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Social norms (not threat) mediate willingness to sacrifice in individuals fused with the nation: Insights from the COVID-19 pandemic

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Abstract

Identity fusion with the community has been previously found to mediate altruism in post-disaster settings. However, whether this altruistic response is specifically triggered by ingroup threat, or whether it can also be triggered by global threats remains unclear. We evaluated willingness to sacrifice in the context of the COVID-19 pandemic across three survey waves. Against expectations, participants fused with the nation (vs. non-fused) did not differentially respond to a national versus global threat condition. Conversely, social norms decisively influenced willingness to sacrifice in this sample, with fused individuals with stronger norms about social distancing reporting the highest altruistic response during the first weeks of the pandemic. Longitudinally, after an initial peak in the altruistic response, deteriorating social norms mediated decreases in willingness to sacrifice in individuals fused with the nation (vs. non-fused). Implications of these results for the development of interventions aimed to address global challenges are discussed.

KEYWORDS
costly sacrifices, COVID-19, identity fusion, prosocial behaviour, social norms

1 | INTRODUCTION

Community-level traumatic events such as catastrophes, natural disasters, and acts of terrorism involve shared experiences of pain and suffering that often give rise to periods of solidarity and intense social support (Kaniasty & Norris, 2004). For instance, several studies report an increase in altruistic behaviour directly after or upon recall of natural disasters such as Hurricane Katrina in the United States (Rodríguez et al., 2006), prolonged ice storms in Quebec (Lemieux, 2014), and major earthquakes in Sichuan (Li et al., 2013) and New Zealand (Segal et al., 2018). Different authors have referred to this phenomenon as 'heroic post-crisis benevolence', 'honeymoon phase' or 'post-disaster

utopia' (among others Barton, 1969; Fritz, 1961; Wolfenstein, 1957). Current research is starting to disentangle the psychological underpinnings of this phenomenon based on recent sociopsychological models.

Altruistic responses to natural disasters have been shown to be mediated by an increase in feelings of oneness with the group (Segal et al., 2018), also known as identity fusion (Swann et al., 2009). Identity fusion aims to explain extreme pro-group behaviour and, according to its proponents, it differs from social identity theory in several critical ways. In social identity theory (Turner et al., 1994) individuals' collective identity overshadows their personal identity, leading to a depersonalization process where they become proto-typical group members (Hogg et al., 1993). Through this process,

people who highly identify with a group diminish their personal identity in favour of the group identity. Conversely, identity fusion characterises individuals who maintain a strong sense of self, so that both personal and group identities remain active and interact synergistically to support social interactions (Swann et al., 2009). It is precisely this strong sense of self which allows them to harbour a strong motivation to engage in extreme actions on behalf of other group members, with whom they establish family-like bonds (Swann et al., 2009). As a result, identity fusion has been found to better predict extreme pro-group action as compared to group identification (Swann, Gómez, Dovidio, et al., 2010; Wolfowicz et al., 2021). Indeed, identity fusion can be triggered by shared dysphoric experiences (Whitehouse et al., 2017). Thus, the trauma and pain brought about by catastrophic events may provide the grounds for individuals to strengthen their ties with the community with which their share these grievances.

Of note, identity fusion has been extensively studied in the context of intergroup conflict (Buhrmester & Swann, 2015; Jong et al., 2015; Whitehouse et al., 2014) and it typically involves relatively narrow well-defined reference groups such as nations and moral communities (religious or other) that can be distinguished from rival outgroups. In this context, willingness to sacrifice for the group in fused individuals can be understood as a form of parochial altruism (Sheikh et al., 2014). This framework, however, does not necessarily apply to catastrophes and natural disasters, where the enemy is not clearly defined. Thus, the question remains as to whether the observed altruism in fused individuals after a natural disaster specifically responds to ingroup threat, or instead, whether it can also be triggered by global threats that challenge humanity as a whole. This question is especially relevant in an increasingly inter-dependent world that inevitably faces striking global challenges such as recurrent pandemics and climate change.

Ultimately, identity fusion leads to greater willingness to sacrifice for the group, an outcome that can be beneficial for groups facing an existential threat (Atran et al., 2014; Gómez et al., 2017). Indeed, existential threat has been shown to exacerbate the effects of fusion on pro-group behaviour (Gómez, Morales, et al., 2011; Swann et al., 2009), whereas autonomic arousal in fused participants increases willingness to sacrifice in defence of the group (Swann, Gómez, Huici, et al., 2010).

