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Positive Temporal Comparison Facilitates a Hope-Induced System Justification amongst Women --Manuscript Draft--

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Positive Temporal Comparison Facilitates Hope-Induced System Justification amongst Women

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Abstract

We examined whether women's support for gender-based pay inequality (i.e., system justification) might be explained by hope. In particular, we considered whether such hope is likely prompted by positive temporal comparisons: It is entirely possible (even if previously untested) that the more women believe that their outcomes are getting better relative to what it had been at some point in the past, the greater their optimism about a better gender-based outcome could be, prompting women to support the systems that permitted such advancements. These central propositions were derived from the social identity model of systems attitude (SIMSA) and were corroborated in a correlational study involving 611 female healthcare professionals (Study 1). Study 2 (213 Italian- and 79 Spanish-women) offered a conceptual replication and extension of the evidence from Study 1: It showed that inducing positive temporal contrasts caused women's hope for a better gender-based outcome in the future to increase, consequently allowing them to support the prevailing gender-system.

Keywords: Gender system justification, economic system justification, hope, temporal comparison, SIMSA, women

Positive Temporal Comparison Facilitates Hope-Induced System Justification in Women

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4 The psychosocial reasons for supporting prevailing realities that place one's group in a
5 disadvantaged position has received a lot of theoretical (even if scant empirical) attention in the last
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8 few decades, not surprising because it seems like an irrational thing to do (when considered from
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10 the narrow lens of material interest). So, until recently, the system justification theory (SJT, Jost &
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12 Banaji, 1994) with its explanatory focus on non-rational motives/false consciousness has dominated
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14 discussions around this topic. According to SJT, people are motivated to positively evaluate not
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16 only the self and the ingroup, *but also* the system in which they live (Jost, 2020; Liaquat et al.,
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18 2023), even when such systems create unfavorable outcomes for them (Jost & Hunyady, 2005).
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21 This latter system justification motivation represents an important addition to the social and
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23 political psychology literatures because it separated SJT from other classic interest-based theories in
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25 the field that focus only on self and group interests (e.g., the cognitive dissonance theory, Festinger,
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27 1959; the social dominance theory, Pratto et al., 1994; the social identity theory, Tajfel & Turner,
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29 1979). Ironically, however, SJT's system justification motivation that should be antagonistic to
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31 individual and group motives (of the disadvantaged at least), is also theorized as serving other
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33 existential, epistemic, and relational needs for people (including the disadvantaged, e.g., uncertainty
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35 and threat avoidance, having positive relationship with other), even though these needs continue to
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37 maintain a constant connection to individual and group motives (see Owuamalam et al., 2019a for a
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39 similar argument).
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Literature Review

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49 Given the foregoing theoretical inconsistencies around the so-called system justification
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51 motive (see also Owuamalam et al., 2016, 2018, 2019a, 2019b), numerous unsupportive
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53 experimental findings (Owuamalam et al., 2021; Owuamalam & Spears, 2020) and evidence from
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55 large-scale nationally representative surveys (Brandt et al., 2020; Caricati & Sollami, 2018;
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59 Owuamalam, Tan, et al., 2023; Vargas-Salfate et al., 2018) have begun to raise questions about the
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1 existence of this new system motive. Hence, we leaned on a new social identity-inspired perspective
2 (Rubin et al., 2023a) for answers to the question of why women might support a system of gender-
3 based inequality that disadvantages them relative to men in many areas. According to this newer
4 social identity model of system attitudes (SIMSA; Rubin et al., 2023b, 2023a), several identity-
5 related needs can help to explain system justification amongst the disadvantaged, without resorting
6 to the system justification motive. Specifically, SIMSA assumes that system justification amongst
7 the disadvantaged could result from group-based needs, including ingroup favoritism at the
8 superordinate level; managing the ingroup's reputation; coping with dissonant needs; being aware
9 that the ingroup is sometimes better-off than other lower status groups, or even better-off than a
10 more privileged outgroup in some dimensions (e.g., women are often positioned higher than men on
11 the dimension of warmth/nurturing/friendliness). Importantly, SIMSA assumes that people
12 (especially the disadvantaged e.g., women) could also support prevailing systems (e.g., gender
13 inequality), because the reality sometimes compels us accurately report the status quo; or because
14 people might be hopeful that although the system isn't perfect right now, that it will eventually
15 correct itself by permitting a more befitting status for the ingroup in the long run. Note that this
16 conceptualization of *collective* hope is consistent with the literature on the effect of hope in
17 intergroup conflict, which shows that optimism about the future is pivotal in the transformation of
18 intergroup attitudes. Indeed, hope is positively associated with reduction of intergroup conflict,
19 fosters conciliation /conflict resolution attempts (e.g., Cohen-Chen et al., 2019; Halperin et al.,
20 2008; Lala et al., 2014).

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48 **Research question:** SIMSA's hope explanation for system justification amongst the
49 disadvantaged (e.g., women) relies on an assumption that implicates the operation of
50 social/temporal comparison processes: People might be hopeful about their group's outcomes in the
51 future to the extent that they have assessed (or compared) what their situation is right now, to what
52 it had been in the past, with the outcome heading in the positive direction.
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Could this be critical to maintaining a (realistic) hope versus pessimism? That is, can positive temporal comparisons help to explain why women might be hopeful that gender pay inequality could narrow in the future? Is it possible that women might then support a system of gender pay inequality because the positive temporal comparisons that they have made help to fill them with hope that the current system will correct itself in the future?

Answers and Gaps in the Evidence

The SIMSA literature is still in its infancy, beginning recently in the last 8 years, with the formal statement of the framework in later years (Owuamalam et al., 2018, 2019b, 2019a; Rubin et al., 2023a; 2023b). Since then, only 3 empirical research papers as far as we are aware (1 weakly powered study: Owuamalam et al., 2016; 1 registered study; Owuamalam et al., 2021; 1 correlational study with a population of gender non-conforming individuals, Bonetti et al., 2021) have corroborated SIMSA's hope explanation for system justification amongst the disadvantaged. Specifically, women (Owuamalam et al., 2021); individuals who self-identified with the LGBTQIA+ community (Bonetti et al., 2021); and students who perceived their university to be relatively lower in status compared to other universities (Owuamalam et al., 2016, 2017), supported systems that were relevant to their group's disadvantage either when self-reported hope was high (Bonetti et al., 2021; Owuamalam et al., 2016), or when this emotion was experimentally induced (Owuamalam et al., 2021).

***Hypothesis 1.** Based on the foregoing evidence, we expected too that female participants in the current study would show greater support for gender inequality the stronger their hope about the ingroup's prospects is.*

It is important to note, however, that as intuitive as the foregoing prediction might be, none of the previous tests have formally considered the question of what psychological processes enlist the hope mechanism that prompts enhanced system justification. This is a pertinent question precisely because a recent criticism of SIMSA (e.g., Jost, 2019) has raised the issue of why members of groups facing severe (even persistent) deprivation should *realistically* hope that things will get

1 better in the future. Although Owuamalam et al. (2021) provided some *indirect* indication that
2 situations that encourage hope (e.g., when the gender pay system is seen as stable in the short-run
3 but unstable in the long-run) tend to bolster women’s support for gender pay inequality, critics may
4 find this indirect evidence unsatisfactory because positive temporal contrasts were not directly
5 measured. We address this contentious gap in the literature, by measuring positive social/temporal
6 comparisons as a possible reason why women could be hopeful of better gender-based outcomes
7 and consequently support the prevailing gender pay inequality, despite their persistent disadvantage
8 relative to men. But why might positive social/ temporal comparisons antecede hope for future
9 ingroup status?
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21 **Social/Temporal Comparisons**

