publication: Figure 5 has been replaced in this version.]

The results were remarkably similar to those we presented above, even when we controlled for participants' socio-economic status via their self-reported income bands.

Summary of key findings

The present study established that: (a) SJT's prediction that weakly identifying women will justify the system especially strongly when they are pessimistic of future improvements to their social identity did obtain some support, especially when system justification was tied to the hostile sexist attitudes towards women³ (cf. Sengupta et al., 2015); (b) short- and long-term hope for future ingroup status explained the link between our hope induction and system justification; and (c) only strongly identifying women were impacted by the experience of long-term hope for future ingroup status in relation to their willingness to support societal systems that favor men more than women. So, although the findings provided some support for both SIMSA and SJT, Study 2 demonstrates that Jost's (2019) proposal that hope has nothing to do with system justification (especially in the economic sphere), may be premature because, even weak identifiers supported the system especially strongly due to short-term hope of a future positive social identity.

4 | STUDY 3: REGISTERED REPLICATION

Studies 1 and 2 converge in their conclusion that hope for future ingroup status can cause an increase in system justification among

strongly identifying women. Even so, one reservation might be that the trajectory of the gender pay gap in our fact-based induction of hope (see Figure 2a,b) pertained to the past and not the present or future, which makes it unclear whether participants in Studies 1 and 2 were justifying the past, present or future economic/social systems. This is important, some might say, because SIMSA's hope for future ingroup status explanation deals with justification of the present, with the potential for a future positive identity in mind (i.e., it is about "becoming" and not just "being": see Spears et al., 2001). There is at least one reason why there isn't an issue here. The system justification measures that we used across Studies 1 and 2 were designed by SJT researchers to tap justification of the status quo. As Jost and Kay (2005, p. 501, our emphasis) explained:

the questionnaire [i.e., gender system justification scale] contained eight opinion statements regarding the *current state* of gender relations and sex role division. Items were based on general system justification items developed by Kay and Jost (2003).

Hence, the developers of the system justification scales that we have adapted here argue that outcomes on these standard scales should be interpreted as justification of the prevailing order, with which SIMSA's hope explanation is primarily concerned. Nonetheless, in this replication, we extended the dates in Figure 2c,d from 2017 to 2020 (i.e., the proposed time of recruitment) to be certain that system-justifying deliberations concerned the present, but with the hope of a future positive identity in mind.

Another issue is that neither Study 1 nor Study 2 estimated the required sample sizes beforehand, raising questions about the reproducibility of the results (even if post-hoc sensitivity analysis revealed

³It should be noted that although the hope × identification interaction term predicting economic and gender system justification was not statistically significant, SIMSA's and SJT's predictions are more specific to the valence of the simple slopes for high (SIMSA) and weak (SJT) identifiers.

TABLE 3 Chambers' (2019) Registration Checklist

Question	Hypothesis	Sampling plan (e.g., power analysis)	Analysis plan	A Registered guide to the interpretation of outcomes following a meta-analysis of Studies 1–3
Does hope explain system justification among women? And, is this contingent on ingroup identification?	SJT: No. Weakly identifying women should be more likely to justify the system when they have no-hope (vs. hope) about future positive social identity, and this effect should have nothing to do with the hope mechanism. SIMSA: Yes. Strongly identifying women should be more likely to justify the system when they are hope (vs. no-hope) about future positive social identity, and this effect should be explained by the hope mechanism	Assuming 90% power, results from Monte Carlo statistical power simulation for varying <i>n</i> -sizes estimates that around 700 cases will be adequate to power the key processes outlined here (see Table S1 in our supplementary document).	Conditional process regression model (equivalent to Model 15 in Hayes' 2017 PROCESS macro, see Figure 4).	SJT: There was no evidence of increased system justification among weak identifiers exposed to no-hope (vs. hope) treatment, or when short-/long-term hope was low. SIMSA: There was evidence of increased system justification among strong identifiers exposed to hope (vs. no-hope) treatment, or when short-/long-term hope was high.

[Corrections made on 14 January 2011, after first online publication: In this version, the heading for the last column has been updated and 'SIMSA: There is no evidence' in the last column has been corrected to 'SIMSA: There was evidence'.]

sufficient power for the interaction in Study 1 [see Appendix A]; and up to 80% power for the key conditional indirect effect in Study 2 [see our supplementary document Table S1]). So, although model estimates from Study 2 resulted from thousands of bootstrap resamples that should help in low *n*-size scenarios (see Preacher & Hayes, 2004), we decided to replicate our results using a larger sample size that we generated a priori from a Monte Carlo simulation (see our supplementary document Table S1). Table 3 depicts our registration checklist (see also Figure S1 in our supplementary document for the experimental flow).

4.1 | Method

4.1.1 | Participants and data exclusions

Seven hundred women in the US ($M_{\text{age}} = 33.02$ years, $SD_{\text{age}} = 12.03$ years) were recruited via the Prolific Academic platform, and were compensated with a pro-rated payment of ~GBP 5 per hour. As in Study 2, incomplete and exceptionally quick responses were eliminated on the prolific platform prior to data collection and any form of analysis on the data, consistent with our registered protocol (see <https://osf.io/tjgxz/>).

4.1.2 | Materials and measures

The experimental protocols with regard to the manipulation of hope followed the same approach that we described in Study 2, only this time, all the issues identified during the review rounds were addressed (e.g., by extending the hope induction figure from 2017 [as in Study 2] to 2020 [Study 3], so that participants are responding with the current status quo in mind—see Figure 2a,b).