Aside from perceived threat, a rather unexplored mediator of pro-group behaviour in fused individuals are social norms. Although social norms have been extensively studied in relationship to group identification (Terry & Hogg, 1996), whether fused individuals are also more responsive to in-group social norms as compared to non-fused individuals remains unanswered. As group members who experience a 'sense of oneness with the group', fused individuals should be particularly attuned to social norms and adjust their behaviour accordingly. In fact, parochial altruism, or the willingness to undertake risks in favour of the in-group, is intimately related to social norms (Bernhard et al., 2006). For instance, individuals are more likely to respond with costly punishments to the violation of egalitarian sharing norms when the recipient is an in-group (Bernhard et al., 2006), and costly punishment increased the more the norm was transgressed (Fehr & Fischbacher, 2004). In

this sense, because parochial altruism often serves norm enforcement (Baumgartner et al., 2012; Bernhard et al., 2006), fused individuals should be more motivated to endure costly sacrifices for the group according to what they perceive to be normative. That is, shifting norms should involve changes in willingness to sacrifice for the issues amplified by these norms. Such a finding would contribute to the development of identity fusion theory, revealing social norms as a key mediator of costly sacrifices in fused individuals. In addition, it would have interesting implications for norm-based behavioural interventions, for instance, paving the way to more effective approaches that could target norms in combination with fusion.

2 | THE CURRENT STUDY

The current COVID-19 pandemic has been pointed out as an excellent opportunity to study processes related to altruism and identity fusion, according to proponents of this same theory (Gómez, 2020). During the first year of the pandemic, we have witnessed extraordinary efforts in national and international cooperation to counteract the devastating effects of the virus, including the mobilisation of thousands of millions in public spending to guarantee medical supply provisions and support employment and businesses within and across different countries (European Council, 2020). At an individual level, examples of cooperation and solidarity among neighbours and anonymous citizens, especially during the first few months of the pandemic, are also abundant. Both national and community identification have been pointed out as valuable predictors of, respectively, engagement in public health behaviours (Van Bavel et al., 2022) and increased well-being (Bowe et al., 2021) during the COVID-19 pandemic. Because we were interested in potential differences between national and global threats, we focused on identify fusion with the nation and its relationship with altruistic behaviour.

In the present study, we investigated altruistic behaviour during the first 6 months of the COVID-19 pandemic. Departing from the identity fusion framework, we operationalised altruism as willingness to sacrifice for others in the context of the pandemic, which involved a clear risk to one's own life. Specifically, we evaluated whether individuals fused with the nation showed a higher altruistic response to COVID-19, particularly after a national threat versus a global threat experimental condition, and whether social norms mediated such increase. For this purpose, an online survey including a national threat versus global threat experimental manipulation was launched in three waves and completed by a large sample in Spain. Spain is one of the European countries most affected by COVID-19 to date, and one of the Western countries that suffered the devastating consequences of the disease earlier in the pandemic, when the uncertainty about this new pathogen was at its highest in the West. At the time of the first survey wave (March 2020), Spain had one of the highest numbers of confirmed deaths in the world, only after Italy, and the highest number of deaths per million ('Worldometer', 2020). Participants were randomly assigned to two experimental conditions at the start of the first wave: half of them were presented with a graph of the evolution of confirmed

COVID-19 cases in Spain (*national threat*) and half of them a map representing worldwide confirmed cases (*global threat*).

We predicted that participants fused with the nation would show higher willingness to sacrifice in response to the national threat (versus global threat) experimental condition employed in the first survey wave. Moreover, we expected both perceived threat and social norms to mediate changes in willingness to sacrifice, particularly in participants fused with the nation. That is, even though perceptions of norms or threat may change in time across the whole sample, the impact of such shift on willingness to sacrifice should be larger in fused versus non-fused participants. Because injunctive social norms, or shared expectations about how someone ought to behave, may lead to conflicting conformity decisions (Mcdonald & Crandall, 2015), we chose to employ descriptive norms, which could potentially be more influential in response to changing conditions (Melnyk et al., 2013). In addition, because descriptive norms about people's willingness to sacrifice could potentially backfire (if many people are willing to sacrifice, fused individuals may be less motivated to do so), we chose to measure more mundane norms that still tap into how the group relates to the pandemic, that is, norms about social distancing. Finally, personal compliance with social distancing was included as an exploratory measure.

3 | METHODS

This research was approved by an ethical review board in Spain according to the Declaration of Helsinki guidelines. The study materials, code and data are available following this link.

3.1 | Study design

A longitudinal survey was launched at three time points during the COVID-19 pandemic in Spain: at the time of highest case growth rate, just before adopting the toughest lockdown measures (26–31 March 2020), as lockdown measures were being lifted (5–11 May 2020), and at the start of the second epidemic wave (4–10 August 2020). A between-subjects experimental condition was included at the start of the first survey wave: half of the participants were randomly assigned to a national threat condition (a graph of the evolution of confirmed COVID-19 cases in Spain) and the other half to a global threat condition (a map representing worldwide confirmed cases). Based on previous literature, we estimated that around one third of the sample would be fused with the nation (Gómez, Brooks, et al., 2011).