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24 The idea that temporal comparison can exert a profound influence people’s beliefs, attitudes,
25 feelings and behavior is deeply rooted in Festinger’s (1954) social comparison theory, from which
26 numerous psychological theories draw an inspiration. For example, within the social identity
27 tradition, the idea that people’s attitudes, feelings and/or behavior towards ingroups, outgroups or
28 the system in which they reside can be influenced by social comparison is not new (see e.g., the
29 Triadic Social Stratification Theory, TSST, Caricati, 2018; Caricati & Owuamalam, 2020; and more
30 recently SIMSA, see Rubin et al., 2023b, 2023a). The underlying idea behind SIMSA’s view in this
31 respect is that the comparison we make between our ingroups and relevant outgroups can influence
32 how we feel and interact with our social systems. Under this framework, a positive social
33 comparison with others in a system is envisaged as being capable of elevating our mood, because it
34 shows that there are others that are worse-off than we are. Consequently, the positive affect
35 generated by this favorable contrast is assumed to motivate support for the system that made it
36 possible for people to feel good in this way (Caricati, 2018; Caricati & Owuamalam, 2020). In
37 contrast, a negative (or unfavorable) social comparison is assumed capable of souring people’s
38 mood, precisely because it undermines optimism about one’s self/group-worth relative to others
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1 who are a better-off within the system. That is, feeling worse-off than others, is theorized as being
2 capable of instigating a desire for change.
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4 Recent reformulation within the social identity tradition has extended the idea of social
5 comparisons in intergroup dyads to time-dependent intra-group processes, to account for temporal
6 contrasts that people sometimes make between their past group selves and their present/future
7 collective selves (see also Albert, 1977). For example, in a large nationally representative cross-
8 sectional study, Caricati et al. (2021) found that when people judge their current outcomes to be
9 better than their own past outcomes, or those of their family members, they tended to also trust in or
10 support the system that enabled this favorable comparison. Although informative, Caricati et al.'s
11 (2021) correlational evidence seemed limited to intra-individual level of analysis, while, the social
12 identity tradition focuses on group-level phenomena, with the implication that supportive evidence
13 for SIMSA (a social identity perspective) ought to manifest most strongly at the intergroup level of
14 analysis. While works on group-level temporal comparison are still scarce in literature, it has been
15 shown that temporal relative deprivation felt at the personal level negatively effects group-based
16 outcomes such as reduced collective esteem (e.g., De La Sablonnière et al., 2009).
17 In the current study, therefore, we build on these evidences and on Caricati et al.'s (2021) example
18 to argue, and empirically demonstrate that favorable temporal comparisons occurring at the group
19 level can also positively impact mood (e.g., optimism about the future).
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43 ***Hypothesis 2.*** *We predicted that positive temporal comparisons will be positively associated*
44 *with hope for future ingroup advancement.*
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48 A crucial point that we would like to make beyond the foregoing prediction is that the temporal
49 comparison-cum-hope mechanism ought to then enable the downstream support for systems that are
50 connected to this positive comparison. That is, the positive emotion of hope should help to explain
51 the anticipated link between thoughts/cognition (temporal comparisons) and behavioral orientation
52 (i.e., support for gender inequality). In short, we propose that women are likely to support unequal
53 gender status quo to the extent that a favorable contrast between their gender-based outcomes at
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1 present, relative to their past (or looking ahead into the future) fills them with a realistic feeling of
2 hope that things will eventually get better for them and their gender group.
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4 ***Hypothesis 3.*** *Hope for future ingroup advancement is expected to mediate the relationship*
5 *between positive temporal comparisons and system justification.*
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9 Again, although to the best of our knowledge, there is no previous (direct) evidence for the
10 foregoing mediational effect in the context of system justification, some evidence show that
11 optimism *does* mediate the relationship between social change beliefs and support for actions to
12 reduce intergroup conflict (e.g., Cohen-Chen et al., 2015).
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19 **Overview of the present research**

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21 In this study, we investigated the factors that contribute to a hope for a future ingroup status-
22 induced system justification among the disadvantaged and considered women as a historically
23 disadvantaged group relative to men, especially in the so-called gender pay gap. Indeed, albeit some
24 changes have occurred in the gender pay gap in the last decades (i.e., it has some instability), gender
25 pay gap appear to be still largely diffused and supported (i.e., strong social constrains). For example,
26 according to Pew Research Center (2020) the women earning percentage with respect to men
27 increased from 65% in 1980 to 84% in 2018, but tended to stabilize in the last two decades
28 (Kochhar, 2023). We reasoned that a realistic optimism for a future ingroup status could be rooted
29 in the favorable temporal comparisons that women make regarding their gender group's past and
30 present outcomes and, consequently, that this positive feeling might influence their support for the
31 gender status quo. We tested this central idea in two studies.
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48 In Study 1, we used a cross-sectional design with a sample of women working in a hospital.
49 We measured their perceived changes in gender equality in the last 20 years (i.e., temporal
50 comparison). We then investigated the relationship between this temporal contrasts and gender
51 system justification, while considering the mediating role of hope for future ingroup status. In Study
52 2, we experimentally manipulated the temporal stability of the gender pay gap to enable a causal
53 inference. We wanted to see if this treatment would cause women's justification of the gender
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1 system to increase, and whether such an effect might be because the favorable contrasts also caused
2 optimism about their future ingroup status to increase. Study 2, in addition, considered the
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4 importance that women attached to these comparisons as a potential moderator. Generally, we
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6 hypothesized that justification of the gender status quo should increase amongst women for whom
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8 temporal comparisons are positive (Studies 1 and 2), because such favorable contrasts are likely to
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10 enhance hope about their gender group's future status (Studies 1 and 2).
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14 **Study 1**

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16 Here, we anticipated that the more women perceived that gender equality has improved over
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18 the years (i.e., positive temporal comparison), the more strongly they should endorse the gender
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20 status quo, due to an increase in their hope that the ingroup is able to advance in the future. These
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22 hypotheses were tested in a cross-sectional study amongst female professional healthcare workers in
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24 Italy.
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28 **Procedure and participants**

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30 We took the opportunity created by the first authors' involvement in a large survey of job-
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32 family balance of healthcare professionals in northern Italy, to include some scales that are relevant
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34 to a test of the current predictions. A questionnaire was sent to all hospital staff using internal mail
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36 which contained a link that redirecting participants to the current survey. Participation was
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38 anonymous, voluntary, and with no reward. In total, there were 901 attempts at completing the
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40 questionnaire, but only 691 were made by women. Of this number, 80 either completed only the
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42 initial aspects of the survey requiring participants' sociodemographic information or supplied
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44 answers to no items. These two cases were excluded from the analysis. The analyzed database
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46 therefore comprised 611 women. Missing values were imputed with multiple imputation with the
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48 predictive mean matching algorithm. We imputed 20 different datasets that were then used in our
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50 subsequent analyses. We pooled results from each dataset using Rubin's (1987) procedure. The
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52 mean age of the sample was 45.30 years ($SD = 10.28$, range = 23-63). One-hundred and three
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54 (16.9%) were physicians, 297 (48.6%) nurses, 65 (11%) health care operators, 8 physiotherapists,
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13 (2%) obstetricians, 36 (6%) technicians, 15 (2.5%) biologists, and 74 (12%) had another profession.

Measures

Temporal comparison was measured with a single item, that was similar to the operationalization used by De La Sablonnière, et al., (2009): “Compared to 20 years ago, how do you think the equality between men and women is today?” Responses on this item were obtained on a 7-point Likert-type scale (1 = *much worse*; 7 = *much better*).

Hope for future ingroup advancement was measured with three items that were taken from Owuamalam et al. (2021): “I have hope that men and women will be treated equally in a few years”, “I am hopeful that women will achieve equality with men in a few years”, and “inequality between men and women will never disappear” (reverse scored). Participants indicated the extent to which they agreed or disagreed with each statement on a 7-point Likert-type scale (1 = *totally disagree*; 7 = *totally agree*, $\alpha = .67$). Although reliability is slightly lower than desirable (even though many recommend a threshold of .65 as an acceptable level of internal consistency, Hair et al., 2014; Taber, 2018), it is nonetheless worth noting that Cronbach’s alpha is sensitive to the number of items in a scale. That is, reliability tend to decrease when the number of items are few, as it is in this case (Cortina, 1993; Schmitt, 1996).