All the variables that we used in Study 2 were featured in this study, including: the same 4-item gender identification scale ($\alpha = 0.79$);

the same 9-item economic system justification scale ($\alpha = 0.92$); the same 8-item gender system justification scale ($\alpha = 0.86$); a 3-item ad-hoc state system justification scale that a reviewer recommended ($\alpha = 0.89$); an 11-item benevolent⁴ sexist ideology scale ($\alpha = 0.90$); and, a 6-item measure of feminist identification ($\alpha = 0.97$). Although our SIMSA-based predictions focus on gender identification (identification with women), as in the previous studies, on an exploratory basis, we also measured identification with feminism: a more ideological dimension of gender identity, in which high identifiers support the cause of women (and gender equality). The reason this differs from women's identification (they are positively correlated but typically only around 0.3; see Van Breen et al., 2017, 2018) is that subsets of highly identifying women reject key aspects of the feminist ideology (e.g., "traditional women": Van Breen et al., 2017, 2018) and in turn feminist women are less positive about (the values of) traditional women. The question then arises of which of these forms of identification is the most relevant identification moderator (identifying with women, or identifying with the political rights of women) for testing our moderation hypotheses around system justification. SIMSA is silent (or insufficiently specified) to address the specifics around the content/ideology of the group so our pragmatic approach was to frame our hypotheses more generically with respect to identification with women per se, as in the previous studies, but to measure feminist identification as providing an additional test of predictions around group identification, qua identification with the political position of women (hence an exploratory factor as described in the preregistration), albeit one that seems highly relevant. Indeed, our predictions about hope of change (short-term or long-term) could be considered central planks of the feminist agenda.

Given our preregistered concerns that conducting a test during the COVID-19 pandemic presents an unusual circumstance that was

⁴We switched from hostile to benevolent sexist scale following an initial peer review (full anonymized peer comments for each review round can be found in our OSF page in the document titled "peer review history").

absent at the time of Study 2, we measured, as a potential explanatory variable, survival concerns associated with the spread of the coronavirus using a 3-item measure of mortality salience that was specific to COVID-19 ($\alpha = 0.78$). All measurements were obtained on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). For a complete item listing for each scale, visit our OSF registration page @ <https://osf.io/tjgxz/>.

4.2 | Results and discussion

4.2.1 | Preliminary analyses

Is it incoherent to talk about stability through time?

We repeated the same analysis that we performed in Study 2. First, a confirmatory factor analysis was performed to confirm that the theorized distinction that we made concerning the latent structure of short- and long-term stability was credible. Results from this analysis reiterated, once more, that the fit of a two-factor solution, along the theorized lines, $\chi^2_{(1)} = 41.44$, $p < .001$, CFI = 0.97, AIC = 9,614, was better than the corresponding fit of a single-factor alternative, $\chi^2_{(2)} = 288.78$, $p < .001$, CFI = 0.81, AIC = 9,859 (Δ AIC = 245).

Second, results from a partial correlation once again revealed a medium-sized negative association between long-term stability and long-term hope ($r_{xy,c} = -.32$, $p < .001$), but a weakly positive correlation with short-term hope ($r_{xy,c} = .10$, $p = .011$), when short-term stability was held constant. Meanwhile, short-term stability was moderately negatively correlated with short-term hope ($r_{xy,c} = -.37$, $p < .001$), but had a weaker negative correlation with long-term hope ($r_{xy,c} = -.13$, $p = .001$; $\Delta r_{xy,c} = -.24$) when long-term stability was held constant. Hence, consistent with the evidence in Study 2, we once again showed that short- and long-term stability are differentially associated with two time-dependent types of hope for future ingroup status.

Are the conditions right for a diagnostic test of SIMSA's hope explanation?

As in Study 2, we again tested the predictions that (a) perceived system stability (both short- and long-term) would be higher in the no-hope condition than in the hope condition and (b) perceived short-term system stability would be higher than perceived long-term system stability in the hope-inducing condition. With regard to (a), the results showed that participants in the no-hope condition perceived greater system stability overall than those in the hope condition (short-term stability: $t(681.93) = 17.08$, $\bar{d} = 1.66$, $SE\bar{d} = 0.10$, $p < .001$; long-term stability: $t(698) = 16.88$, $\bar{d} = 1.85$, $SE\bar{d} = 0.11$, $p < .001$, see Appendix A, Table A3). With respect to (b), a paired t test conducted among women in the hope condition showed that perceived short-term stability was significantly stronger than perceived long-term system stability, $t(348) = 16.60$, $\bar{d} = 1.59$, $SE\bar{d} = 0.08$, $p < .001$. Hence, the current data is able to offer diagnostic information about SIMSA's hope explanation.

4.2.2 | Main analyses

We first examined the effect of our hope treatment on the experience of hope for future ingroup status. Corroborating the pattern of results in Study 2, the evidence confirmed that our hope manipulation increased participants' short- and long-term hope (see Table 1).

Does the experience of hope predict system-justifying attitudes?

To answer this question, we again investigated the correlations between the four system-justifying attitudes and the two types of hope for future ingroup status. Replicating the trends in Study 2, and consistent with SIMSA, we found a positive relationship between short-term hope and all four system-justifying attitudes (see Table 4). However, we did not replicate the positive relationships between long-term hope and all four indices of system justification. One argument against the diagnosticity of this null relationship for SIMSA is

TABLE 4 Zero-order correlations among measured variables (Study 3)

	1	2	3	4	5	6	7	8	9
1. Gender identification	--								
2. Feminist identification	0.27***	--							
3. Short-term hope	-0.08 ⁺	0.04	--						
4. Long-term hope	0.06 ⁺	-0.16***	0.46***	--					
5. Short-term stability	0.06	0.02	-0.39***	-0.36***	--				
6. Long-term stability	0.01	-0.07 ⁺	-0.16***	-0.45***	0.59***	--			
7. Economic system justification	-0.13***	-0.35***	0.24***	-0.03	-0.15***	0.09 ⁺	--		
8. Gender system justification	-0.09 ⁺	-0.41***	0.17***	< -0.01	-0.19***	-0.01	0.77***	--	
9. State system justification	-0.11**	-0.33***	0.25***	0.03	-0.22***	-0.03	0.76***	0.85***	--
10. Benevolent sexist ideology	0.07 ⁺	-0.15***	0.27***	0.01	-0.16***	0.06	0.50***	0.43***	0.41***

⁺ $p < .100$.

^{*} $p < .050$.

^{**} $p < .010$.

^{***} $p < .001$.

that the positive relation between this type of hope and system support is limited to strong identifiers, while a negative relation might be possible based on SJT. These competing processes may cancel each other out, resulting in a null correlation. Hence, a valid test of whether or not the expected positive correlation between long-term hope and system justification exists, is to unpack the potentially moderating role of group identification. We investigated this further by repeating the moderated-mediation analyses that we performed in Study 2.

