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Why people abandon groups: Degrading relational vs collective ties uniquely impacts identity fusion and identification

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ABSTRACT

Six studies explored the mechanisms that diminish allegiance to social groups. Results showed that degrading either collective ties (i.e., sentiments toward the group as a whole) or relational ties (i.e., sentiments toward individual group members) lowered identity fusion with the group (Studies 1–3 & 6). Lowered fusion, in turn, explained the tendency for weakened collective and relational ties to reduce endorsement of pro-group action, and this effect replicated cross-sectionally and longitudinally (Studies 2, 4 & 6). Additional evidence revealed that attenuated group-related agency seemed to mediate the relationship between weakened identity fusion and diminished commitment to help the group (Studies 3, 4 & 6). Although degrading collective ties reduced overall group identification (Studies 1–3 & 6), degrading relational ties did not reliably do so (Studies 1–6). Instead, degrading relational ties only reduced scores on a single component (ingroup solidarity) of a multidimensional measure of group identification (Studies 5 & 6). Hence, measures of identity fusion are equally sensitive to relational and collective ties while measures of identification emphasize collective ties. The results replicated whether we considered country (Studies 1–5) or gender (i.e. females, Study 6) as the focal social group. These findings therefore highlight the unique properties of fusion and identification and help explain why identity fusion predicts extreme pro-group behavior with greater fidelity than group identification.

1. Why people abandon groups: the toll of degraded relational as well as collective ties on identity fusion

People sometimes make extraordinary sacrifices for their group, including even sacrificing their own lives. This phenomenon is problematic when, for example, malevolent actors sacrifice themselves in the service of killing others. Such instances call for developing ways to reduce the psychological forces that inspire such extreme behaviors. Here, we focus on reducing identity fusion, a form of alignment with groups that predicts extreme pro-group behaviors with exceptionally high fidelity (for original statements of identity fusion theory, see Gómez et al., 2011; Swann Jr., Gómez, Seyle, Morales, & Huici, 2009; Swann Jr., Jetten, Gómez, Whitehouse, & Bastian, 2012). Identity fusion refers to a visceral sense of oneness with a group. Fusion is not only marked by strong allegiance to the group category and the goals and values it represents ("collective ties"), but also by strong allegiance to

fellow group members ("relational ties"). Together, these strong allegiances trigger feelings of group-related agency that motivate pro-group actions. Efforts to reduce fusion and its consequences should therefore consider these dual forms of alignment with one's group and the feelings of group-related agency they inspire. To contextualize these assertions, we begin by noting how they build upon previous formulations.

1.1. Identity fusion as an index of alignment with groups

To a greater degree than classic theories of group relations (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), identity fusion theory (Swann Jr. et al., 2012) emphasizes the intragroup dynamics that cause people to make extreme sacrifices for the group. Most important, while acknowledging the importance of collective ties in predicting pro-group behavior, fusion theory also

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emphasizes the motivational role of relational ties and the personal self. In so doing, fusion theory departs from social categorization theory's assumption that group functioning is a uniquely group-level (as opposed to interpersonal-level) process that is motivated by perceptions of ingroup similarity and differentiation from the outgroup. Specifically, the relational ties principle of fusion theory embraces the interpersonal level of group functioning, arguing that group members value and become attached to fellow group members and this occurs even if they are not personally acquainted with them. Hence, identity fusion theory is concerned with intragroup relations as well as intergroup relations.

The more inclusive approach taken by identity fusion theory has led to the development of measures that capture not only collective ties to the group but also relational ties to other group members and group-related agency (Gómez et al., 2011). In contrast, measures of group identification – the standard measure of alignment with groups – have historically emphasized allegiance to the group as a whole rather than to its individual members. This likely explains why fusion measures have proven to be uniquely associated with both relational ties and the personal self. For example, fusion scores predict the strength of relational ties (e.g., Vázquez, Gómez, & Swann, 2017) and relational ties, in turn, mediate the link between fusion and sacrifice for the group (e.g., Buhrmester, Fraser, Lanman, & Whitehouse, 2014; Swann Jr. et al., 2014). Similarly, the influence of fusion on pro-group behavior is amplified by increasing the salience of the personal self either through physical exercise (Swann Jr., Gómez, Huici, Morales, & Hixon, 2010) or writing about the self (Gómez et al., 2011; Swann Jr. et al., 2009).

Given that fusion theory emphasizes three key constructs (collective ties, relational ties and the personal self) whereas classic theories of group processes emphasize only one of these constructs (collective ties), it is not surprising that fusion theory spawned measures that are stronger predictors of extreme pro-group behavior than measures of identification. For example, fusion out-predicts identification when the outcome is endorsement of fighting and dying for ingroup members (Gómez et al., 2011; Swann Jr. et al., 2009), self-sacrifice to save group members in variations of the trolley dilemma (Gómez et al., 2011; Swann Jr. et al., 2014; Swann Jr., Gómez, Dovidio, Hart, & Jetten, 2010), or donating personal funds to group members under duress (Buhrmester et al., 2014; Swann Jr., Gómez, Huici, et al., 2010; for reviews, see Fredman et al., 2015; Gómez & Vázquez, 2015; Swann Jr & Buhrmester, 2015).