Gender system justification was measured with Jost and Kay’s (2005) 8-item scale that has been previously applied to the Italian context by Owuamalam et al. (2023): Items included, for example, “The division of labor generally operate as it should” and “Women and men have a fair shot at wealth and happiness.” Again, responses were obtained on a 7-point Likert-type scale (1 = *totally disagree*; 7 = *totally agree*, $\alpha = .71$).

Results

Preliminary analysis

Zero-order correlations are shown in Table 1 along with descriptive statistics. As indicated, all measures were positively and significantly correlated, but none of the correlations was strong

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enough to raise discriminant validity concerns. On the whole, women tended to justify the existing system to some degree, were not so hopeful with respect to future gender equality and perceived a moderate improvement of gender equality over years, as indicated by means scores on these 3 variables that were below the midpoint of the respective scales (i.e., 4). Nonetheless, our arguments are not that the envisaged processes would emerge when the degree of endorsement of these variables is at the maximum levels. Rather, our arguments are based on their being some inclination towards these psychological states to begin with. This latter assumption guided our approach in moving forward with a formal test of our hypotheses.

Table 1.

Zero-order correlations and descriptive statistics of measured constructs (Study 1)

	<i>M</i>	<i>SD</i>	1	2	3
1 Gender system justification	2.93	0.95	-	0.47**	0.40**
2 Hope	3.33	1.43		-	0.44**
3 Positive temporal comparison	3.99	1.48			-

N = 611. Based on 20 imputed datasets.

Hypothesis testing

The current hypotheses were tested with lavaan package (Rosseel, 2012) in R software (R Core Team, 2023) using path analysis approach with maximum likelihood estimation and robust standard error; lavaan.survey package (Oberski, 2014) was used to pool results across datasets. We initially checked whether adding some demographics as covariates would affect results. Specifically, we added profession (nurses and physicians vs. others), having children (0 = no) and age as covariate. No significant effects emerged for the covariates and the other results were also relatively unaffected by their inclusion. So, these covariates were no longer considered in subsequent analyses. Paths are showed in Figure 1 and unstandardized results are displayed in Table 2. As expected from hypotheses 1 and 2, positive temporal comparison was positively related to both hope ($\beta = .44, p < .001$) and gender system justification ($\beta = .24, p < .001$). Moreover, hope was positively associated with gender system justification ($\beta = .36, p < .001$). Consistent with

hypothesis 3, the positive association between temporal comparison and gender system justification was reliably explained by a more optimistic outlook (i.e., hope) for this ingroup in the future ($\beta = 0.16, p < .001$).

Table 2.

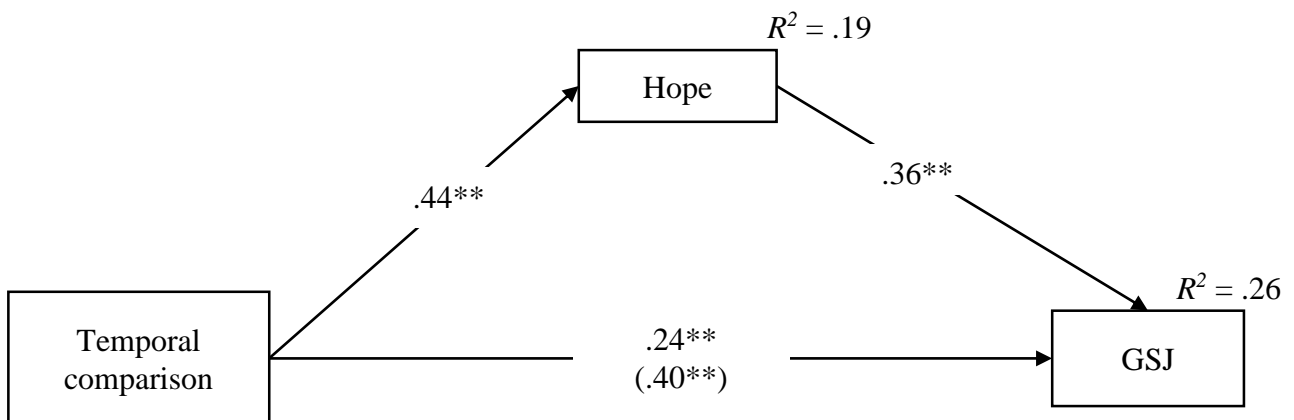
The Indirect Effect of Temporal Comparisons on Gender System Justification via Hope.

	<i>b</i>	<i>se</i>	95%CI low	95%CI high
Gender system justification (GSJ)				
Hope	0.24**	0.03	0.18	0.30
Temporal comparison	0.16**	0.03	0.10	0.22
Hope				
Temporal comparison	0.43**	0.04	0.34	0.51
Indirect effect				
Temporal comparison -> hope -> GSJ	0.10**	0.02	0.07	0.13
Total effect	0.26**	0.03	0.20	0.32

** $p < .001$. $N = 611$. Result represents the pooled outcome of 20 imputed datasets (original N -size = 611). Unstandardized Estimates are reported.

Figure 1.

Standardized estimates from predicted model.



Note. GSJ = Gender system justification. Result represents the pooled outcome of 20 imputed datasets (original N -size = 611). Standardized coefficients are reported. ** $p < .01$.

Further analyses

One difficulty with mediation models that are based entirely on correlational evidence is that the direction of causality is often unclear, especially when competing theory-driven pathways are possible. For instance, it is entirely conceivable that gender system justification actually predicts hope because satisfaction with the status quo could reflect optimism that the “struggle” for ingroup advancement is in the safe hands of the future generation, given their knowledge of progress on gender-related issues today relative to how it had been in the past. Hence, an alternative model could envisage a positive association between gender system justification (as focal predictor) and hope for future ingroup status (as distal outcome) that is explained by favorable temporal contrasts.

We compared this alternative model (i.e., gender system justification → positive temporal comparisons → hope, see Table S1 in supplementary material) with our preferred model (shown in Figure 1), by examining differences in AIC and BIC between them, given the non-nested nature of these models. Results showed that the original model had a better fit to the data compared to the alternative model because it showed considerably lower¹ AIC and BIC values (see Table 3).

Table 3².

Models' fit comparison.

	AIC	BIC	ΔAIC	ΔBIC
Model a (predicted model)	3539.099	3570.004		
Model b (alternative model)	4074.413	4105.319	535.314	535.314

Discussion

Results of Study 1 are supportive for the hypothesis that positive temporal comparison increases hope and subsequent justification of the gender status quo among women. Indeed,

¹ Hu and Bentler (1999) interpretation of changes in AIC and BIC favours models with lower values on these indices.

² One reviewer raised the issue that people with strong hope could be more likely to perform positive temporal comparison. Given that this may be the case, we tested a further hope → temporal comparison → gender system justification model. Results indicated that, although this alternative model is plausible, its AIC (3577.99) and BIC (3608.90) values were still greater than those from our preferred model.