A power analysis conducted with the R package 'simr' (Green et al., 2016) revealed that recruiting 800 participants would allow to detect even small effects (e.g., 0.1) for the interaction between time, condition, and fusion with a statistical power of 80% (95% CI [70.8, 87.3]) based on 1000 simulations, an $\alpha = .05$, and three observations per respondent.

Informed consent was obtained from all participants at the start of the survey.

3.2 | Participants

Thousand and fifty-seven participants from the general population were recruited by means of an online panel using quotas representative of gender, age, and province. Eight-hundred and eighteen of these participants completed the second wave and 680 also completed the third wave. Compared to participants who completed all three survey waves, dropout participants were younger (B = –2.97, 95% CI [–4.75, –1.21], t(1055) = –3.03, p < .001) and had been assigned to the global threat condition with greater frequency than participants in the final sample ($\chi^2(1) = 4.32$, p = .04), but did not differ in any other demographic variable or variable of interest (p > .19). Dropout participants were excluded from the analyses, providing a final sample of 680 participants with somewhat greater frequency of respondents in the national threat condition than in the global threat condition (54% national threat vs. 46% global threat condition, $\chi^2(1) = 3.97$, p = .046). The final sample comprised 49.4% women, M = 46.9 years old, SD = 13.5, of whom 49.7% had completed a higher education degree, and 19.9% lived in high-income households (>3.000 euros monthly). Participants in each condition did not differ in any of the main demographic variables.

3.3 | Measures

The three survey waves included the same scales, except for identity fusion, which was measured only at Waves 1 and 3. The exclusion of the fusion measure in Wave 2 was due to an initial assumption that fusion, similarly to other aspects of identity, would not change in such a short period of time (Buhrmester & Swann, 2015). However, because of the exceptionality of the pandemic at all levels, we decided to put this measure back in Wave 3, a choice that provided interesting insights (see Section 4).

3.3.1 | Identity fusion

Identity fusion with the nation (Spain) was measured by means of the identity fusion pictorial measure (Swann et al., 2009), which includes two circles, a larger one representing the group and a smaller one representing the respondent, with different degrees of overlapping from A (no overlapping) to E (the small circle is at the centre of the larger circle).

3.3.2 | Willingness to sacrifice

Willingness to sacrifice was measured with the item 'I am willing to be at the front line to protect the most vulnerable from COVID-19' using a scale from 1 ('Totally disagree') to 5 ('Totally agree'). In addition, an extended 4-item sacrifice scale was added in Wave 3 to confer internal validity to the 1-item sacrifice measure we used across all three waves. The extended sacrifice scale was adapted from Day and Impett (2018), including four items capturing participants willingness to engage in

different behaviours ('I would be willing to invest time that I could have spent elsewhere', 'I would be willing to invest money that I could have spent elsewhere', 'I would be willing to spend less time with friends and family', and 'I would be willing to miss the opportunity to engage in a more pleasurable activity') to help society against the coronavirus. Responses ranged from 1 ('Totally disagree') to 5 ('Totally agree').

3.3.3 | Social norms

Social norms about social distancing were measured with the item 'Spaniards are complying with social distancing measures against COVID-19' using a scale from 1 ('Totally disagree') to 5 ('Totally agree').

3.3.4 | Perceived threat

Perceived threat was measured with the item 'I feel that COVID-19 is a threat to me and my family' using a scale from 1 ('At a very low degree') to 5 ('At a very high degree'), including an option to skip the question ('I prefer not to answer').

3.3.5 | Personal compliance with social distancing

Adoption of social distancing measures was measured with the item 'I am adopting all social distancing measures in my reach against COVID-19' using a scale from 1 ('Totally disagree') to 5 ('Totally agree').

3.4 | Analyses

To evaluate relationships at each timepoint, we calculated Pearson's correlations for each survey wave. Within-participant changes in perceived threat, adoption of social distancing measures, social norms about social distancing and willingness to sacrifice were assessed by means of a series of mixed effect models with random intercepts for participants, a fixed effect for time (Waves 1, 2 and 3) using REML (afex package in R; Singmann, Bolker, Westfall, & Aust, 2016).

To test the effects of the experimental manipulation, we examined the effects of the experimental condition on willingness to sacrifice in fused versus non-fused participants at baseline by means of an OLS regression testing the interaction between the two conditions (national vs. global threat) and fusion (participants fused with the nation vs. non-fused). Of note, the employed identity fusion pictorial measure (Swann et al., 2009) is typically analysed as a dichotomous variable, where the maximal score is coded as 'fused' and the rest of responses as 'non-fused'. To test hypotheses specific to groups (e.g., fused participants), we examined the group-specific parameter estimates (simple effects).