To be sure, in recent years, researchers have begun to explore the ways in which the relational ties of group members promote identification with groups (e.g., Brewer & Gardner, 1996; Prentice, Miller, & Lightdale, 1994), especially within non-Western cultures (e.g., Brewer & Yuki, 2007; Yuki, 2003; Yuki & Takemura, 2013). Researchers working within the social identity tradition have shown that identification with the group category decreases when relational ties to fellow group members are jeopardized by intra-group friction (Bhappu & Crews, 2005), lack of cooperation (Griffith, 2002), or violations of intragroup trust and differences between the individual and other group members (e.g., Becker & Tausch, 2014; Becker, Tausch, Spears, & Christ, 2011; Glasford, Pratto, & Dovidio, 2008; Zagenczyk et al., 2013). Others have noted the importance of the personal self in alignments to groups (e.g., Baray, Postmes, & Jetten, 2009; Brewer & Gardner, 1996), in that identification weakens when people recognize that the ingroup prototype deviates from personal values (Becker & Tausch, 2014; Ellemers, van den Heuvel, de Gilder, Maass, & Bonvini, 2004; Elsbach & Bhattacharya, 2001) or when group members fail to verify the individual's (negative as well as positive) personal identities (Simon & Stürmer, 2003; Swann, 2012; Swann Jr, Milton, & Polzer, 2000). Furthermore, some have noted that the identification of group members can translate into their relational identification with leaders (Steffens, Haslam, & Reicher, 2014) and have noted the implications of these processes for collective action (Drury & Reicher, 2009). Researchers (e.g., Ellemers, Kortekaas, & Ouwerkerk, 1999; Leach et al., 2008) have even begun to incorporate face-valid items designed to tap

relational ties into two new measures of identification. Note, however, that face validity does not guarantee construct validity (Cronbach & Meehl, 1955) and evidence that these scales are actually related to relational ties is currently lacking.

Such forays into the role of the personal self and relational ties in group relations (e.g., Baray et al., 2009; Hornsey & Jetten, 2004, 2005; Jans, Postmes, & van der Zee, 2011; Postmes & Jetten, 2006; Postmes, Spears, Lee, & Novak, 2005; Van Zomeren, Saguy, & Schellhaas, 2013) may cause social identity theorists to impugn our juxtaposition of fusion theory against *classic* theories of group identification instead of recent informal revisions of those theories. We do so because the classic theories have never been formally revised. As a result, the early statements continue to be regarded as *the* theories of group identification. Moreover, incorporation of relational ties into social identity formulations continues to be left to the discretion of individual investigators. In addition, the emphasis on the sovereignty of collective ties in the classic theories continues to shape the construction of measures of identification even to this day. The result is that even the newer measures of identification (e.g., Leach et al., 2008) emphasize collective ties over relational ties. This means that manipulations designed to degrade collective ties should diminish identification but manipulations designed to degrade relational ties should not. We examine this possibility in our research.

The central question we address here is how one might lower fusion and its correlates. Although there is no research addressing this issue directly, one series of studies suggest that fusion can indeed change. In particular, major socio-political events in Spain (a scandal involving the royal family and threats of succession by a prominent province) did diminish fusion by eroding collective ties to the country (Vázquez et al., 2017). Nevertheless, although the negative events eroded collective ties and fusion, they did not decrease relational ties or willingness to fight and die for the group. Furthermore, because Vázquez et al. (2017) examined the correlates of naturally occurring events, the causal impact of those events is not firmly established.

To fill the foregoing gaps in the literature, we adopted an experimental approach to lowering alignment with the participant's country. The general goal of these experiments was to observe the effects of systematically compromising collective and relational ties to the group on identity fusion, group identification, and subsequent group-related agency and pro-group behaviors.

We expected that degrading collective or relational ties would lower identity fusion (Study 1) and that lowered fusion would mediate the effect of weakened relational and collective ties on pro-group behavior (Study 2). Also, we anticipated that lowering identity fusion by compromising relational or collective ties would reduce group-related agency, and such reductions would, in turn, mediate the effects of fusion on pro-group behavior (Studies 3–4). Furthermore, we predicted that these previous effects would be extended to actual commitment behaviors such as commitment to help the group (Studies 4–6). In contrast, we anticipated that only degrading collective ties would lower overall group identification scores (Studies 1–6). Furthermore, we expected that, as in past studies, the direct effects of fusion on pro-group behavior would be stronger than the direct effects of identification.

Several features of our methodologies deserve comment. First, in light of past evidence that enduring alignments to important groups such as one's country tend to persist over time (Swann Jr. et al., 2012), we assumed that our manipulations would influence *state* versions of group alignment (how participants feel toward the group *at the moment*) but not necessarily trait versions (how people feel toward the group in general). To test this assumption, we measured both state and trait fusion and identification in Study 1. Second, we employed both between-subjects and within-subjects designs to assess change in fusion. Using between-subjects designs (Studies 1–3 and 5–6), we inferred change by comparing fusion scores across experimental conditions during a single slice of time. Using a within-subjects design (Study 4), we observed change directly by measuring the predictor variables

(fusion and identification), introducing a manipulation, and observing the impact of the manipulation on the outcome measures (fusion, identification, agency and endorsement of pro-group behavior). Third, while Studies 1–3 focus on the impact of our manipulations on endorsement of pro-group behavior, to determine if our effects would generalize to overt behavior, in Studies 4, 5 and 6 we measured participants' commitment of time to help the group. Fourth, to strengthen the results of our mediational hypotheses, in Study 5 we manipulated the potential mediator, personal agency, identified in Studies 3 and 4. Fifth, to provide stronger tests of our prediction that our single measure of fusion would be more predictive of our outcome measures than identification, we employed four widely used measures of identification, including measures that have not been used in previous studies of identity fusion. And sixth, to reinforce the generalizability of our conclusions, we tested whether our effects would generalize to two different group identities, country (Studies 1–5) or gender (Study 6). We report all measures, manipulations, and exclusions in these studies. Although we did not determine a particular sample size a priori, all studies were open for a week and then closed and no additional data were collected subsequently. Participants in all the studies provided their consent before participating in each study.