1 believing that gender equality has increased was correspondingly associated with an increase in
2 hope that gender relationship could further improve in the future, and this positive outlook
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4 increased women's inclination to support the gender system. Given the correlational nature of the
5 data, we tested alternative models of relations between the variables in our model, finding that the
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7 preferred one was superior. This latter analysis, in particular, indicates that gender system
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9 justification is better conceived as an outcome rather than an antecedent in the dataset that we
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11 considered.
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16 A further difficulty with Study 1 is that temporal comparison was operationalized
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18 *subjectively* with the potential to conflate a hope-induced system justification (of interest here) and
19 an uncertainty-induced system justification (Jost et al., 2004). Uncertainty is often theorized under
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21 the system justification tradition (Jost et al., 2004) as a necessary catalyst for an increased system
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23 justification. Because subjective measurements create room for doubt (i.e., uncertainty), it is
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25 possible that the temporal contrasts in Study 1 could have induced uncertainty (in addition to hope),
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27 making it difficult to pinpoint exactly whether it is the uncertainty or hope mechanism that is the
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29 dominant process in the context. One way of diluting the operation of the uncertainty mechanism is
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31 perhaps to adopt an objective measurement of temporal contrasts, given that a more clearcut
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33 depiction of the facts concerning fluctuations in the gender hierarchy should give little room for
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35 doubt/uncertainty. Therefore, in Study 2, we focused on objectively-derived temporal contrasts by
36
37 presenting women with ostensible facts about the fluctuations in gender pay gap in the past and
38
39 present. We investigated the impact of this treatment on a hope-induced gender (and economic)
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41 system justification.
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51 Another potential caveat in Study 1 is that other realities that often covary with temporal
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53 contrasts (e.g., the importance of the evaluation itself) were unaccounted for. Temporal contrasts
54
55 are likely to be meaningful and can influence mood and attitude to the extent that such evaluations
56
57 are personally relevant. In short, it was unclear in Study 1 whether the associations between positive
58
59 temporal comparisons, hope, and system justification were also evident among women for whom
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1 these contrasts are less meaningful. Indeed, research has shown that the effect of *situational*
2 comparisons (e.g., people's attempt to infer or judge their abilities from those of others) tends to be
3
4 visible only when the comparison in question is meaningful to people (e.g., Gerber et al., 2018;
5
6 Kamarova et al., 2021). Hence, the impact of *temporal* comparison could also depend on how
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8 relevant such evaluations are for women (e.g., Kruglanski & Mayseless, 1990), which we examined
9
10 this assumption on an exploratory basis.
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14 Taken together, we anticipated that an objectively derived positive temporal judgements
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16 should be more likely to generate a realistic hope about the group's future status, especially among
17
18 those women for whom such evaluations are highly relevant. The resulting optimism in this context
19
20 should then be associated with an increase in system justification.
21
22

23 24 **Study 2**

25
26 In this study, we tested the idea that positive temporal comparisons would increase hope,
27
28 especially when temporal comparisons are also considered as relevant. To operationalize objective
29
30 positive (vs. negative) temporal comparisons, we manipulated the temporal instability (vs. stability)
31
32 of the gender pay gap. We did so by exposing women to made-up facts ostensibly indicating that
33
34 the pay gap disfavoring women relative to men has remained the same in the past and present times.
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36 We expected this condition to enlist negative comparisons that should work against the induction of
37
38 hope for a future ingroup advancement (see Owuamalam et al., 2021). In a different condition, we
39
40 exposed women to fictitious data indicating that the gender pay gap between men and women is
41
42 reducing at present compared to what it was in the past. We anticipated that this treatment should
43
44 engender an objectively-derived positive temporal comparison, which should intensify the
45
46 experience of hope (Owuamalam et al., 2021). As in Study 1, we anticipated that hope should be
47
48 positively associated with system justification (hypothesis 1) and that a positive temporal contrast
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50 enabled by the experimental treatment should cause hope to increase (Hypothesis 2), especially
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52 amongst women for whom such evaluations are self-relevant (Hypothesis 4). Finally, the
53
54 anticipated effect of (objective) temporal contrasts on gender system justification should be
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1 explained by hope, with this indirect effect being especially visible amongst those women for whom
2 such contrasts are of paramount importance/relevant (Hypothesis 3; i.e., we expected a moderated-
3 mediation effect, Hayes, 2018)
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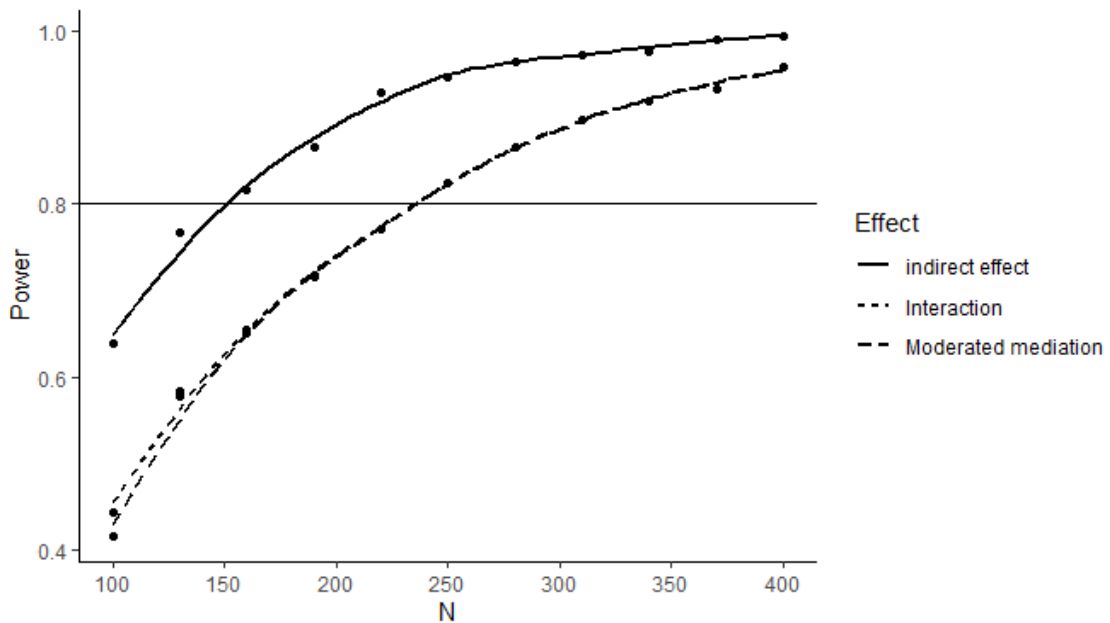
7 8 **Method** 9

10 **Power analysis** 11

12 One goal of Study 2 was to verify the moderating effect of the *personal relevance of*
13 *temporal comparison* with respect to the relationship between objective temporal contrasts and
14 hope, as well as the conditional mediation effect of hope on the association between objective
15 temporal contrasts condition and system justification. Given the complexity of the proposed model
16 and the lack of a direct method to estimate the required sample size, we used a Monte Carlo
17 simulation with 1,000 replications while applying a Monte Carlo bootstrapped 95% CI as a criterion
18 to determine statistical power. It is worth noting that while bootstrap resampling can be considered
19 a special case of Monte Carlo simulation, resampling works by taking multiple samples from an
20 *existing sample of data*. Monte Carlo simulation (and Monte Carlo bootstrap too), however, works
21 on abstract theoretical distribution (e.g., Beasley & Rodgers, 2012). Thus, Monte Carlo simulation
22 offers a flexible option to estimate statistical power for complex study designs and specific
23 parameters (e.g., Donnelly et al., 2022). More precisely, we targeted the sample size to detect an
24 interaction effect of $\beta = 0.25$ with a power of 80% using simsem package (Pornprasertmanit et al.,
25 2021) in R (R Core Team, 2023; see also Donnelly et al., 2022). Considering results from Study 1,
26 we set the standardized effect of temporal comparison on hope to $\beta = 0.44$, and the standardized
27 effect of hope and condition on gender system justification at $\beta = 0.36$ and $\beta = 0.24$ respectively.
28 Simulation results indicated that about 250 participants would be sufficient to obtain the targeted
29 power for both interaction and conditional mediation effects (see Figure 2).
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57 Figure 2.

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59 *Power analysis resulting from Monte Carlo simulation*
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We collected 166 responses from Spain and considered only the 81 responses provided by participants who self-identified as women, with 2 participants who exited the questionnaire at the beginning being excluded from this count. In Italy, the total tally was 329 of which 216 self-identified as women. In this second sample, 1 participant did not terminate the procedure and 2 participants did not provide consent to take part after debriefing. In short, we analyzed data from 213 Italian women and 79 Spanish women ($M_{age} = 26.27$, $SD_{age} = 7.96$, range = 18-58; $M_{Italy} = 26.69$, $SD = 8.16$; $M_{Spain} = 25.13$, $SD = 7.32$), which, combined surpassed the minimum number of cases estimated in the power analysis.