Does hope for future ingroup status explain the effect of our hope manipulation on system justification?

We approached this analysis in two phases given the null relationship between long-term hope and system justification. First, we ran a model in which the conditional indirect effect of the diagnostic mediator for SIMSA's hope explanation (i.e., long-term hope) on all four measures of system justification was examined (Model 15, PROCESS). We then repeated the same moderated-mediation analysis, where short- and long-term hope were simultaneous mediators, to establish whether effects that are due to longer-term hope for future ingroup status survive when short-term hope is accounted for, based on the prevailing demand for "justice now" that swept through the US political landscape at the time of study. In short, moderated-mediation models were calculated for each of the four system justification measures (with 5,000 bootstrap resamples), using gender group identification (mean centered) and feminist identification (mean centered) as moderators in separate runs.

Gender identification. When long-term hope was the only mediator, we found that one of the few effects emerging from this model was that of hope induction on long-term hope ($b = 0.73$, $se = 0.10$, $p < .001$). Consistent with SJT, there was also a weak, though reliable, negative association between gender identification and all system justification measures ($ps < .010$; except benevolent sexist ideology; see also Table 4). However, contrary to both SIMSA and SJT, the gender identification \times hope (all 3 indicators) interaction effects, and the conditional indirect effects tied to these interactions, were not reliable ($ps > .10$). A similar trend emerged when short- and long-term hope were simultaneously specified as mediators in the model. Hence, we did not replicate Study 2's moderated-mediation analysis using a group identification measure that was concerned with the *importance/esteem* that women attached to their gender identity. This is probably unsurprising given the prevailing COVID-19 pandemic that could have rendered gender esteem and equity-related concerns inconsequential relative to thoughts about survival,⁵ as we also indicated in our registration document (see p. 38). Hence, a null evidence for SIMSA's proposition, in particular, should show that the predicted positive effect of hope on system justification is also absent for women devoted to the feminist cause

of gender equity, and for whom gender equity-related concerns ought to be salient even in the unusual COVID context.⁶

Feminist identification. Economic system justification. When long-term hope was the only mediator, we replicated the moderated-mediation that we reported in Study 2 using feminist identification as the moderator. Long-term hope reliably explained the effect of our hope induction on women's support for the American economic system, but only for those who were strongly identified with the feminist cause ($b_{IE} = 0.07$, $se = 0.04$, 95% CI = [0.005, 0.15]). The corresponding negative indirect effect of hope on system justification among weakly identifying feminists was not reliable ($b_{IE} = -0.01$, $se = 0.04$, 95% CI = [-0.08, 0.06]).

The foregoing trend for strongly identifying feminists was lost (even reversed) when short-term hope was simultaneously included in the model as mediator, suggesting that the more immediate hope process suppressed the longer-term hope mechanism, which is understandable given demands for "justice now" by activists in today's America (see Figure 6a). Meanwhile, short-term hope for future ingroup status reliably explained the positive effect of our hope induction on support for America's economic system, for both strongly ($b_{IE} = 0.17$, $se = 0.04$, 95% CI = [0.10, 0.26]) and weakly ($b_{IE} = 0.12$, $se = 0.04$, 95% CI = [0.06, 0.21]) identifying feminists (see Figure 6a for model results).

Importantly, and consistent with SIMSA, the *direct* positive effect of the hope treatment on system justification among strongly identifying feminists was not statistically significant, suggesting that the experience of hope for future ingroup status fully explained the effect of our hope treatment on system justification for this subgroup of women. In contrast, and partially consistent with SJT, weakly identifying women supported the system marginally more in the no-hope than in the hope condition ($b = -0.24$, $se = 0.13$, $p = .075$, see Figure 6a). This finding replicates the patterns that we reported in Study 2, albeit for *feminist* rather than *gender* identification.

⁶As we had stated earlier (see our registration document), women who accept traditional roles for their gender group, as well as those who contest their gender group's subjugation (i.e., feminists) can be both strongly invested in their gender identity. But it is entirely conceivable that only those women with a strong feminist orientation should be most concerned still about gender equity in the unusual situation that the pandemic presents, rather than their "traditional" counterparts who may be more concerned about their "duty to nurture" in the face of chaos unleashed by COVID-19. When we investigated this further, we found a reliable negative association between feminist identification and the nurture-oriented hope for survival of the pandemic ("seeing people dying of COVID-19 dampens my hope for survival"; $r = -.15$, $p < .001$), while this relationship was positive (though nonsignificant) when feminist identification was substituted in the analysis with gender identification, $r = .06$, $p = .142$. That is, strong feminists in our study did not seem concerned about surviving the pandemic, as women who reported strong gender identification seemed to be. Of course, this latter analysis should be taken with an appropriate level of caution given that gender identification does not cleanly tap traditional gender-role identification, even if feminists endorsing strong gender identification might have diluted the potentially positive relationship between gender-role identification and nurturing-oriented hope for survival. Indeed, when we used the membership subscale of the collective self-esteem scale that captures *worthiness and cooperation* with one's gender group and therefore more closely tied to gender-role identification (e.g., "I am a worthy member of my gender group"), we found that it reliably correlated positively with nurturing-oriented hope of surviving the pandemic, $r = .15$, $p < .001$. Hence, it appears that identifying with "women" increases pandemic-related concerns, while identifying with the "cause of women" (as feminists do) dims pandemic-related concerns.

⁵This assessment is based on two observations: (a) feminist identification was a reliably stronger predictor of all four indices of system justification than gender identification was ($zs < 3.50$, $ps < .010$), and (b) COVID-19 evoked mortality concerns ($M = 3.12$, $SD = 1.60$) were stronger for our participants than concerns over socio-economic systems and equity, when we combined all four indices of system justification ($M = 3.12$, $SD = 1.10$; $r = -.11$, $p = .005$), $t(699) = 10.39$, $d = 0.84$, $SEd = 0.08$, $p < .001$.