Moderated mediation analyses were conducted by means of the R package 'lavaan' (Rosseel, 2012). Because we had repeated measures for each participant, we conducted a multilevel structural equation model with participant ID as the clustering factor. We modelled the moderated mediation at the within-subjects level (level 1) and mod-

elled the variance of the endogenous variables of the model (the mediator and the dependent variable) at the between-subjects level (level 2) following Rosseel (2012). In the moderated mediation, we tested the conditional effect of identity fusion on the indirect effect of both social norms and perceived threat on change in willingness to sacrifice by fitting two linear models with 2000 bootstrapped samples, following the procedure in Hayes (2018). For that, we created a dummy variable for identity fusion (1 = fused, 0 = non-fused) and mean centred both fusion and the mediator (social norms or perceived threat). The effect of a mediator M (social norms or perceived threat) on an outcome variable Y (willingness to sacrifices) as moderated by W (identity fusion) was estimated using Hayes' Model 14 equations (1 and 2):

$$M = i_M + aX \qquad (1)$$

$$\hat{Y} = i_Y + c'X + b_1M + b_2W + b_3MW \qquad (2)$$

Thus, the indirect effect of X (time) on Y was computed as the product of the effect of X on M and the conditional effect of M on Y (3):

$$a(b_1 + b_3W) = ab_1 + ab_3W \qquad (3)$$

4 | RESULTS

The three survey waves were conducted during two key periods within the first 6 months of the pandemic in Spain, which we here refer to as 'recovery' period (March to May) and 'relapse' period (May to August). The 'recovery' period (Survey 1 to Survey 2) spans from the peak of the *first COVID-19 wave* up until the first lockdown, and most severe of all, was lifted. Conversely, the second period captures a 'relapse' in COVID-19 cases (Survey 2 to 3), which led to the start of the *second COVID-19 wave*.

Group averages of the variables of interest across survey waves are presented in Table 1 and correlations between the variables of interest at each timepoint are presented in Figures 2a and b.

In this section, we will first present longitudinal changes for each variable over time, then proceed to test the effects of the experimental manipulation and finalise by presenting the results on the mediation of social norms on changes in willingness to sacrifice.
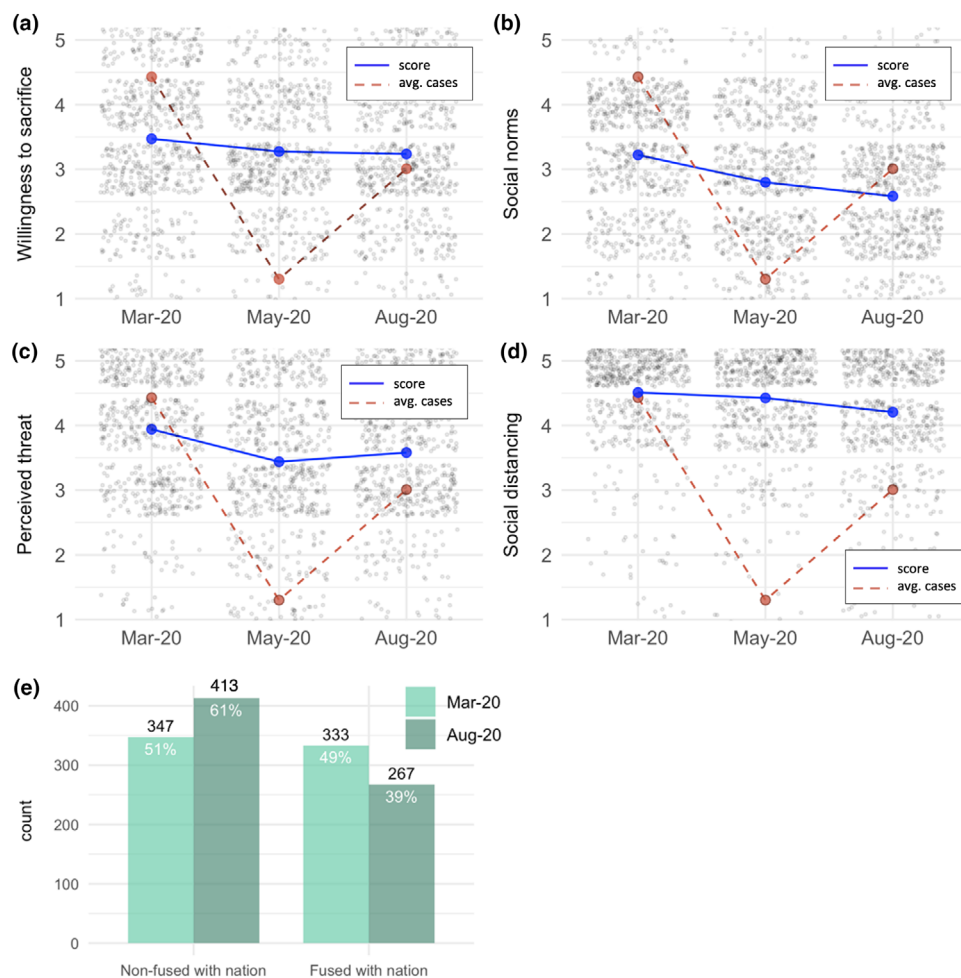
4.1 | Longitudinal changes

Within-participant changes in the variables of interest across the three survey waves are presented in Figure 1.