Procedure and participants

The research was conducted in Italy and Spain. University students from humanity departments (excluding psychology) were invited to take part in a survey about the gender pay gap and gender differences at the workplace. The invitation to participate was sent via institutional mailing lists, which was completed voluntarily, anonymously and without any monetary compensation (this research was approved by University's IRB. Prot. nr. 0064712).

Manipulating objective temporal contrast. Participants were presented with a bogus newspaper article ostensibly about changes in the gender pay gap in Italy/Spain from 2000 to 2021.

1 The article explained that the gender pay gap was either unchanging (i.e., which we assumed will
2 foster a negative temporal comparison with respect to glaring gender inequality at present) or
3
4 changing in the sense of narrowing the gender gap (i.e., and therefore expected to foster a positive
5
6 temporal comparison). Specifically, in both the negative (n = 146) and positive (n = 146) temporal
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8 contrast conditions participants read the following (in brackets are words presented in the negative
9
10 temporal contrast condition)³:
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12

13
14 The labor market can be a context of severe discrimination, particularly for women. In fact,
15
16 for women it is more difficult to reconcile work and family commitments especially when
17
18 they have children. That's not all: historically women have had to face stereotypes and
19
20 prejudices that have heavily affected their life, from childhood to the choice of studies and
21
22 then entry into the labor market. The latest ISTAT survey analyzed the evolution of the
23
24 differences between men and women in the labor market. What the survey found is that still
25
26 in 2021 there were differences between men and women, especially with respect to salary.
27
28 The good news [the bad news] is that the data showed a substantial reduction [stability] in
29
30 this inequality over time. Indeed, it appears that in Italy the gender pay gap has decreased
31
32 [has been stable] in the last 20 years. Among the many graphs shown in the ISTAT 2022
33
34 report, the one showing the trend in the wage gap between men and women is particularly
35
36 illuminating: in 2001 men earned on average (and for the same occupation) 27% more than
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38 women, in 2021 the difference fell [remained] to 10.7% [26.5%]
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46 In short, the data either highlighted a substantial reduction in the gender pay gap over time in the
47
48 positive temporal comparison condition or it showcased a persistent inequality over time in the
49
50 negative temporal comparison condition (see also Owuamalam et al., 2021 for a similar approach).
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53 We assessed the effectiveness of this manipulation by asking participants to indicate whether
54
55 gender differences in pay gap has either worsened or become much better over time using a Likert-
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60 ³ The original text was in Italian, and the English translation here was provided by an Italian research team member.
61 The Italian and Spanish versions are presented in supplementary material.
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1
2 type scale (1 = *worsened a lot*, 5 = *become much better*). Next, participants completed measures
3 similar to the ones in Study 1 as shown below.

4 **Measures**

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7 *System justification.* We measured this in two ways. Firstly, and for the sake of consistency,
8
9 participants were asked to complete the same 8-item *gender system justification* scale reported in
10
11 Study 1, which we had taken from the Spanish adaptation that was reported in De Lemus et al (2014
12
13 $a = .66$). In addition, (and to increase the relevance to economic inequality given the current focus
14
15 on gender pay gap) participants were asked to complete another 8-item *economic system*
16
17 *justification* scale that was taken from Jost & Thompson (2000): E.g., “I feel that different social
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19 groups earn the economic position they get” (1 = *completely disagree*, 7 = *completely agree*, $a =$
20
21 0.85).
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26
27 *Hope for the future ingroup advancement.* This was measured with 5 items that we adapted
28
29 from Owuamalam et al. (2021): Example items included “I am hopeful that women will achieve
30
31 equal pay with men in the next years”, and “Based on what I read, it is unrealistic to think that we
32
33 will ever be able to achieve equal pay for women in the future” (reversed scores). Responses were
34
35 obtained on a 7-point Likert-type scale (1 = *completely disagree*, 7 = *completely agree*, $a = .80$).
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40 *Relevance of temporal comparison.* This was assessed with 3 items, adapted from Chun et
41
42 al. (2018), asking participants to indicate how relevant it was to them personally to accommodate
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44 temporal comparisons in their evaluation of gender differences. Items included: “In economic
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46 matters, I think it is useful to compare past and existing gender differences”, “In economic matters,
47
48 I think it is useful to consider past and existing gender differences”, “In economic matters, I think it
49
50 is useful to stress comparison of past and existing gender differences”). Responses were on a 7-
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52 point Likert-type scale (1 = *completely disagree*, 7 = *completely agree*, $a = .66$).
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56 **Control variables**

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58 *Political orientation.* Past research has shown that system justification measures are sensible
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60 to people’s political orientation, with conservatives being more likely to justify the system than
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1 their liberal counterparts (e.g., Napier & Jost, 2008; Moscato et al., 2021; Caricati et al., 2023). To
2 account for the potential effect of political orientation, this variable was measured with a single item
3
4 (“In politics people sometimes talk of left and right. Where would you place yourself from 1 =
5 extreme left to 6 = extreme right?”).
6
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9 The full list of items on each scale together with the exact wording in Italian/Spanish
10 (juxtaposed with their English translations) are presented in supplementary material.
11

12
13 Participants were thoroughly debriefed on completing the study. In line with the Italian national
14 psychological association guidance for conducting research with human populations, participants
15 were given the option to consent to their responses being used once more following this
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Results

Preliminary analysis

Manipulation was checked via analysis of variance ANOVA considering objective temporal contrast (negative vs. positive) and sample (Italy vs. Spain) as independent predictors of perception of improvement/worsening of gender pay gap over time. Analysis revealed that the only significant effect was due to objective temporal contrast condition, $F(1, 288) = 40.12, p < .001, \eta_p^2 = .13$, indicating that participants, in both samples, were more likely to believe that gender equality was much improved in the positive temporal contrast condition ($M = 3.90, SD = 0.58$) than in negative temporal contrast condition ($M = 3.40, SD = 0.74$).

We then investigated zero-order correlations among variables (Table 4). As indicated, objective temporal contrast condition (0 = negative) was positively correlated with hope which in turn was positively correlated with both gender and economic system justification. No significant associations appeared between condition and system justification measures nor between relevance of temporal comparison and other measures. Importantly, objective temporal contrast condition and relevance of temporal comparison were uncorrelated indicating that they can be considered as orthogonal with respect to each other – an important assumption underlying an analysis of variance.

Table 4.

Zero-order correlations and descriptive statistics of measured constructs

	1	2	3	4	5	6
1. Hope	-					
2. Gender system justification	.32**	-				
3. Economic system justification	.21**	.63**	-			
4. Relevance of temporal comparison	.03	.08	.09	-		
5. Objective temporal contrast (0 = negative)	.36**	-.04	-.04	-.10	-	
6. Political Orientation	.12*	.15**	.10	-.02	-.09	-
<i>M</i>	3.99	2.98	2.21	4.32	0.50	3.11
<i>SD</i>	1.28	0.85	0.93	1.43	0.50	1.09

* $p < .05$; ** $p \leq .01$. $N = 292$.

Hypothesis testing

Hypotheses were tested using path analysis in which condition (dummy coded with 0 = negative objective temporal contrast) was the focal predictor, hope was the mediator and gender, and economic system justifications were the outcomes. Relevance of temporal comparison (centered at the grand mean) was added as a moderator of the path from temporal contrast to hope (see Figure 3 panel a). Political orientation was added as covariate in the model⁴. Analysis was done using maximum likelihood estimation with lavaan package (Rosseel, 2012) in R, and standard error of indirect effects was estimated with bootstrap procedure ($n = 5000$). Given that we collected data in two countries, we initially checked whether the tested model was equivalent across samples. More precisely, we compared a multi-group model in which regression coefficients were left free to vary across samples, with a multi-group model in which regression coefficients were forced to be the same across samples. Result revealed that the models were equivalent ($\Delta\chi^2(10) = 9.82$, $p = 0.456$, $\Delta AIC = 10.17$, $\Delta BIC = 46.94$) indicating that the effects among variables were not

⁴ Results with and without political orientation being added as a covariate were essentially the same.