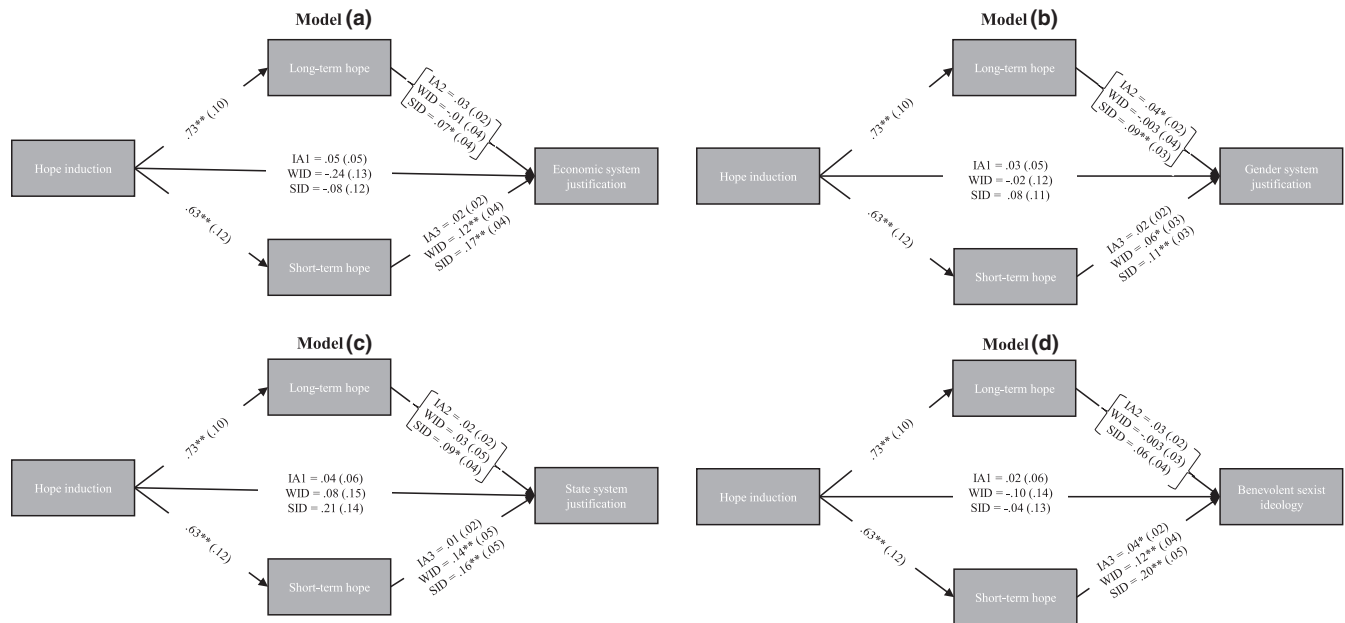


FIGURE 6 The effect of hope induction on economic system justification (a), gender system justification (b), state system justification (c) and benevolent sexist ideology (d), when hope for future ingroup status is a mediator. IA1, hope induction \times feminist identification; IA2, long-term hope \times feminist identification; IA3, short-term hope \times feminist identification; WID, estimate for weak identifiers ($M - 1SD$); SID, estimate for strong identifiers ($M + 1SD$). In square brackets are estimates from the single mediator model (i.e., long-term hope). All other estimates are from the equivalent multiple mediator model (i.e., when long- and short-term hope were simultaneously included in the model). Estimates for WID and SID are simple slopes (not conditional indirect effects). * $p < .050$, ** $p \leq .010$ [Corrections made on 14 January 2022, after first online publication: Caption for Figure 6 has been updated in this version.]

Gender system justification. When long-term hope was the only mediator, strongly identifying feminists justified the unequal gender relations between men and women because they were hopeful of a positive change to their gender group in the long-run ($b_{IE} = 0.09$, $se = 0.03$, 95% CI = [0.03, 0.16]). The corresponding negative indirect effect of hope on system justification among weakly identifying feminists was nonsignificant ($b_{IE} = -0.003$, $se = 0.04$, 95% CI = [-0.07, 0.07]).

The indirect effect of long-term hope for strongly identifying feminists was, once again, eliminated when long- and short-term hope was additionally included in the model as mediator (see Figure 6b). Meanwhile, short-term hope for future ingroup status reliably explained the positive effect of our hope induction on support for the gender system, for not only strongly ($b_{IE} = 0.11$, $se = 0.03$, 95% CI = [0.05, 0.18]) but also weakly ($b_{IE} = 0.06$, $se = 0.03$, 95% CI = [0.004, 0.14]) identifying feminists (see Figure 6b for model results).

As before, the *direct* positive effect of the hope treatment on gender system justification among strongly identifying feminists in this model was not statistically significant. This could have resulted because hope for future ingroup status fully explained the effect of our hope induction on system justification for this subgroup, consistent with SIMSA's explanation (see Figure 6b). Contrary to SJT, there was also no direct negative effect of our hope induction on the justification of the gender status quo for weakly identifying feminists (see Figure 6b).

State system justification. When long-term hope was the only mediator, strongly identifying feminists justified the prevailing system due to their longer-term hope for future ingroup status ($b_{IE} = 0.09$,

$se = 0.04$, 95% CI = [0.01, 0.17]). This mediation effect was not significant among weakly identifying feminists ($b_{IE} = 0.03$, $se = 0.05$, 95% CI = [-0.06, 0.13]).

Again, the foregoing trend was eliminated when short-term hope was additionally included in the model as mediator (see Figure 6c). That is, short-term hope for future ingroup status reliably explained the positive effect of our hope induction on support for the prevailing system, for not only strongly ($b_{IE} = 0.16$, $se = 0.04$, 95% CI = [0.08, 0.26]) and but also weakly ($b_{IE} = 0.14$, $se = 0.05$, 95% CI = [0.06, 0.25]) identifying feminists (see Figure 6c for model results).

Furthermore, the *direct* positive effect of the hope treatment on the justification of prevailing systems among strongly identifying feminists was not statistically significant, indicating, once more, that hope for future ingroup status fully explained the effect of our hope induction on system justification for this subgroup, consistent with SIMSA (see Figure 6c). Contrary to SJT, there was also no direct negative effect of our hope induction on the justification of prevailing systems for weakly identifying feminists (see Figure 6c).