4.1.1 | Identity fusion

While 49% of the sample was fused with the nation at survey wave 1, this percentage dropped to 39% in survey wave 3, $c^2(1) = 12.60$, $p < .001$ (see Figure 1e).

TABLE 1   Averages of the variables of interest across the three survey waves

	Survey wave 1: 26––30 March 2020 *mean(sd)*	Survey wave 2: 5–11 May 2020 *mean(sd)*	Survey wave 3: 4–10 August 2020 *mean(sd)*
7-day moving average of daily new cases[*]	6860	603.7	4016.7
Fused with nation (N)	333 (49%)	n/a	267 (39%)
Willingness to sacrifice (1 = low, 5 = high)	3.47 (1.14)	3.28 (1.06)	3.24 (1.11)
Adoption of social distancing measures (1 = low, 5 = high)	4.51 (0.91)	4.42 (0.85)	4.21 (1.00)
Perceived normativeness of social distancing (1 = low, 5 = high)	3.22 (0.99)	2.80 (1.05)	2.58 (0.99)
Perceived threat (1 = low, 5 = high)	3.94 (1.06)	3.44 (1.21)	3.58 (1.14)

*according to worldometers.info.

FIGURE 1   Longitudinal changes across the three survey waves, including perceived threat (a), adoption of social distancing measures (b), social norms about social distancing (c), willingness to sacrifice (d) and identity fusion with the nation (e). Only two timepoints were available for identity fusion (Mar-20 and Aug-20). The dashed line in Figures a–d show the 7-day average of national daily new cases across the three timepoints for visual reference (the number of cases has been divided by 2000 to fit the y-axis)

4.1.2 | Willingness to sacrifice

In parallel to social norms, willingness to sacrifice for others decreased during the recovery period, M_{w2-w1} = −0.20, 95% CI [−0.30, −0.09], $t(1358)$ = −4.46, $p < .001$, Cohen's d = 0.18, stabilising in the relapse period ($p = .66$) (see Figure 1d).

4.1.3 | Social norms

During the recovery period, perceived social norms about social distancing dropped, M_{w2-w1} = −0.42, 95% CI [−0.53, −0.32], $t(1358)$ = −9.3, $p < .001$, Cohen's d = −0.42, a tendency that continued during the relapse period, M_{w3-w2} = −0.22, 95% CI [−0.32, −0.11], $t(1358)$ = −4.72, $p < .001$, Cohen's d = −0.21 (see Figure 1c).

4.1.4 | Adoption of social distancing measures

Adoption of social distancing measures remained stable during the recovery period ($p = .10$), but experienced a drop during relapse, M_{w3-w2} = −0.22, 95% CI [−0.32, −0.12], $t(1358)$ = −5.23, $p < .001$, Cohen's d = −0.26 (see Figure 1b).

4.1.5 | Perceived threat

Perceived threat decreased during the recovery period, M_{w2-w1} = −0.50, 95% CI [−0.61, −0.39], $t(1341)$ = −10.81, $p < .001$, Cohen's d = −0.47, and increased again during the relapse period, M_{w3-w2} = 0.15, 95% CI [0.04, 0.26], $t(1342)$ = 3.20, $p < .001$, Cohen's d = 0.12, without ever reaching initial levels, M_{w3-w1} = −0.35, 95% CI [−0.46, −0.24], $t(1342)$ = −7.61, $p < .001$, Cohen's d = −0.33 (see Figure 1a).

4.2 | Effects of the experimental threat manipulation

The national threat (vs. global threat) condition elicited higher willingness to sacrifice across the sample in Wave 1 (M_{diff} = 0.20, 95% CI [0.03, 0.37], $t(678)$ = 2.32, $p = .021$), though fused participants did not differentially respond to the experimental condition (B = 0.15, 95% CI [−0.19, 0.48], $t(678)$ = 0.84, $p = .40$). Participants fused with the nation did also not particularly exhibit increased willingness to sacrifice compared to non-fused participants across conditions (M_{diff} = 0.16, 95% CI [0.01, 0.33], $t(678)$ = 1.88, $p = .061$). However, individuals fused with the nation with stronger norms about social distancing did show considerably higher willingness to sacrifice both compared to fused participants with weaker norms (M_{diff} = 1.12, 95% CI [0.63, 1.61], $t(676)$ = 4.46, $p < .001$), and compared to non-fused participants with stronger norms (M_{diff} = 0.49, 95% CI [0.14, 0.84], $t(676)$ = 2.75, $p = .006$, see Figure 2c).