1 significantly affected by the nationality of the sample. Thus, we collapsed the samples and ran a
2 subsequent analysis on the whole dataset.
3

4 Results are reported in Table 5. As expected from hypothesis 1, hope was positively
5 associated with both gender and economic system justification. According to hypothesis 2, hope
6 was stronger in the positive temporal contrast condition ($M = 3.90, SE = .21$) than in negative
7 temporal contrast condition ($M = 2.93, SE = .23, p < .001$). Importantly, and as expected, the
8 *relevance of temporal comparison* moderated the association between objective temporal contrast
9 and hope (hypothesis 4). More precisely, the difference in hope between negative and positive
10 objective temporal contrast conditions was *stronger* for those women who perceived temporal
11 comparison as highly relevant ($b = 1.20, SE = 0.18, p < .001$ vs. $b = 0.75, SE = 0.16, p < .001; \Delta b =$
12 $0.45, SE = 0.20, p = .026$). Moreover, according to hypothesis 3, hope was positively related to both
13 gender and economic system justifications. Furthermore, hope significantly mediated the
14 association between objective temporal contrast and both system justification measures. As
15 expected (hypothesis 3), the indirect effect of objective temporal contrast on gender system
16 justification via hope (e.g., conditional mediation) was stronger for women who assigned more
17 relevance to temporal comparison (indirect effect $b = .30, SE = .06, p < .001$) relative to those
18 women that assigned low relevance to it (indirect effect $b = .19, SE = .05, p < .001, \Delta b = .11, SE =$
19 $.05, p = .035$). Equivalent results were observed for economic system justification (indirect effect
20 for women high in temporal comparison relevance: $b = .21, SE = .06, p = .001$; indirect effect for
21 women low in relevance of temporal comparison: $b = .13, SE = .04, p = .003, \Delta b = .08, SE =$
22 $.04, p = .05$).
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51 Interestingly, unexpected results appeared from the direct effects of objective temporal
52 contrast condition for which gender system justification was stronger in the negative ($b = 1.94, SE =$
53 $.19$) than in the positive ($b = 1.65, SE = .21, \Delta b = .28, SE = .10, p = .004$) temporal contrast
54 condition. Similarly, economic system justification was higher in negative condition ($b = 1.46, SE =$
55 $.22$ vs. $b = 1.23, SE = .24, \Delta b = .23, SE = .11, p = .047$). This appears to be a suppression effect in
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1 which the increasing of system justification when objective temporal contrast is negative (which
 2 might be due to social constraints) is suppressed by the positive effect of increased hope in the
 3
 4 positive temporal contrast condition. The result is that the total effect of positive vs. negative
 5
 6 objective temporal contrast disappears.
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 8

9 Table 5.

10
 11 *Estimates from path analysis on predicted model.*
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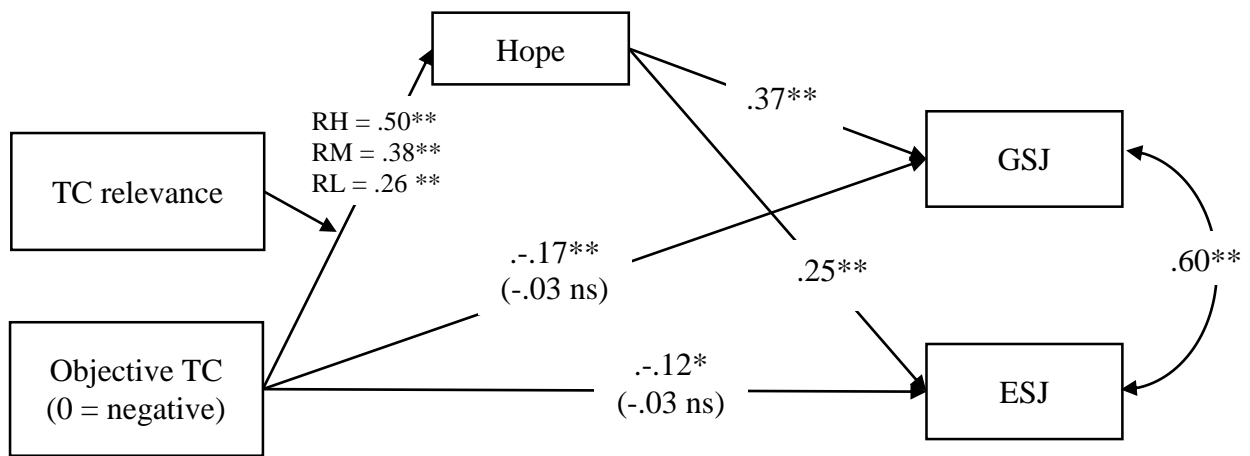
	<i>b</i>	<i>SE</i>	95%CI	β
Hope				
Objective TC (0 = negative)	0.97**	0.14	[0.70; 1.24]	0.38
TC relevance	-0.02	0.05	[-0.11; 0.08]	-0.02
Interaction	0.16*	0.07	[0.02; 0.29]	0.12
Political orientation	0.19**	0.06	[0.07; 0.32]	0.16
Gender system justification				
Objective TC (0 = negative)	-0.28**	0.10	[-0.48; -0.09]	-0.17
Hope	0.25**	0.04	[0.17; 0.32]	0.37
Political orientation	0.07	0.04	[-0.02; 0.15]	0.09
Economic system justification				
Objective TC (0 = negative)	-0.23*	0.11	[-0.45; -0.003]	-0.12
Hope	0.18**	0.05	[0.09; 0.26]	0.25
Political orientation	0.05	0.05	[-0.05; 0.15]	0.06
Indirect effects				
Objective TC -> Hope -> GSJ	0.24**	0.05	[0.15; 0.35]	0.14
Objective TC -> Hope -> ESJ	0.17**	0.05	[0.08; 0.28]	0.09
Conditional indirect effects on GSJ				
Low TC relevance	0.19**	0.05	[0.09; 0.30]	0.10
High TC relevance	0.30**	0.06	[0.17; 0.45]	0.19
Conditional indirect effects on ESJ				
Low TC relevance	0.13**	0.04	[0.05; 0.24]	0.06
High TC relevance	0.21**	0.06	[0.10; 0.35]	0.12
Total effects				
Objective TC -> GSJ	-0.04	0.10	[-0.24; 0.15]	-0.03
Objective TC -> ESJ	-0.05	0.11	[-0.27; 0.17]	-0.03

Note: TC = Temporal comparison; GSJ = Gender system justification; ESJ = Economic system justification. 95%CI are based on Monte Carlo simulation

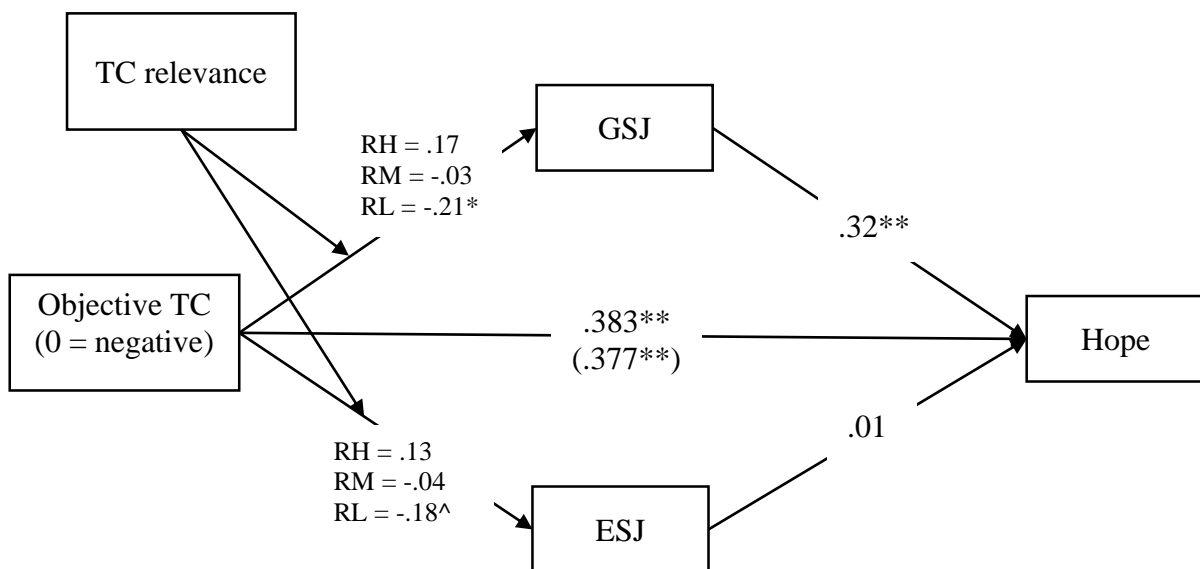
Figure 3.