System-justifying sexist ideology. Replicating the null pattern in Study 2, we found that an effect of our hope treatment on endorsement of benevolent sexist ideology could not be reliably explained by long-term hope, either for strongly, $b_{IE} = 0.06$, $se = 0.04$, 95% CI = [-0.01, 0.15], or weakly ($b_{IE} = -0.003$, $se = 0.03$, 95% CI = [-0.07, 0.06]) identifying feminists. This trend persisted even when short-term hope was simultaneously included in the model as mediator (see Figure 6d). Corroborating Study 2, we found that short-term hope for future ingroup status continued to reliably explain the positive

effect of our hope induction on the endorsement of benevolent sexist ideology, for strongly ($b_{IE} = 0.20$, $se = 0.05$, 95% CI = [0.11, 0.30]) and weakly ($b_{IE} = 0.12$, $se = 0.04$, 95% CI = [0.05, 0.21]) identifying feminists (see Figure 6d).

Consistent with SIMSA, the *direct* positive effect of the hope treatment on the endorsement of system-justifying sexist ideology among strongly identifying feminists was not statistically reliable (see Figure 6d). Contrary to SJT, there was also no direct effect of our hope induction on the endorsement of sexist ideology for weakly identifying feminists (see Figure 6d).

It is important to note, as was the case in Study 2, that these results were largely unchanged, even when we controlled for participants' socio-economic status via self-reported income bands.

Summary of key findings

We found that hope for a more imminent improvement in gender outcomes was more appealing than longer-term hope in predicting system support among weak and strong feminists. However, consistent with SIMSA, we also found that in the absence of hope for an imminent change to the status quo, strong feminists were the ones prepared to wait longer for gender equity to materialize, provided a downward trajectory in the gender pay gap in the longer-term makes this bet a realistic option for the ingroup.

But why was feminist identification rather than identification with women per se the moderator for the pattern of results predicted by SIMSA? Recall that in our preregistration document we introduced feminist identification as an additional form of group identification (albeit more ideological, content based) for exploratory purposes. This was because we had previously used women's identification as a moderator in the previous two studies, and one could argue that this earlier measure is a more neutral or content-free indicator of group identification. In retrospect, however, we should perhaps not be so surprised that the more political measure of feminist identification played the same kind of role predicted by the SIMSA approach, because it is precisely concerned with the future role (equality, liberation) of women, arguably so central to the issue of whether groups resist or show deference and quiescence central to the system justification research agenda. This then raises the question of why women's identification previously showed similar patterns but not here. One answer is that women's identification and feminist identification are related and share some common variance (0.27 here and around 0.3 in previous studies by Van Breen et al., 2017, 2018) and strongly identified women are surely interested in protecting their group, but perhaps it is not so surprising that some subgroups (e.g., traditional women) might not share the feminist agenda (see also footnote 6). However, we should note that using this more politically formed measure of group identification does not obviously favor the SIMSA analysis over the SJT analysis. Indeed, according to SJT, low feminist identifiers (or anti-feminist women, including perhaps traditional women) should be those most likely to justify the system. And yet the analysis based on SIMSA seems to better capture the observed pattern of results. The next question then is how reliable is the evidence in support of SIMSA and SJT across the three studies combined? We address this question in our registered meta-analysis.

4.3 | Meta-analysis

According to our registration document the test "of whether SIMSA's vs. SJT's prediction received *strong* (i.e., statistically significant meta-analyzed effect in the expected direction) or *weak* (i.e., nonsignificant meta-analyzed effect in the predicted direction) support overall" ought to be the summary of the evidence across Studies 1–3 for all instances of the hope (manipulated, long-term, and short-term) \times identification (gender and feminist) effect on system justification (see also Table 3). Given the nested structure of these interaction effects we computed a 3-level random-effect model with maximum likelihood estimation of within- and between-study variance of effect sizes across the three studies. That is, we assumed that sampling error within participants (level 1) is nested in effect size variances in the type of hope that we used (level 2), which are in turn nested in the variability of the effect sizes in the same study (level 3),⁷ while considering identification as a level 2 moderator. We standardized all predictor variables prior to generating the relevant estimates from a hope \times identification moderated regression analysis using Hayes' (2017, PROCESS macro). Consistent with our overall analytical approach, we generated the effect of hope on system justification for weak and strong identifiers separately for each of the three indices of system justification that were present in more than one study (i.e., the economic, gender and system-justifying sexist ideology scales).

Economic system justification.⁸ Results revealed that identification moderated the effect of hope on women's support for the American economic system across the three studies, $Q(1) = 5.33$, $p = .021$. System support was higher in the hope (vs. no-hope) condition among strongly identifying women (feminists in Study 3), $b = 0.27$, $se = 0.07$, $z = 3.60$, $p = .0003$, 95% [0.12, 0.41], while this effect was not visible among weakly identifying women (feminists in Study 3), $b = 0.02$, $se = 0.07$, $z = 0.32$, $p = .747$, 95% [-0.12, 0.17]. The foregoing analysis utilized estimates for feminist identification in Study 3 (but excluded the corresponding estimates for gender

⁸The test of residual heterogeneity was significant in both analyses reported: $Qs > 68.37$, $ps < .001$. This could have arisen solely because the effects were highly sensitive to the type of hope used in the analysis, also given the variability in the effect of the hope induction on system justification in Study 1 compared to Studies 2–3. Thus, one argument might be that the relevant meta-analyzed effects will disappear once the variance associated with different operationalizations of hope is controlled for. When we repeated our comprehensive model that included effects due to feminist and gender identification in Study 3, this time controlling for hope type, we found, consistent with the foregoing argument, that the test for residual heterogeneity ceased to be significant, $Q = 23.92$, $p = .091$. However, the hope \times identification interaction remained significant, $Q(1) = 20.05$, $p < .0001$: with the positive effect of hope on system justification still visible for strong identifiers, $b = 0.15$, $se = 0.05$, $z = 3.08$, $p = .002$, 95% [0.05, 0.24], but absent for weak identifiers, $b = -0.01$, $se = 0.05$, $z = 0.15$, $p = .879$, 95% [-0.10, 0.08].