4.3 | The relevance of norms in fused individuals

Norms about social distancing were also particularly relevant for fused participants in the longitudinal analyses. Specifically, norms about social distancing mediated change in willingness to sacrifice, but only in individuals fused with the nation. The moderated mediation model testing the indirect effects of social norms on change in willingness to sacrifice in fused versus non-fused participants (see Figure 2d) revealed that, in fused participants, 48% of the effect of time on willingness to sacrifice was mediated by social norms about social distancing ($Est.$ = 0.48, 95% CI [0.23, 0.72], $p < .001$), while indirect effects of norms in non-fused participants were less pronounced ($Est.$ = 0.30, 95% CI [0.01, 0.58], $p = .04$). Direct comparison of the indirect effects of social norms revealed significant differences between fused and non-fused participants ($Est.$ = −0.09, 95% CI [−0.16, −0.02], $p = .011$). The detailed results of this moderated mediation are presented in Table 2.

In parallel to the experimental manipulation results, perceptions of threat did not particularly influence longitudinal change in willingness to sacrifice. To test this idea, a second moderated mediation analysis was conducted evaluating the mediating effects of perceived threat on change in willingness to sacrifice in fused and non-fused participants. This model failed to detect a mediation effect of perceived threat both in fused ($Est.$ = −0.03, 95% CI [−0.17, 0.12], $p = .71$) and non-fused participants ($Est.$ = 0.07, 95% CI [−0.06, 0.20], $p = .30$).

The 1-item sacrifice scale correlated with the extended 4-item sacrifice scale introduced at Wave 3 ($r = .40$, 95% CI [0.34, 0.47], $p < .001$).

5 | DISCUSSION

The aftermath of a catastrophe is typically characterised by a surge in social support and solidarity, a phenomenon some authors refer to as 'honeymoon period' or 'post-disaster utopia'. Identity fusion with the community has been previously found to mediate altruism in post-disaster settings. Our longitudinal three-wave study evaluated the relationship between identity fusion, social norms, and willingness to sacrifice throughout the first 6 months of the COVID-19 pandemic in Spain, one of the European countries most affected by this disease. While the altruistic response in fused individuals was not particularly influenced by the national (vs. universal) threat experimental condition, social norms were decisive in shaping fused individual's willingness to sacrifice. At baseline, fused (vs. non-fused) participants with stronger (vs. weaker) norms about social distancing reported the highest levels of willingness to sacrifice. Longitudinally, a moderated mediation model revealed that, specifically in fused individuals, decreasing social norms about social distancing rather than changes in perceived threat mediated 48% of the drop in willingness to sacrifice.

Our findings contribute to identity fusion theory by underlining the role of norms rather than perceived threat in mediating willingness to engage in extraordinary actions on behalf of the group in fused individuals. While the influence of social norms on people's choices and behaviour is a well-established phenomenon (Cialdini & Goldstein,
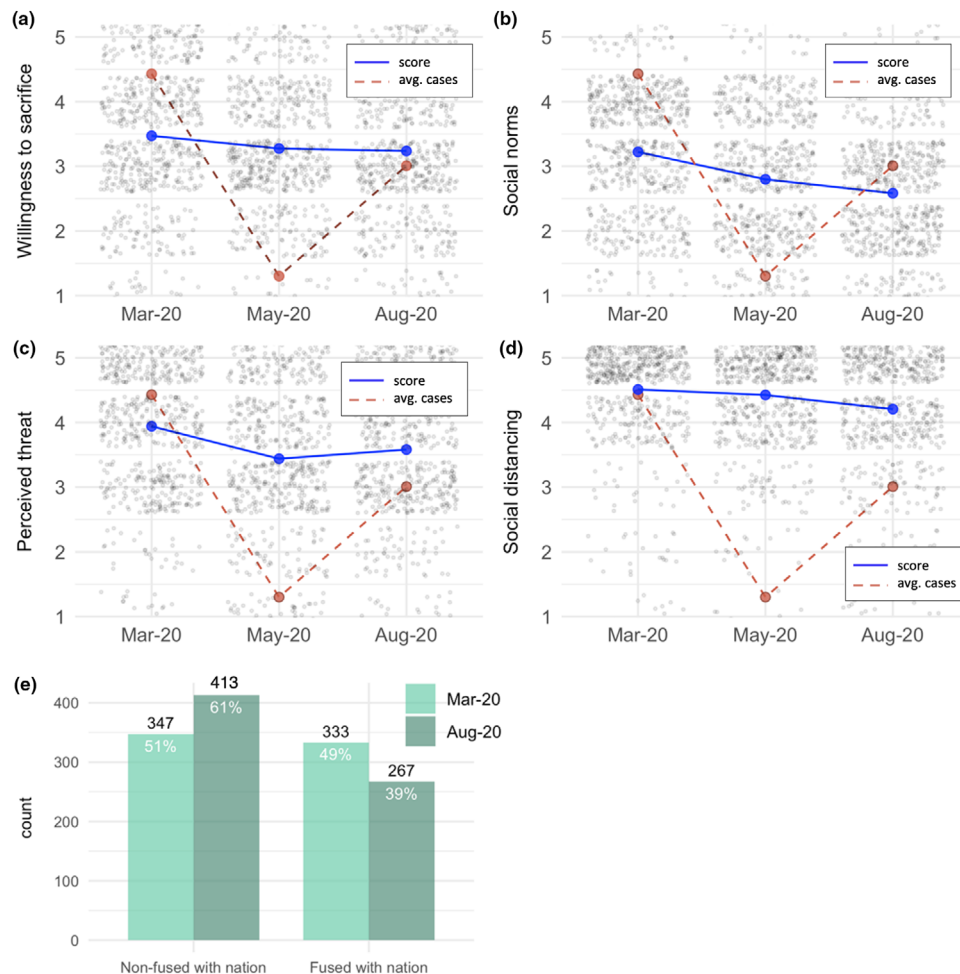
FIGURE 2 The key role of social norms in participants fused with the nation. (a) Chart of the number of confirmed COVID-19 cases in Spain as presented to participants in the national threat condition, (b) World map representing the number of COVID-19 cases confirmed globally as shown to participants in the global threat condition (extracted from John Hopkins University, 2020). (c) Norms about social distancing correlated with willingness to sacrifice across the three timepoints in participants fused with the nation ($p < .04$) but not in non-fused participants ($p > .28$). (d) Perceived threat did not correlate with willingness to sacrifice in participants fused with the nation at any of the three timepoints ($p > .26$), and only in the second wave in non-fused participants ($p = .001$), (e) Individuals fused with the nation with stronger norms were more willing to sacrifice for others compared to those with weaker norms, a difference that was not observed in non-fused participants, (f) Conceptual model of the tested moderated mediation, with identity fusion moderating the indirect effect of social norms on change in willingness to sacrifice