Standardized estimates from predicted model (a) and alternative model (b).

a)



b)



1 * $p < .05$, ** $p < .01$. Standardized coefficients are reported. $N = 292$. Temporal comparison (TC)
2
3 relevance was grand-mean centered. GSJ = Gender system justification; ESJ = Economic system
4
5 justification; RH = High value of relevance of temporal comparison (+1SD); RM = Mean value of
6
7 relevance of temporal comparison; TL = Low value of relevance of temporal comparison (-1SD)
8
9

10 **Alternative causal direction**

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12 As in Study 1, we tested an alternative model in which objective temporal contrast condition
13
14 was directly linked to both gender and economic system justifications which in turn mediated the
15
16 relationship between objective temporal contrast conditions and hope (see Figure 3 panel b). Results
17
18 (Table 6) indicated that there was no direct effect of objective temporal contrast condition on both
19
20 gender and economic system justification. However, a significant objective temporal contrast
21
22 condition x relevance of temporal comparison interaction appeared for both measures of system
23
24 justification. Simple slope analysis showed that system justification was stronger when objective
25
26 temporal contrast was negative and when women put less importance on temporal comparison (b_{gsj}
27
28 = -0.27, $SE = 0.12$, $p = .020$; $b_{esj} = -0.25$, $SE = 0.13$, $p = .054$). When relevance of temporal
29
30 comparison was high, women were more likely to justify the system when objective temporal
31
32 contrast was positive, but this effect did not reach statistical significance ($b_{gsj} = 0.20$, $SE = 0.12$, $p =$
33
34 $.098$; $b_{esj} = 0.17$, $SE = 0.13$, $p = .22$). Both system justification measures did not mediate the
35
36 relationship between objective temporal contrast condition and hope which in turn was affected
37
38 directly by objective temporal contrast ($b = 0.98$, $SE = 0.13$, $p < 0.001$). No conditional indirect
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40 effect through system justification appeared also. Accordingly, Vuong's test for non-nested model
41
42 comparison revealed that the first model was significantly better fitted to the data than the
43
44 alternative model ($z = 5.11$, $p < .001$). On the whole, therefore, and reiterating the outcome of Study
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46 1, the test of this second (alternative) model indicates that system justification beliefs do not operate
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48 as mediators of the relationship between objective temporal contrast and hope. Above all, results
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50 from model (b) are supportive of a suppression explanation of the direct effect of objective temporal
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contrast on system justification beliefs, showing that hope is directly linked to objective temporal contrast in a way that seems unconnected to system justifying beliefs expressed by participants in this study.

Table 6.

Estimates from path analysis on alternative model.

	<i>b</i>	<i>SE</i>	95%CI	<i>beta</i>
GSJ				
Objective TC (0 = negative)	-0.03	0.10	[-0.22; 0.16]	-0.02
TC relevance	-0.03	0.03	[-0.10; 0.04]	-0.05
Condition x TC relevance	0.17**	0.05	[0.07; 0.26]	0.19
Political orientation	0.12**	0.05	[0.03; 0.21]	0.15
ESJ				
Objective TC (0 = negative)	-0.04	0.11	[-0.25; 0.17]	-0.02
TC relevance	-0.01	0.04	[-0.09; -0.06]	-0.02
Condition x TC relevance	0.15**	0.06	[0.04; 0.25]	0.16
Political orientation	0.09	0.05	[-0.01; 0.19]	0.10
Hope				
Objective TC (0 = negative)	0.98**	0.13	[0.72; 1.23]	0.383
GSJ	0.48**	0.08	[0.33; 0.63]	0.32
ESJ	0.02	0.07	[-0.12; 0.15]	0.01
Political orientation	0.13*	0.06	[0.01; 0.25]	0.11
Indirect effect				
Objective TC ->GSJ->hope	-0.02	0.05	[-0.11; 0.09]	-0.01
Objective TC ->ESJ->hope	-0.001	0.003	[-0.03; 0.02]	< -0.001
Conditional indirect effects via GSJ				
Low TC relevance	-0.13	0.06	[-0.31; 0.02]	-0.07
High TC relevance	0.10	0.06	[-0.03; 0.27]	0.06
Conditional indirect effects via ESJ				
Low TC relevance	-0.004	0.02	[-0.07; 0.06]	-0.002
High TC relevance	0.003	0.01	[-0.05; 0.05]	0.002

Note: GSJ = Gender system justification; ESJ = Economic system justification. TC = Temporal comparison. 95%CI are based on Monte Carlo simulation

Discussion

1
2 Study 2 provides supportive experimental evidence for the findings of Study 1. It shows that
3
4 temporal comparison does cause hope for a future ingroup status to fluctuation amongst the
5
6 disadvantaged (women in this case) to the extent that such evaluations are positive/favorable. This
7
8 hope, in turn, was associated with an increase in women's justification of the gender and economic
9
10 systems. Extending the findings of Study 1, we further showed that the foregoing trend that was
11
12 especially visible for those women who attach a high degree of importance to judgements about
13
14 how men and women have fared over the years. These results sit at odds with Jost (2019, p. 280)
15
16 who criticized SIMSA's hope explanation on the basis that it is unlikely to cause an increase in
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18 system justification, however realistic or unrealistic one's optimism for future ingroup status might
19
20 be. In short, the current data shows that a hope-induced system justification is also a realism-based
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22 phenomenon anchored on an objective assessment of how the ingroup's position has improved (or
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24 stagnated) over time.
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General Discussion

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32
33 A primary goal of the current investigation was to establish why members of disadvantaged
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35 groups might be hopeful of positive ingroup status changes in the future: A mechanism theorized
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37 under the SIMSA framework as a facilitator of the system justification process. Here, we tested the
38
39 idea that such optimism may be rooted in the favorable judgements that people are making
40
41 considering how things have been for their ingroup in the past relative to the present. In one
42
43 correlational and a follow-up experimental replication and extension, we found supportive evidence
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45 for this explanation: Women who (were led to) believe that their situation has improved relative to
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47 what it was in the past tended to support a gender system (Studies 1 and 2) and an economic system
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49 (Study 2) that currently work in favor of men, because these comparisons has the tendency to fill
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51 them with optimism with respect to improvements to their gender-based outcome in the future.
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53 Importantly, this effect seemed especially visible amongst those for whom an assessment of shifts
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55 in the outcomes of women relative to men was highly personally important. These findings shed
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1 important new light on system justification process, especially in connection to SIMSA’s hope
2 explanation for system justification amongst the disadvantaged (Owuamalam et al., 2019b, 2019a;
3
4 Rubin et al., 2023b, 2023a) by isolating a crucial factor of positive temporal contrasts, on which a
5
6 *realistic* optimism about future ingroup status may be based.
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9 **Making Sense of Unexpected Findings**