2. Study 1: does degrading collective and relational ties decrease alignment with the group?

Whereas identity fusion should vary as a function of both collective ties to the group as well as relational ties to members of the group, group identification should vary as a function of collective ties only. To test this hypothesis, we asked participants to recall situations that made them question either their collective ties to the group or their relational ties to individual members of the group. Then, we measured feelings of alignment (i.e., fusion and identification) with the group, with participants randomly assigned to complete either trait or state versions of alignment. We expected that compromising either collective or relational ties would lower identity fusion but that only compromising collective ties would lower identification with the group. Furthermore, we anticipated that these changes in alignment to the group would be reflected in measures of state, but not trait, fusion and identification.

2.1. Method

2.1.1. Participants

We recruited participants using the snowball technique wherein undergraduates enrolled in an online distance learning psychology course from UNED asked their acquaintances to participate. A total of 370 Spanish volunteers participated online (55.9% women, $M_{age} = 36.39$ years, $SD = 11.85$).

2.1.2. Procedure

Participants were randomly assigned to each condition in a 3 (type of tie: collective, relational, control) X 2 (measure of alignment: Trait vs. State) between-subjects design. In the *collective ties condition,* participants described two of their country's actions that made them question their relationship with their country. Examples generated by the participants included: "The way the Government and the politicians are framing the conflict of the Independence of Catalonia" or "The repeated cases of political corruption in the national or regional governments." Participants in the degraded relational ties condition described two interactions with fellow countrymen that made them question their relationship with the members of their country. Participants reported examples of degrading relational ties with individuals ranging from those whom they did not know personally to family members or close friends (e.g. "A negative interaction that I remember having had was to go with a friend for the fiestas of San Isidro in Madrid and he insulted an Ecuadorian boy just for not being Spanish. At that time I felt very far from my Spanish friend"; "On some occasions I have felt racism of

friends against the foreign inhabitants (blacks normally) who live in our country, I have felt a lot of shame and indignation when I have seen this type of behavior displayed by close friends"; "When I was in a restaurant with some friends some other Spaniards sitting there started to insult others because they were immigrants. It was very embarrassing." Participants in the *control* condition described their two last trips to their workplace or university.

To check on the effectiveness of the manipulations, we asked two independent judges who were blind to the goals of the research to evaluate the examples of degraded ties generated by participants. After reading a description of the meaning of relational and collective ties, judges scored the narrative as "1" when there was agreement between what participants were encouraged to contemplate (e.g., degraded relational ties) and what they were actually contemplated (e.g. degraded relational ties vs. degraded collective ties), "0" when there was disagreement (e.g. the manipulation encouraged them to report degrade relational ties and they instead reported degraded collective ties), or no number when they wrote something unrelated to the manipulation. The judges' ratings were closely associated (kappas = 0.843 and 0.842 in the relational and collective ties conditions, respectively). In the relational ties condition, Judge1 detected agreement fully 91.4% of the time (with only 5.17% of participants judged as referring to collective ties); Judge 2 detected agreement 90.5% of the time (only 6.03% reported information referred to collective ties). In the collective ties condition, judge 1 detected agreement 91.1% of the time (only 3.57% reported information referred to relational ties); judge 2 considered that 90.2% of participants reported examples relative to collective ties (only 5.36 reported information referred to relational ties). These findings affirm the effectiveness of the manipulation.

As a secondary manipulation check, we had participants responded to two, 3-item scales adapted from a previous study (Vázquez et al., 2017). One scale measured their collective ties with Spain: "Right now, I feel strong ties to my country," α = 0.89; the other measured their relational ties to other Spaniards: "Right now, I feel strong ties to the members of my country," α = 0.86. The manipulation checks were successful in all Experiments (see Table 1 of supplemental material).

After completing the manipulation checks, depending on condition, participants completed either the trait or state versions of the measures of alignment with the group (i.e., fusion and identification). The trait versions were identical to the scales used in previous research. For the state versions of the measures of alignment, we modified the trait version by adding "Right now" to the state version. For example, we modified the trait fusion item "My group is me" to be "Right now I feel that my group is me".

Within both the trait and state conditions, participants completed, in random order, the verbal fusion scale and the three measures of identification (this randomization procedure was followed in all experiments included in this report). All measures were internally consistent, including the verbal fusion scale (αs = 0.80 and 0.88, trait and state, respectively), Mael and Ashforth (1992), αs = 0.84 and 0.87, and Ellemers et al. (1999) scale, αs = 0.83 and 0.79. Alpha for the single-item scale ("Right now I identify with my group") devised by Postmes, Haslam, and Jans' (2013) obviously could not be computed. Responses to all scales ranged from 0 (*totally disagree*) to 6 (*totally agree*).

2.2. Results and discussion

We performed a single analysis on the outcome variables using the Lavaan package in R software. We entered condition (type of tie: degraded collective ties vs. degraded relational ties vs. control), measure of alignment (trait vs. state) and the 2-way interaction as predictors of the regression analysis. As the condition had three levels, we created two dummy codes with the control condition as the comparison group. The first dummy code (D1) compared the control condition with the degraded collective ties condition, whereas the second (D2) compared the control condition with the degraded relational ties condition.

Table 1
Experiments 1–4. Correlations.