⁷There is ongoing debate (with regard to power in multi-level analysis) about the use of the rule of thumb approach advocating that each level of a multi-level analysis should contain up to 30 independent data units (Maas & Hox, 2004, 2005). This problem, however, is often discussed in the context of a 2-level model and there is currently no recommendation on how to address this issue in a 3-level model context (Mcneish & Wentzel, 2017). So, although our model does not meet the ad-hoc sample unit criterion for levels 2 (3 different estimates for hope) and 3 (i.e., 2–3 studies)—and therefore may be susceptible to a sample-size problem that we overlooked in our registered power calculation—it offered the most stringent approach to dealing with the dependence in our data, in the absence of other formal alternatives. It should be noted, however, that the results were largely identical even when we used the less than ideal single-level model that does not account for data dependence within our studies.

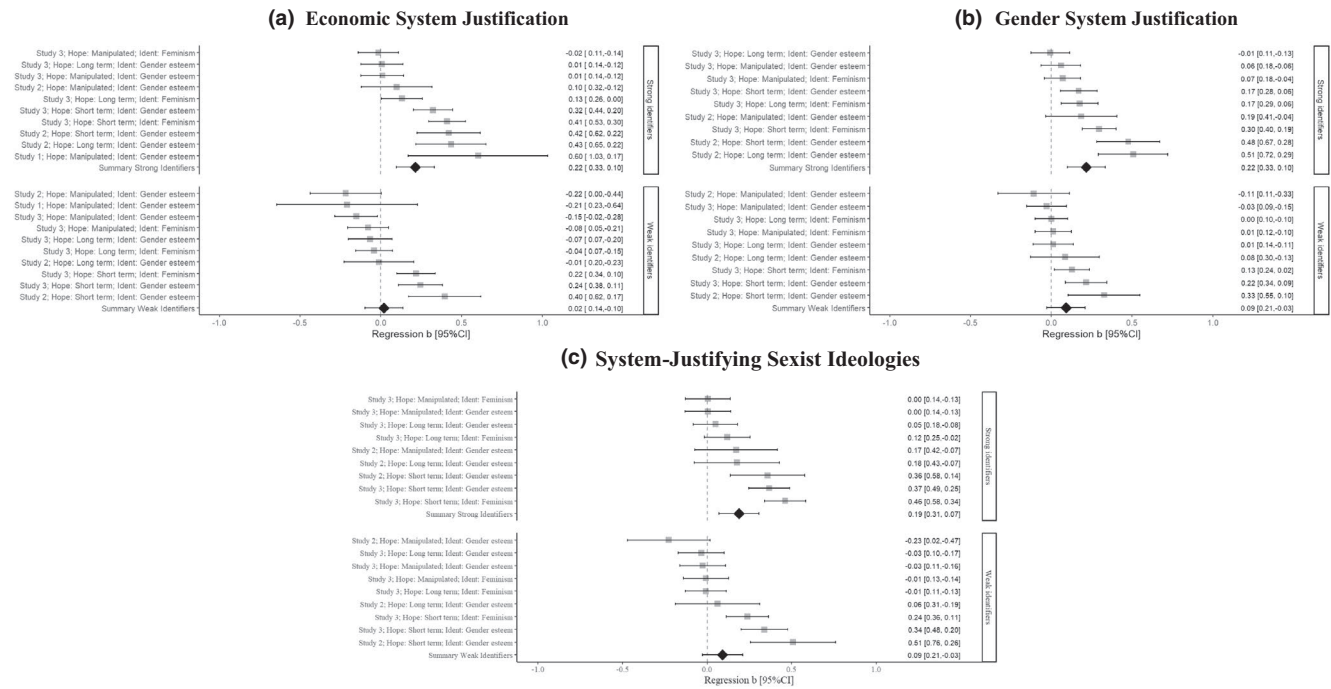


FIGURE 7 Forest plots for the effect of all three hope types on economic system justification (a), gender system justification (b) and system-justifying sexist ideology (c), for strong and weak gender group identifiers. Two types of gender identification = gender esteem and feminism

identification in that study). Hence, some might question whether the same results emerge when the excluded estimates were added to the calculation. Indeed, results were the same when this was done. The hope \times identification interaction remained significant, $Q(1) = 5.34, p = .021$, and occurred because the positive effect of hope on support for America's economic system justification was restricted to strong identifiers, $b = 0.22, se = 0.06, z = 3.59, p = .0003, 95\% [0.10, 0.33]$, but was absent for weak identifiers, $b = 0.02, se = 0.06, z = 0.31, p = .756, 95\% [-0.10, 0.14]$ (see Figure 7a).

Gender system justification.⁹ Results revealed that identification moderated the effect of hope on women's support for the American gender system across Studies 2 and 3, $Q(1) = 7.32, p = .007$. Support for the gender system was higher in the hope (vs. no-hope) condition among strongly identifying women (feminists in Study 3), $b = 0.27, se = 0.06, z = 4.59, p < .001, 95\% [0.15, 0.38]$, but not among weakly identifying women (feminists in Study 3), $b = 0.07, se = 0.06, z = 1.23, p = .218, 95\% [-0.04, 0.19]$ (see Figure 7). As

before, the results were the same when the relevant estimates pertaining to gender identification in Study 3 were also included in the model along with those involving feminist identification. That is, the hope \times identification interaction remained significant, $Q(1) = 4.77, p = .029$, and occurred because the positive effect of hope on gender system justification was restricted to strong identifiers, $b = 0.22, se = 0.06, z = 3.61, p = .0003, 95\% [0.10, 0.33]$, but absent for weak identifiers, $b = 0.09, se = 0.06, z = 1.51, p = .132, 95\% [-0.03, 0.21]$ (see Figure 7b).