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11 Although the pattern of results across both studies were largely consistent with (a) one
12
13 another and (b) the theoretical framework being tested – SIMSA, it is important to also note some
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15 unexpected results. In particular, we found in Study 2, a *direct* negative association between
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17 positive temporal contrast and system justification in the full model when (a) this was the opposite
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19 direction in Study 1 and (b) the total effect—in terms of the zero-order bivariate association
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21 between temporal contrast and system justification—was null (see Table 5). One way of looking at
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23 this potential suppression effect, is that the effect is null, and that the *suppression* might be an
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25 artefact of the methodological/analytical approach used in this study and, therefore, that further
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27 theoretical explanation is unwarranted. Another approach is perhaps to take it seriously, in the sense
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29 that it sits at odds with the SIMSA prediction of a positive association between positive temporal
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31 comparisons and system justification. But, taking the latter approach risks downplaying the copious
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33 supportive evidence for SIMSA’s predictions across the two studies. What then?
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41 Our view is that there may be other processes operating in tandem with the mechanism of
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43 hope in exerting an influence on system justification here, especially in Study 2. Recall that a
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45 negative temporal contrast mindset was enlisted in Study 2 by providing women with ‘facts’ about
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47 how gender inequality had *stagnated* over time, and this potentially creates a necessary condition
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49 for another SIMSA explanation for system justification amongst the disadvantaged to operate – i.e.,
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51 the *social reality account* (see Owuamalam et al., 2019b, 2019a; Rubin et al., 2023a). According to
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53 the social reality account, the disadvantaged may system justify to the extent that driven by a social
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55 accuracy need to accept they reality that they live in. For example, Owuamalam et al. (2023) has
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57 shown in a large nationally representative sample of women, that when inequality is more glaring
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1 (incontrovertible), that women were more likely to support a systemic male privilege. Hence, the
2 incontrovertible reality of gender inequality in the negative temporal condition coupled with the
3
4 instruction that it has stagnated over time, may have exerted a strong(er) influence on system
5
6 justifying attitudes compared to a condition that encourages women to ‘bury their heads in the
7
8 sands’ (even if with facts) to the glaring inequality that they are likely to witness in their own lives.
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10 This potentially explains why the positive temporal contrast condition was able to nudge system
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12 justifying attitudes upwards only via the hope mechanism, so that outside this hope mechanism, a
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14 system justification induced by social reality constraints becomes more evident.
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19 Finally, and with respect to the direct negative association between positive temporal
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21 comparison and system justification, it is possible to offer an alternative explanation based on the
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23 system justification theory (SJT, Jost, 2019). A condition in which women are led to believe that
24
25 gender inequality is stagnant and, therefore, unlikely to change anytime soon, is likely to trigger the
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27 feeling that they cannot escape their group-based predicament. This inescapability sentiments (i.e.,
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29 feeling trapped) could cause system justification to increase in order to make sense of (and find
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31 peace with) the reality in which the must operate. We did not formally test either SIMSA’s social
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33 reality explanation or SJT’s system inescapability account here and, future studies could benefit
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35 from doing so, in pursuit of theory development.
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41 **Theoretical and Practical Contributions**

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43 The present findings contribute to the theoretical reasoning on the processes of system
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45 justification among low-status groups by showing that actual system justification depends not only
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47 on the individuals’ political orientation but also on the temporal perspective adopted by the
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49 disadvantaged. In particular, our data suggests that temporal contrast at the group level can inform
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51 people’s evaluation of the functioning and legitimacy of the existing social context, by shaping
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53 people’s hope for the future condition of their ingroup. These results were net of participants’
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55 political orientation, suggesting not only that temporal contrasts can sometimes exert a powerful
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57 influence on system justification tendencies beyond ideological processes, but crucially that system
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evaluation do not occur in a “temporal vacuum” (Tajfel, 1972). That is, historical flux in group outcomes can affect the disadvantaged’s feelings and evaluations of the existing (and future) condition of the ingroup relative to other groups within a given system.

From an applied perspective, our findings suggest that a history of flexibility in the outcomes of one’s ingroup within a system may encourage the disadvantaged to hope that their current (and potentially future) outcomes is not fixed/predetermined, which may allow them to keep the faith in the prevailing arrangement rather than seeking to undermine it. Of course, the paradox here is that by making comparisons with past negative ingroup outcomes, rather than with other currently advantaged outgroups, members of disadvantaged groups risk undermining the need for social change. Thus, for gender-equity activists and policies, it would be useful to stress what is still the gap to fill rather than celebrate progresses from previous condition as this could ironically induce hope-related process of justifying the existing inequalities (see also Owuamalam et al., 2021; 2024).

Limitations and Future Research

The present research has some limits that must be acknowledged. First, Study 1 had a correlational design that prevents a causal inference. Although Study 2 addressed this somewhat with an experimental approach, the fact that both studies were conducted with non-probabilistic samples, somewhat dims confidence in the generalizability of results. Also, we did not measure other constructs such as the perceived uncertainty and system inescapability (Jost, 2019) as well as the perceived social constraints (Rubin et al., 2023a). So, we are not able to rule out the possibility that these variables could explain at least in part our results. Future research could benefit from addressing these (largely methodological) shortcomings.

Concluding Remarks

What might cause members of disadvantaged groups to be optimistic with respect to improvements to their group-based outcomes in the future, and to then accept (and operate within) a

1 system in which they are currently undervalued? Here, we tested (and found supportive evidence
2 for) one assumption inspired by SIMSA: that such optimism can be based on favorable temporal
3 comparisons that highlights for the disadvantaged, the progress that has been made with respect to
4 social inequality over the years. One consequence of system justification is the potential to
5 discourage advocacy in favor of challenging systems of inequality (Jost et al., 2017). In this sense,
6 the current findings indicate that the root of such complacency may be traced back to experiences,
7 news, and/or information that may encourage people to activate a positive temporal contrast
8 mindset. But this also means that one way to potentially reduce a complacency tied to hope-induced
9 system justification may be to dilute this with information that encourages the opposite negative
10 temporal mindset. This suggestion, however, is offered with a pinch of salt because information
11 with potential to enlist a negative temporal mindset (especially when a sense of permanence is
12 beathed into it) can paradoxically accentuate system-justifying attitudes rather than challenging it!
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Positive Temporal Comparison Facilitates a Hope-Induced System Justification amongst Women

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Abstract

We examined whether women's support for gender-based pay inequality (i.e., system justification) might be explained by hope. In particular, we considered whether such hope is likely prompted by positive temporal comparisons: It is entirely possible (even if previously untested) that the more women believe that their outcomes are getting better relative to what it had been at some point in the past, the greater their optimism about a better gender-based outcome could be, prompting women to support the systems that permitted such advancements. These central propositions were derived from the social identity model of systems attitude (SIMSA) and were corroborated in a correlational study involving 611 female healthcare professionals (Study 1). Study 2 (213 Italian- and 79 Spanish-women) offered a conceptual replication and extension of the evidence from Study 1: It showed that inducing positive temporal contrasts caused women's hope for a better gender-based outcome in the future to increase, consequently allowing them to support the prevailing gender-system.

Keywords

Gender system justification, economic system justification, hope, temporal comparison, SIMSA, women

Statements and declarations

Conflict of Interest

The authors have no potential conflict of interest pertaining to this paper.

Funding

The authors declare that they have no funding source to report.

Data availability

The datasets generated and analysed during the current study are available in the OSF repository, at the link: https://osf.io/fs9nz/?view_only=9d124ff361d24f31ae41e4988d7ce121

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The research protocol was approved by University's IRB (prot. nr. 0064712).

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Title: “Positive Temporal Comparison Facilitates a Hope-Induced System Justification amongst Women”

Dear Prof. Ferraro and Prof. Hoi,

We are grateful for the opportunity that you have given us to revise again our submission to *Current Psychology*.

We tried to attend all Action Editor’s suggestions adding both “Theoretical and Practical Contributions” and “Limitations and Future Research” sections before Concluding Remarks.

We are confident that these changes have addressed all the issues that were raised and hope that they meet with your satisfaction. Please, consider that we were mindful not to say more than the data and results permitted us in order to avoid overinterpretation, but we will be happy to consider including any further specific implications that we may have inadvertently overlooked.

We thank you once again for the time that you and the reviewers have taken to evaluate our manuscript, and very much look forward to the outcome of our revision.

With best wishes,

Authors.



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Supplementary Material

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