2004; Morris et al., 2015; Paluck, 2009), social norms so far have been excluded from collective action models (Tausch et al., 2011; van Zomeren, 2013; van Zomeren et al., 2011, 2018) and identity fusion literature (Gómez, Brooks, et al., 2011; Swann et al., 2009, 2014). Previous studies with very limited samples ($N = 40$) have found that social influence regulates extreme pro-group action in fused individuals (Hamid et al., 2019). In the present study ($N = 680$), we found that (a) change in perceived social norms account for almost 50% of the change in disposition to sacrifice in fused individuals, (b) norms correlated with willingness to sacrifice at each timepoint in fused (but not in non-fused) individuals and (c) fused individuals with strong norms were more willing to sacrifice both compared to fused participants with weak norms and non-fused participants with strong norms. Thus, our results stress the need to include social norms as a key factor in psychological models that aim to explain extreme pro-group action.

Our findings may also be relevant for the development of norm-based behavioural interventions, which could benefit from targeting norms in combination with fusion. Because our data suggests that fused individuals are more responsive to norms than non-fused individuals, norm-based interventions may be especially effective in mobilising particular behaviours in emergency settings, where we find a temporary surge in identity fusion. More generally, promoting norms in combination with an appeal to shared identities, may be more effective than targeting either of these separately.

Of note, fused individuals in our sample did not differentially respond to ingroup compared to global threat conditions. In line with this, self-reported perceived threat at each timepoint was unrelated to willingness to sacrifice in fused individuals. Thus, our results suggest that fused participants in our sample were not particularly mobilised by perceptions of threat. This finding adds some nuance to previous

TABLE 2 Results of the mediation effect of social norms conditional on identity fusion with the nation

	Estimate	SE	z-value	p-value	95% CI lower	95% CI higher
a	−0.64	0.05	−13.76	<.001	−0.73	−0.55
b1	0.14	0.03	4.04	<.001	0.07	0.20
b2	0.13	0.09	1.53	.126	−0.03	0.30
b3	0.14	0.05	2.60	.009	0.04	0.25
c'	−0.13	0.05	−2.60	.009	−0.23	−0.03
High identity fusion						
Indirect effect	−0.12	0.03	−4.53	<.001	−0.17	−0.07
Direct effect	−0.13	0.05	−2.60	.009	−0.23	−0.03
Total effect	−0.25	0.05	−5.19	<.001	−0.35	−0.16
Proportion mediated	0.48	0.13	3.77	<.001	0.23	0.72
Low identity fusion						
Indirect effect	−0.06	0.03	−2.20	.028	−0.11	−0.01
Direct effect	−0.13	0.05	−2.60	.009	−0.23	−0.03
Total effect	−0.19	0.05	−3.89	<.001	−0.28	−0.09
Proportion mediated	0.30	0.14	2.06	.040	0.01	0.58

claims that individual effects of identity fusion are stronger under conditions of threat (Gómez, Brooks, et al., 2011; Gómez, Morales, et al., 2011; Swann et al., 2009). These claims are often based on Gómez et al. (2011), who found that ostracism, which the authors describe as form of social threat, increases endorsement of extreme pro-group action in fused individuals. Whereas ostracism may be a social threat, the desire to fit in could lead to increased salience of social norms. Thus, this study does not allow us to make a clear distinction between the effects of social norms and perceptions of threat.