System-justifying sexist ideology.¹⁰ Although the meta-analyzed identification \times hope interaction was not statistically significant across Studies 2 and 3, $Q(1) = 1.33, p = .249$, a look at the meta-analyzed simple slopes revealed, consistent with SIMSA, that endorsement of sexist ideologies was stronger in the hope (vs. no-hope) condition among strongly identifying women (feminists in Study 3), $b = 0.22, se = 0.08, z = 2.83, p = .005, 95\% [0.07, 0.36]$, but not among weakly identifying women (feminists in Study 3), $b = 0.09, se = 0.08, z = 1.19, p = .234, 95\% [-0.06, 0.24]$ (see Figure 7). Similar results were obtained when estimates for gender identification in Study 3 were added to the model along with those involving feminist

⁹Again, the test of residual heterogeneity was significant in both analyses reported here: $Qs > 58.52, ps < .001$. Following our earlier approach with economic system justification, we recalculated our comprehensive model that included estimates from both feminist and gender identification in a single run, but this time controlling for hope type. Results showed that although the test of residual heterogeneity was reduced (from $Q \sim 58$ to ~ 31), it was still statistically significant, $Q(14) = 30.45, p = .007$. But, the hope \times identification interaction remained significant nonetheless, $Q(1) = 10.84, p = .001$: with the positive effect of hope on system justification still visible for strong identifiers, $b = 0.18, se = 0.06, z = 2.93, p = .003, 95\% [0.06, 0.30]$, but absent for weak identifiers, $b = 0.07, se = 0.06, z = 1.23, p = .220, 95\% [-0.04, 0.19]$.

¹⁰The test of residual heterogeneity followed identical patterns as with the two previous meta-analyses, with the corresponding estimate being significant when hope type was not controlled for, $Qs > 95.89, ps < .001$, but nonsignificant when it was, $Q(14) = 10.79, p = .702$. Importantly, however, the hope \times identification interaction became significant when the variance introduced by the hope type was accounted for, $Q(1) = 6.39, p = .012$, with the positive effect of hope on system justification still visible for strong identifiers, $b = 0.09, se = 0.04, z = 2.42, p = .016, 95\% [0.02, 0.16]$, but absent for weak identifiers, $b = -0.003, se = 0.04, z = 0.07, p = .939, 95\% [-0.07, 0.07]$.

identification: for strong identifiers: $b = 0.19$, $se = 0.06$, $z = 3.12$, $p = .001$, $95\% CI = [0.07, 0.31]$; for weak identifiers: $b = 0.09$, $se = 0.06$, $z = 1.51$, $p = .132$, $95\%CI = [-0.03, 0.21]$, and the interaction term: $Q(1) = 1.29$, $p = .256$ (see Figure 7c).

Summary of key finding. On these preregistered meta-analyses designed to be a more rigorous evidence in the debate between SIMSA (Owuamalam et al., 2019a, 2019b) and SJT (Jost, 2019; Jost et al. 2019) researchers, over the hope basis for system justification, we find *strong* support for SIMSA's prediction that hope for future ingroup status increases system justification among strongly identifying women and feminists (see p. 37 and also Table 3 of our registered report). The opposing prediction from SJT that support for the system will be stronger among weak identifiers in the no-hope (vs. hope) condition received neither a *strong* support (as per the absence of a reliable 95% CI for the corresponding meta-analyzed estimate), nor a *weak* support (as per the null positive [not negative] meta-analyzed effect of hope on system justification among weakly identifying women; see p. 37 and also Table 3 of our registered report).

5 | GENERAL DISCUSSION

Why do women support social and economic realities that are disadvantageous to the interests of their gender group? Here, we provide a registered test of two competing explanations for this paradox based on system justification theory and social identity theory. The social identity model of system attitudes (SIMSA; Owuamalam et al., 2018a, 2019a, 2019b) proposes that women engage in system justification because it serves their social identity needs. That is, women may support social and economic systems in the hope that these systems will offer an opportunity for their ingroup to advance up the social and economic ladder in the future. Accordingly, we deduced from SIMSA that such a tendency ought to be most visible among those women who are strongly invested in their gender identity. System justification theory (SJT), on the other hand, proposes that system justification serves system-level interests rather than group interests and, therefore, it predicts that system justification should be most visible among weakly identifying women, especially when the systems in question are relatively stable and therefore offer little hope for a future positive change to ingroup status.

Although our proof-of-concept experiments (Studies 1–2) offered *some* tentative support for SJT, they provided stronger support for SIMSA. In addition, there were shortcomings in those studies that necessitated a highly powered registered replication that addressed the relevant pitfalls (see our registration document). The results from our registered replication (Study 3) were clear. Consistent with SIMSA, we found that, even in the COVID-19 context where survival needs apparently trumped the search for a positive social identity, American women who were strongly invested in the feminist cause, and were hopeful (in both the short- and long-run) that

things will get better for women, supported social and economic arrangements that favored men more than women, compared to their less hopeful counterparts. Hence, our results complement an emerging body of evidence that shows that it is strong identifiers (not weak identifiers) whose hope for a positive future social identity permits them to hold stronger system legitimatizing attitudes (see also Blount-Hill, 2020; Brandt et al., 2020).

In contrast, and contrary to SJT, we did not observe a consistently reliable trend towards system justification among weakly identifying (feminist) women who were exposed to a relatively stagnant economic order that offered little hope for ingroup advancement, compared to their counterparts in the hope condition. These patterns of results were corroborated in a meta-analysis that yielded a null evidence for SJT's system motive argument, and this is difficult to dismiss on the grounds that system justification was not assessed at the unconscious level (see Owuamalam et al., 2018b).

The results for strongly identifying women are remarkable because strongly identifying women are the ones who are envisaged by both SJT and the traditional reading of social identity theory (Tajfel & Turner, 1979) to be most likely to oppose systems that undercut their group's interests. The largely negative relationship between group identification and system justification across Studies 2–3 supports this traditional assumption. However, the fact that strong identifiers showed a tendency towards system justification when conditions were ripe for the hope mechanism to operate underscores SIMSA's argument that an outgroup-favoring tendency among the disadvantaged is traceable to social identity needs. Hence, contrary to the existing dogma, strongly identifying members of disadvantaged communities seem capable of strategic engagement with societal systems that ostensibly undercut their group's outcomes. Importantly, such group members might act as “partners for peace” so long as there exists some *credible* glimmer of hope for a better future for their ingroup, even if they have to wait for a longer period for it to materialize. In short, we show that the tendencies to (a) resist and (b) strategically engage with the status quo can coexist among members of disadvantaged groups who are strongly invested in their social identity.