		Fusion	M&A	Postmes	Ellemers	Fight die	Agency
Exp.1	Fusion	–	0.50	0.54	0.36		
	M&A	0.55	–	0.62	0.40		
	Postmes	0.49	0.59	–	0.62		
	Ellemers	0.43	0.41	0.68	–		
Exp.2	Fusion	–	0.56	0.53	0.62	0.43	
	M&A	–	–	0.50	0.47	0.24	
	Postmes	–	–	–	0.56	0.20	
	Ellemers	–	–	–	–	0.23	
	Fight die					–	
Exp.3	Fusion	–	0.57	0.46	0.53	0.40	0.33
	M&A	–	–	0.47	0.63	0.28	0.18
	Postmes	–	–	–	0.58	0.20	0.18
	Ellemers	–	–	–	–	0.17	0.18
	Fight Die					–	0.29
	Agency						–
Exp.4	Fusion	–	0.39	0.40	0.38		
	M&A	0.53	–	0.67	0.57		
	Postmes	0.60	0.55	–	0.71		
	Ellemers	0.47	0.46	0.70	–		
	Fight die	0.46	0.48	0.27	0.23		
	Agency	0.48	0.43	0.24	0.21	0.66	
	Hours	0.33	0.23	0.12*	0.10+	0.38	0.38

Notes: * $p = .029$; + $p = .062$. The remainder correlations have a $p < .010$.
M&A = Mael and Ashforth (1992).
In Experiment 1 correlations below the diagonal correspond to the trait version of fusion and identification measures, and correlations above the diagonal correspond to the state version of the measures.
In Experiment 4 correlations below the diagonal correspond to the second wave, and correlations above the diagonal correspond to the first wave.

Table 2
Experiment 5. Correlations.

	1.	2.	3.	4.	5.	6.	7.
1. Fusion	–						
2. Solidarity	0.55**	–					
3. Satisfaction	0.45**	0.67**	–				
4. Centrality	0.45**	0.51**	0.57**	–			
5. Self-stereotyping	0.44**	0.46**	0.54**	0.55**	–		
6. Homogeneity	0.30**	0.23**	0.33**	0.29**	0.47**	–	
7. Fight die	0.43**	0.20**	0.10*	0.19**	0.22**	0.10*	–
8. Hours	0.41**	0.14**	0.05	0.13**	0.10*	0.11*	0.37**

Notes: ** $p < .010$, * $p < .050$.

Interaction 1 refers to the interaction between Dummy 1 and measure of alignment, whereas Interaction 2 refers to the interaction between Dummy 2 and measure of alignment. We will refer only to significant or marginal effects below but report all other effects as well as the means and standard deviations for each condition in the supplemental material (Tables 2 and 3). Table 1 shows the correlations between the outcome variables for each study.
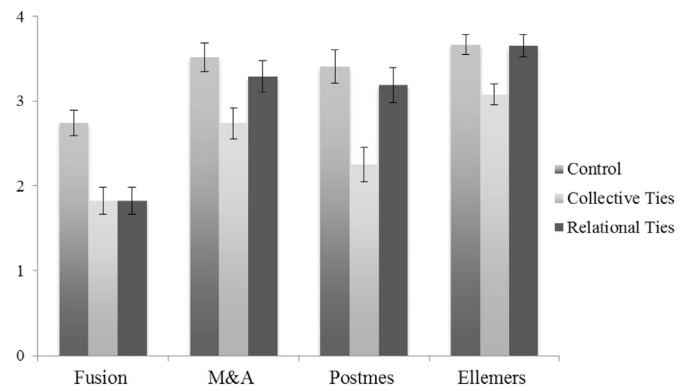

Fig. 1. State fusion and identification scores as a function of the Type of Manipulation (Study 1).

2.2.1. Changes in fusion

The regression on fusion scores yielded two significant interaction effects, $B = -1.08$, $p < .001$, 95% CI $[-1.68, -0.48]$ for Interaction 1 (D1xVersion), and $B = -1.12$, $p < .001$, 95% CI $[-1.71, -0.52]$ for Interaction 2 (D2xVersion). As shown in Fig. 1, state fusion was lower in the degraded collective ties condition, $B = -0.91$, $p < .001$, 95% CI $[-1.35, -0.49]$, $M = 1.83$, $SD = 1.04$, and in the degraded relational ties condition, $B = -0.92$, $p < .001$, 95% CI $[-1.34, -0.49]$, $M = 1.82$, $SD = 1.09$, relative to the control condition, $M = 2.74$, $SD = 1.48$. Trait fusion did not differ across conditions, however, Bs = 0.16 and 0.20, ps = 0.456 and 0.351 for the Interaction 1 and Interaction 2, respectively.

The main effect of measure of alignment was marginally significant, $B = 0.36$, $p = .076$, 95% CI $[-0.04, 0.76]$, indicating that state fusion tended to be lower than trait fusion, $M = 2.16$, $SD = 1.31$ vs. $M = 2.49$, $SD = 1.20$.

2.2.2. Changes in identification

The regression on Mael and Asforth's scale only yielded a significant effect of the interaction between D1 and measure of alignment, $B = -0.87$, $p = .013$, 95% CI $[-1.56, -0.19]$. State identification was lower in the degraded collective ties condition than in the control condition, $B = -0.78$, $p = .001$, 95% CI $[-1.26, -0.30]$, $M = 2.74$, $SD = 1.29$ and $M = 3.52$, $SD = 1.46$, respectively. However, trait identification was similar in both the degraded collective ties and control conditions, $B = 0.09$, $p = .713$. Unlike fusion, identification was not affected by the manipulation of relational ties.