Our study raises the possibility that (non-social) threat may be irrelevant in fused individuals' disposition to engage in pro-group action, offering a unique contribution to identity fusion theory. Our results suggest that fused individuals are unresponsive to perceptions of threat when it comes to engaging in extreme pro-group action. Rather, it seems that fused individuals' behavioral dispositions mirror social norms, or what the group deems relevant at each moment in time.

In terms of changes in identity fusion over time, we observed a trajectory similar to that described by Kaniasty and Norris (2004) in catastrophe settings. A couple of weeks into the pandemic (March 2020) we registered notably high scores in willingness to sacrifice and identity fusion with the nation. For instance, while previous studies typically find one third of the general population in Spain to be fused with the nation (Gómez, Brooks, et al., 2011), we detected an overwhelming 49% of fused participants. However, 6 months into the pandemic, only 39% of the same individuals reported being fused with Spain, closer assimilating observations in pre-pandemic studies. This unexpected finding suggests a process of de-fusion that is compatible with previous psychosocial models that describe a transition from a 'post-disaster utopian' phase, characterised by high levels of mutual helping, to a phase of deterioration of social support that comes with a long burdensome recovery (Kaniasty & Norris, 2004). As per

our data, the surge in the altruistic response that characterises the 'post-disaster utopian' phase also seems to be accompanied by a peak in identity fusion, which later dissolves. While a recent study by Segal et al. (2018) already described increased identity fusion upon recall of a major earthquake in Christchurch, New Zealand, we were able to detect real-time changes in identity fusion within the same individuals throughout the first months of the COVID-19 pandemic. This was relatively unexpected, due to the high stability of this construct in ordinary contexts. Interestingly, perceived threat followed a U-shape, as cases dropped and increased again at the end of the summer. However, this relapse in cases and perceived threat did not trigger a second 'honeymoon' period, and willingness to sacrifice and feelings of oneness with the group kept deteriorating (and normalising), stressing the relative disconnect between actual threat and willingness to sacrifice.

The present study has several limitations. Owing to timing constraints, we ran short surveys with few items, which limited our ability to run internal validity checks. Scales with multiple items, compared to one-item scales, allow internal consistency testing and the minimisation of random measurement error, ensuring greater reliability regarding the measurement of the concept of interest. However, the observed relationships between our 1-item measures are well aligned with existing literature and shed light on a historical event that offered a unique opportunity to study human cooperation during a pandemic. Moreover, the employed experimental stimuli were chosen mainly because of their ecological validity: common graphs to which news consumers were exposed at the time of the first survey wave. Yet, choosing ecological stimuli often comes at a cost. For instance, our design did not control for salience of the nation (present only in the national threat condition). However, our experimental stimuli did elicit differences in willingness to sacrifice across the whole sample in line with our predictions

(i.e., greater willingness to sacrifice in response to national vs. global threat), offering some validation to our stimuli. Furthermore, our study leveraged a real-world event, the COVID-19 pandemic, which affected virtually everyone. Therefore, a control group of people who were not exposed to the pandemic was unavailable and, thus, we cannot rule out time-related confounds in our longitudinal analyses (e.g., seasonality or other global and national events that potentially affected responses). Finally, our survey was conducted with an online sample, which may have introduced biases related to the respondents' ability or willingness to take surveys online (Vaske, 2011).

In sum, we present evidence that willingness to sacrifice for others in times of the COVID-19 pandemic is intimately related to social norms rather than perceived threat, especially in participants who feel viscerally connected with the nation. Our results are particularly relevant in an increasingly inter-dependent world that inevitably faces striking global challenges. In line with our findings, policies demanding a certain level of sacrifice from citizens in the face of global challenges (e.g., reducing greenhouse gas emissions) may benefit from implementing combined approaches by appealing to both social norms and shared identities, as well as emphasizing the national or local relevance of the problem at stake.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

This research was approved by the ethical review board of the Universitat Autònoma de Barcelona (Ref. 5114) according to the Declaration of Helsinki guidelines.

PATIENT CONSENT STATEMENT

Informed consent was obtained from all participants at the start of the survey.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in OSF at http://doi.org/10.17605/OSF.IO/ZGXMY.

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