That being said, it is important to note that an anticipated long wait for future improvements in ingroup status may be thwarted by situations that prompt a more immediate response to social injustice. For example, Study 3 was conducted amidst the clamor for “justice now” over the brutal killing of George Floyd at the hands of law enforcement officers in the US. In this context, we showed that the climate of *imminent* change that swept through America may have prompted women to also feel that the time for gender equity is now rather than later. This mindset could help to explain why women who were strongly identified with the feminist cause felt the need to cling on to a longer-term hope of future gender equity with respect to their support for the status quo *only* when they were not consumed by a credible feeling of an imminent change to the status quo. Future studies could test these speculations more directly.

6 | CONCLUDING REMARKS

The answers to two questions summarize the outcome (and contribution) of the present research. Firstly, can social identity motives explain women's support for economic (and socio-political) realities that run counter to the interests of their gender group? Given the current evidence, the answer to this question is yes. Across Studies 1–3, we showed that women (especially those who are strongly invested in their gender identity) supported their (and socio-political) systems to a greater extent when they were hopeful that such arrangements could offer an opportunity for their gender group to advance up the socio-economic ladder in the future. This evidence supports the SIMSA perspective. Secondly, does a system justification motive offer a satisfactory explanation for the paradoxical system-justifying tendencies among women? Given the current results, the answer to this question is no. The system justification motive is theorized to be operational in the specific conditions of weak group identification and a stable system of inequality that offers little (or no) hope for future ingroup advancement. Under these conditions, we did not find consistently reliable evidence that women were more supportive of economic (and socio-political) arrangements that are detrimental to their personal/group's interest. In short, we show that the promise of a positive future social identity was a stronger (more reliable) explanation than a system motive for system justification among women.

ETHICAL STATEMENT

The program of research reported here fulfilled the ethical requirements for conducting research with humans, as set forth in the British Psychological Society's ethical guidelines. It also received approval from the Faculty of Arts and Social Sciences ethics committee at the University of Nottingham Malaysia. A copy of our ethics approval is shown the OSF page for our project registration (see <https://osf.io/tjgxz/> under "Study 3 registration materials"). Participants were briefed about the basics of these studies, and they then completed a digital form to indicate their informed consent to take part. Participants were debriefed of the purpose of the experiment afterwards.

CONFLICTS OF INTEREST

The authors declare no conflict of interest with regards to funding, the research itself and the preparation of the current manuscript.

TRANSPARENCY STATEMENT

Data for the analyses reported in this report are publicly available in OSF (see <https://osf.io/tjgxz/>).

DATA AVAILABILITY STATEMENT

The project is hosted on OSF and can be accessed via <https://osf.io/tjgxz/>. Project materials on this page include:

1. Materials and Variables Lists for Studies
2. Monte Carlo (MC) Simulations

3. Meta-Analysis
4. Project Datasets
5. Study 3 Registration Materials
6. Transparency Files

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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APPENDIX A

Type of analysis	Sample size	α	1- β	f	η_p^2
ANOVA 2 (hope) \times 3 (satisfaction cue) \times 2 (identification) ^a	200	0.05	0.80	0.221	0.046

^aThere is no standard way to compute effect size for ANOVA with categorical \times continuous between-participant variables interaction. In our sensitivity analysis, we considered the continuous measure (group identification) as binary (i.e., high vs. low identifiers).

TABLE A1 Power sensitivity test for Study 1

TABLE A2 Other demographic information for Studies 1–3

	Ethnicity		Household income		Highest education	
	Groups	Numbers	Brackets	Numbers	Program	Numbers
Study 1	Whites	130	\$29,999 or less	51	Middle/high school	19
	Blacks	13	\$30,000–49,999	40	Some college	45
	Hispanic/Native	28	\$50,000–\$99,999	75	2-year degree	20
	Asians	9	\$100,000–\$149,999	28	4-year degree	84
	Mixed	11	\$150,000 or more	5	Postgraduate degree	32
	Not stated	9	Not stated	1		
Study 2	Whites	136	\$29,999 or less	50	Middle/high school	19
	Blacks	20	\$30,000–49,999	50	Some college	58
	Hispanic/Native	18	\$50,000–\$99,999	72	2-year degree	25
	Asians	6	\$100,000–\$149,999	18	4-year degree	64
	Other/Mixed	10	\$150,000 or more	10	Postgraduate degree	34
	Not stated	10				
Study 3	Whites	414	\$29,999 or less	179	Middle/high school	91
	Blacks	71	\$30,000–49,999	145	Some college	161
	Hispanic/Native	50	\$50,000–\$99,999	234	2-year degree	56
	Asians	95	\$100,000–\$149,999	95	4-year degree	262
	Other/Mixed	50	\$150,000 or more	45	Postgraduate degree	130
	Not stated	20	Not stated	2		

TABLE A3 The effect of hope induction on short- and long-term system stability

	Hope induction		t value	p-value	95% CI		d _{Cohen}
	No-hope	Hope			Lower limit	Upper limit	
Study 2							
Short-term stability	5.69 (1.17)	4.55 (1.47)	6.04	<.001	0.77	1.51	0.86
Long-term stability	3.89 (1.50)	2.31 (1.10)	8.53	<.001	0.91	1.52	1.22
Study 3							
Short-term stability	5.96 (1.18)	4.30 (1.38)	17.08	<.001	1.13	1.46	1.30
Long-term stability	4.70 (1.55)	2.85 (1.35)	16.87	<.001	1.11	1.44	1.28
	Hope condition						
	Short-term stability	Long-term stability					
Study 2							
Stability contrast within the hope condition	4.55 (1.47)	2.31 (1.10)	15.31	<.001	0.85	1.23	1.20
Study 3							
Stability contrast within the hope condition	5.13 (1.53)	3.77 (1.72)	24.30	<.001	0.87	1.10	0.93

Note: Under the hope conditions, values in parentheses are standard deviations and those outside parentheses are means.