The regression on the Postmes et al.'s (2013) measure only yielded a significant effect of the interaction between D1 and measure of alignment, $B = -1.32$, $p = .001$, 95% CI $[-2.10, -0.54]$. State identification was lower in the degraded collective ties condition than in the control condition, $B = -1.15$, $p < .001$, 95% CI $[-1.70, -0.60]$, $M = 2.25$, $SD = 1.62$ and $M = 3.41$, $SD = 1.90$, respectively. Trait identification was similar in both the degraded collective ties and

Table 3
Experiment 6. Correlations.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Fusion	–							
2. Solidarity	0.47**	–						
3. Satisfaction	0.32**	0.25**	–					
4. Centrality	0.23**	0.32**	0.53**	–				
5. Self-stereotyping	0.20**	0.18**	0.19**	0.38**	–			
6. Homogeneity	0.12	0.23**	0.15*	0.23**	0.44**	–		
7. Agency	0.38**	0.14*	0.06	−0.01	0.23**	0.25**	–	
8. Fight die	0.51**	0.27**	0.16**	0.09	0.04	0.09	0.38**	–
9. Hours	0.31**	0.23**	0.12*	0.12*	0.12	0.15**	0.38**	0.50**

Notes: ** $p < .010$, * $p < .050$.

control conditions, however, $B = 0.17$, $p = .557$. Once more, the manipulation of degraded relational ties had no impact on identification.

The regression on the Ellemers et al.'s scale yielded a significant effect of the interaction between D1 and Version, $B = -0.72$, $p = .004$, 95% CI [−1.20, −0.23]. State identification was lower in the degraded collective ties condition than in the control condition, $B = -0.59$ $p = .001$, 95% CI [−0.93, −0.25], $M = 3.08$, $SD = 0.89$ and $M = 3.67$, $SD = 1.15$, respectively. However, trait identification was similar in both the degraded collective ties and control conditions, $B = 0.12$, $p = .478$. The effect of D2 was significant, $B = 0.36$, $p = .037$, 95% CI [0.02, 0.70], indicating that identification was slightly higher in the degraded relational ties condition than in the control condition, $M = 3.98$, $SD = 0.94$ and $M = 3.81$, $SD = 1.11$, respectively. Finally, the effect of measure of alignment was marginally significant, $B = -0.29$, $p = .084$, 95% CI [−0.61, 0.04], indicating that state identification tended to be lower than state identification, $M = 3.48$, $SD = 1.01$ vs. $M = 4.10$, $SD = 1.00$.

2.2.3. Sensitivity power analysis

Sensitivity power analyses allow determining the minimum effect size that a certain study could detect based on the sample size recruited and the alpha level and power specified. We performed a sensitivity power analysis using GPower (Faul, Erdfelder, Lang, & Buchner, 2007) assuming an alpha significance criterion of 0.05. With a sample size of 370 participants and five predictors, we could detect a minimum effect size of $f^2 = 0.035$ with 80% power.

2.2.4. Summary

Consistent with prediction, the results indicated that having participants describe actions that compromised their relationship with the country as a whole (e.g. collective ties) or other members of their country (e.g. relational ties) diminished their feelings of state fusion with the group relative to a control condition. In contrast, compromising collective ties—but not relational ties—diminished state identification with the group.

As expected, attenuations in fusion and identification emerged on state but not trait measures. This finding is unsurprising given that people can draw on a lifetime of experiences when they respond to trait measures as compared to that moment when they respond to state measures. In light of these findings, in the remaining experiments we only included state measures of fusion and identification.

3. Study 2: does the reduction of collective and relational ties diminish willingness to sacrifice for the group?

Study 1 provided evidence that there exist distinct strategies for lowering identity fusion and identification. Nevertheless, although our manipulations of relational and collective ties were systematically related to fusion and identification, it is unclear whether these manipulations would likewise influence the theoretical consequences of alignment with groups. Study 2 was designed to replicate evidence that compromising relational and collective ties would lower fusion and also one of its consequences, endorsement of fighting and dying for the group. Since identity fusion is a powerful predictor of pro-group behavioral intentions (Gómez et al., 2011; Swann Jr. et al., 2009), we expected an indirect effect via fusion between our manipulation and willingness to fight and die for the group.

3.1. Method

3.1.1. Participants

As in Study 1, we utilized the snowball technique to recruit participants. Because data collection fell over a long holiday weekend, participation rate was unusually high, resulting in much larger sample than participated in Study 1 ($N = 1151$ Spaniards; 62.6% women, $M_{age} = 37.11$ years, $SD = 12.34$). Participants completed the

questionnaire online.

3.1.2. Procedure

As in Study 1, the experimenter assigned participants to one of three conditions: *degraded collective ties, degraded relational ties, or control*. After the manipulations, participants completed the manipulation checks, αs = 0.90 vs. 0.85 for the collective and relational ties scales respectively.

After completing the manipulation checks, participants responded to the state versions of the fusion and identification scales used in Study 1, αs > 0.82. Finally, they completed Swann Jr. et al.'s (2009) 7-item measure of willingness to fight/die for the group (e.g., "I would fight someone physically threatening another Spaniard"), α = 0.81.

4. Results and discussion

As in Study 1, we performed a single analysis on the outcome variables using the Lavaan package in R software. Since the predictor, type of tie, had three levels, two dummy codes were created as in the previous study. The non-significant effects are specified in the supplemental material (Table 4).

4.1.1. Fusion

The regression on fusion yielded significant effects of both D1 (collective ties vs. control), $B = -0.76$, $p < .001$, 95% CI [−0.94, −0.58], and D2 (relational ties vs. control), $B = -0.59$, $p < .001$, 95% CI [−0.77, −0.41]. Participants in both the degraded collective ties, $M = 1.68$, $SD = 1.14$, and degraded relational ties conditions, $M = 1.85$, $SD = 1.31$, expressed weaker fusion than participants in the control condition, $M = 2.45$, $SD = 1.27$.

4.1.2. Identification

The regressions on the identification scales only yielded significant effects of D1, $B = -0.37$, $p < .001$, 95% CI [−0.54, −0.19] for Mael and Asforth's scale, $B = -0.56$, $p < .001$, 95% CI [−0.75, −0.36] for Postmes et al.'s scale, and $B = -0.31$, $p < .001$, 95% CI [−0.46, −0.17] for Ellemers et al.'s scale. Identification was weaker in the degraded collective ties condition than in the control condition. None of the effects of D2 (control vs. degraded relational ties) was significant.

4.1.3. Fight/die for the group

The regression on willingness to fight and die yielded significant effects of both D1, $B = -0.49$, $p < .001$, 95% CI [−0.60, −0.37], and D2, $B = -0.40$, $p < .001$, 95% CI [−0.52, −0.29]. Participants in the degraded collective ties, $M = 0.73$, $SD = 0.66$, and degraded relational ties conditions, $M = 0.81$, $SD = 0.76$, expressed less willingness to fight and die for the group than those in the control condition, $M = 1.22$, $SD = 0.99$.

4.1.4. Indirect effects

To test whether the experimental condition could affect willingness to fight/die for the group via lowered identity fusion, we conducted a mediational test using the Lavaan package in R software. D1 and D2 were entered as predictors, identity fusion was the potential mediator and willingness to fight/die for the group was the outcome variable. This model was based on previous research revealing that fusion is a powerful predictor of willingness to fight and die for the group (Gómez et al., 2011; Swann Jr. et al., 2009). As shown in Fig. 2, the indirect effect via identity fusion was significant for D1, $B = -0.19$, $p < .001$, 95% CI [−0.25, −0.14], and for D2, $B = -0.15$, $p < .001$, 95% CI [−0.20, −0.10], suggesting that compromising collective or relational ties could weaken willingness to fight/die for the group by decreasing feelings of identity fusion with the country. Parallel analyses in which we sequentially substituted each of the three measures of identification
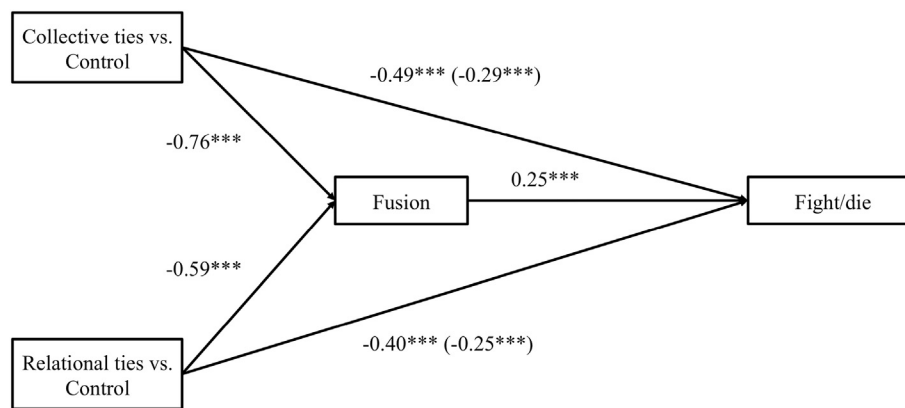
Fig. 2. Indirect effect of compromising collective and relational ties on willingness to fight/die via identity fusion (Study 2).

for the measure of fusion revealed that indirect effects via D1 (control vs. degraded collective ties) were significant although smaller than the indirect effects of fusion (see Table 5 of supplemental material).

4.1.5. Sensitivity power analysis

We performed a sensitivity power analysis using GPower (Faul et al., 2007) assuming an alpha significance criterion of 0.05. With a sample size of 1151 participants and two predictors, we could detect a minimum effect size of $f^2 = 0.008$ with 80% power.

4.1.6. Summary

As in Study 1, compromising either collective or relational ties weakened identity fusion relative to a control group. Furthermore, the impact of the manipulations on diminutions in willingness to fight/die for the group might occur via reductions in fusion. In contrast, compromising collective ties, but not relational ties, weakened identification. Moreover, the impact of collective ties (but not relational ties) on willingness to fight/die for the group seems to be related with reductions in identification. However, the indirect effects of fusion on willingness to fight/die for the group were stronger than those of identification.

5. Study 3: does agency mediate the impact of decreased fusion on diminutions in willingness to fight/die for the group?

The foregoing results indicate that compromising both collective and relational ties weakened fusion and such diminutions, in turn, might weaken willingness to fight/die for the group. In contrast, only diminutions in collective ties diminished identification and willingness to fight/die for the group. Although these findings illustrate the unique role of relational ties in fusion, they fail to provide evidence for another key variable that has been uniquely associated with fusion: group-related agency. Study 3 was designed to provide such evidence. Fused individuals usually convert their elevated personal agency into endorsement of pro-group behavior (e.g., Gómez et al., 2011; Swann Jr., Gómez, Huici, et al., 2010). Thus, we explored the possibility of a serial mediation effect in which degradations in relational and collective ties diminished fusion and, in turn, group-related agency, and group-related agency would mediate the effect of diminutions in fusion on willingness to fight/die for the group.

5.1. Method

5.1.1. Participants

As in Study 1, we utilized the snowball technique to recruit 458 Spaniards (59% women, $M_{age} = 37.14$ years, $SD = 13.63$). Participants completed the questionnaire online.

5.1.2. Procedure

As in the foregoing studies, the experimenter assigned participants to one of three conditions: *degraded collective ties, degraded relational ties, or control*. After the manipulations, participants completed the manipulation checks, αs = 0.89 and 0.90, respectively.

After completing the manipulation checks, participants responded to the state version of the fusion and identification scales used in the previous experiment, αs > . 83. They then completed the measure of agency. We used five items based on Haggard and Tsakiris's (2009) discussion of the agency construct (see also Gómez et al., 2011; Swann Jr., Gómez, Huici, et al., 2010). With reference to Spain, participants rated their agreement with a series of statements relevant to control of, and responsibility for, the group (e.g., "I am able to control what my group does in the same way that I control what I do," "I usually feel responsible for what my group does," α = 0.78. Then they completed Swann Jr. et al.'s (2009) 7-item measure of willingness to fight/die for the group, α = . 78.

5.2. Results and discussion

As in Experiments 1–2, we performed a single analysis on the outcome variables. The non-significant effects are specified in the supplemental material (Table 6).

5.2.1. Fusion

The regression on fusion yielded significant effects of both D1 (collective ties vs. control), $B = -0.92$, $p < .001$, 95% CI [-1.24, -0.59], and D2 (relational ties vs. control), $B = -0.61$, $p < .001$, 95% CI [-0.94, -0.27]. Participants in the degraded collective ties, $M = 1.90$, $SD = 1.42$, and degraded relational ties conditions, $M = 2.22$, $SD = 1.59$, expressed less fusion than participants in the control condition, $M = 2.82$, $SD = 1.47$.

5.2.2. Identification

The regressions on the identification scales only yielded significant effects of D1, $B = -0.51$, $p = .002$, 95% CI [-0.82, -0.19] for Mael and Asforth's scale, $B = -0.39$, $p = .027$, 95% CI [-0.74, -0.04] for Postmes et al.'s scale, and $B = -0.55$, $p < .001$, 95% CI [-0.81, -0.30] for Ellemers et al.'s scale. Identification was significantly weaker in the degraded collective ties condition than in the control condition. None of the effects of D2 was significant.

5.2.3. Agency

The regression on agency yielded significant effects of both D1, $B = -0.40$, $p < .001$, 95% CI [-0.59, -0.20], and D2, $B = -0.36$, $p < .001$, 95% CI [-0.56, -0.16]. Participants in the degraded collective ties, $M = 0.80$, $SD = 0.71$, and degraded relational ties conditions, $M = 0.84$, $SD = 0.79$, expressed weaker feelings of agency for the
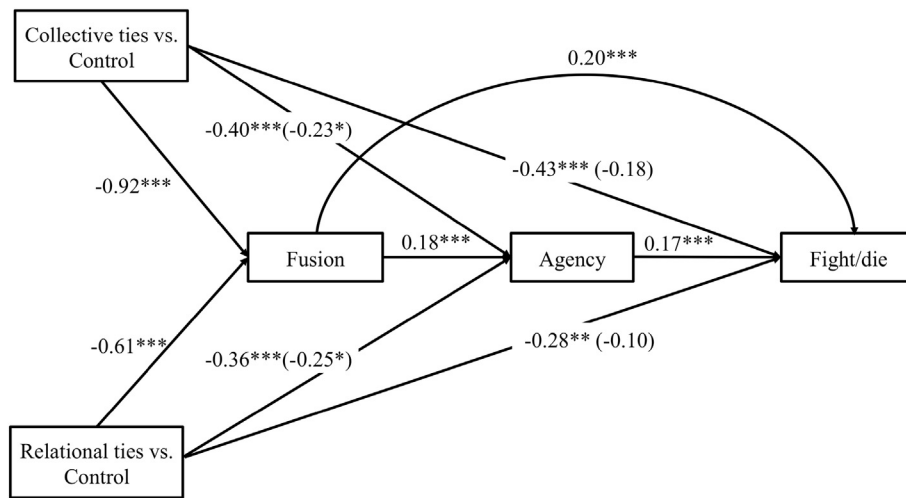
Fig. 3. Indirect effect of compromising collective and relational ties on willingness to fight/die via identity fusion and agency (Study 3).

group than participants in the control condition, $M = 1.20$, $SD = 1.11$.

5.2.4. Fight/die for the group
The regression on willingness to fight and die yielded significant effects of both D1, $B = -0.43$, $p < .001$, 95% CI [-0.62, -0.23], and D2, $B = -0.28$, $p = .007$, 95% CI [-0.49, -0.08]. Participants in the degraded collective ties, $M = 0.91$, $SD = 0.79$, and degraded relational ties conditions, $M = 1.05$, $SD = 1.01$, expressed less willingness to fight and die for the group than participants in the control condition, $M = 1.34$, $SD = 0.93$.

5.2.5. Indirect effects
To determine if the effect of our manipulations on willingness to fight/die for the group could be serially mediated by identity fusion and agency, we tested the mediation model depicted in Fig. 3 using the Lavaan package in R software. This model was based on previous evidence that the effect of fusion on willingness to fight and die for the group is mediated by personal agency (Gómez et al., 2011; Swann Jr., Gómez, Huici, et al., 2010). The two dummy codes were entered as predictors, identity fusion was the first potential mediator, agency was the second potential mediator and willingness to fight/die for the group was the outcome variable. This model had three distinct indirect effects for each dummy code: 1) the effect via fusion and agency serially (condition > fusion > agency > fight/die), 2) the effect via fusion alone (condition > fusion > fight/die), and 3) the effect via agency alone (condition > agency > fight/die). Results indicated that all these indirect effects were significant. Relative to the control group, undermining collective ties (Dummy 1) seemed to weaken willingness to fight and die for the group via 1) identity fusion and agency serially, $B = -0.03$, $p = .006$, 95% CI [-0.05, -0.01], 2) identity fusion alone, $B = -0.18$, $p < .001$, 95% CI [-0.26, -0.10], and 3) agency alone, $B = -0.04$, $p = .044$, 95% CI [-0.08, -0.001]. Relative to the control group, undermining relational ties (Dummy 2) seemed to weaken willingness to fight and die for the group via 1) identity fusion and agency serially, $B = -0.02$, $p = .018$, 95% CI [-0.03, -0.003], 2) identity fusion alone, $B = -0.12$, $p = .002$, 95% CI [-0.19, -0.04], and agency alone, $B = -0.04$, $p = .038$, 95% CI [-0.08, -0.002].

Parallel analyses in which we sequentially substituted each of the three measures of identification for the measure of fusion revealed significant indirect effects of D1 (control vs. collective) on willingness to fight/die for Mael and Asforth's and Ellemers et al.'s scales, but not for the Postmes et al.'s item (only the indirect effect of agency was significant). The indirect effects of D2 (control vs. relational ties) via identification alone and via identification and agency were not significant for any scale. Only the indirect effect via agency was significant

(see Table 7 of supplemental material).

5.2.6. Sensitivity power analysis
We performed a sensitivity power analysis using GPower (Faul et al., 2007) assuming an alpha significance criterion of 0.05. With a sample size of 458 participants and two predictors, we could detect a minimum effect size of $f^2 = 0.021$ with 80% power.

5.2.7. Summary
As expected, Study 3 replicated Studies 1–2 in that decreasing either the perception of collective or relational ties weakened identity fusion. In addition, as in Study 2, the experimental manipulations presumably diminished willingness to fight and die for the group by diminishing fusion. Moreover, decreasing collective or relational ties weakened feelings of agency, which, in turn, seemed to mediate the link between fusion and willingness to fight and die. In contrast, identification was diminished by compromising collective but not relational ties. Finally, there was a significant serial indirect effect in which degradations in relational and collective ties weakened fusion and, in turn, group-related agency, which in turn mediated the effect of diminutions in fusion on willingness to fight/die for the group.

6. Study 4: does compromising relational ties reduce commitment to pro-group action?

Studies 1–3 offer converging evidence that degradations of both relational and collective ties weakened fusion but only compromising collective ties diminished identification. Nevertheless, the foregoing findings were limited because we used between-subjects designs in which participants were observed in a single slice of time. Hence, we could only infer change indirectly by noting the pattern of responses of participants in different experimental conditions. To observe change in fusion directly, in Study 4 we sampled university students. This group could be readily incentivized to participate in a multi-wave study.

Note that the Study was conducted during a period of extreme political volatility: between October 1st, 2017, when the president of the Catalan Government organized illegal voting for the independency, and December 21th, after the arrest of the primary politicians who rebelled against the central government. Capitalizing on this explosive political issue (threats of secession by Spain's most prosperous province, Catalonia), we measured how many hours participants volunteered to work with a team that was attempting to reduce conflict among Spaniards. In addition to this pro-group behavior, we included the same measure of pro-group behavior used in our earlier studies (willingness to fight and die for the group).

A final feature of Study 4 was that we simplified the design by dropping the degraded collective ties condition that we had included in Studies 1–3. Given that we observed the effects of degrading collective ties in three previous experiments, it would have been redundant to demonstrate this effect yet again.

6.1. Method

6.1.1. Participants

Spanish Psychology upper-class undergraduates from UNED completed a two-wave Study online ($N = 398$ in wave 1 and $N = 357$ in wave 2; 72.8% female, $M_{age} = 33.06$, $SD = 10.48$ in wave 2) for course credit. In the first wave participants completed the trait versions of the measures of fusion and identification (Ellemers et al., 1999; Mael & Ashforth, 1992; Postmes et al., 2013), αs > 0.83.

Five weeks later we randomly assigned participants to either the degraded relational ties or control conditions used in Studies 1–3. After the manipulations, participants completed the manipulation check, $\alpha = 0.91$. They then responded to the state version of the fusion and identification scales used in the previous experiments, αs > 0.84 (see Table 1 for the correlations between these measures at wave 1 and wave 2), the same measure of agency that in Study 3, $\alpha = 0.80$ and Swann Jr. et al.'s (2009) 7-item measure of willingness to fight/die for the group, $\alpha = 0.80$.

Finally, participants learned that our research team was developing a program designed to reduce conflict and improve relations between fellow Spaniards. Noting that as upper classmen their experience would be potentially beneficial to the group, we asked to them if they would like to collaborate with our team. They were informed that their task would consist on evaluating proposals to resolve the conflicts between the Spaniards and make suggestions for improvement. Participants then indicated how many hours they committed to work on this task.

6.2. Results and discussion

To examine the change in fusion and identification we performed repeated measures analysis. To examine the change on the outcome variables (agency, fight and die, and commitment to help the group) as a function of condition and prior levels of alignment with the group, we conducted a single analysis. In this latter analysis, condition (0 control, 1 degraded relational ties), fusion (or identification) in wave 1 (centered) and the 2-way interaction were entered as predictors. For a priori reasons, commitment to help the group was treated as an ordinal variable. The non-significant effects are specified in the supplemental material (Table 8).

6.2.1. Change in fusion

We conducted a repeated measure ANOVA to test whether the experimental manipulation modified identity fusion between waves 1 and 2. The interaction between the manipulation and waves was significant, $F(1,355) = 23.08$, $p < .001$, $\eta_p^2 = 0.06$. Fusion significantly decreased between waves 1 and 2 in the degraded relational ties condition, $M = 2.35$, $SD = 1.28$ vs. $M = 1.50$, $SD = 1.05$, $F(1,355) = 78.58$, $p < .001$, $\eta_p^2 = 0.18$. In the control condition the difference between fusion at wave 1 and wave 2, $M = 2.46$, $SD = 1.16$ vs. $M = 2.28$, $SD = 1.25$, was only marginal, $F(1,355) = 3.29$, $p = .070$, $\eta_p^2 = 0.01$.

6.2.2. Change in identification

We conducted a repeated measures MANOVA on the identification scales to check whether the degraded relational ties manipulation compromised identification between waves 1 and wave 2. The effect of waves was significant, Wilks' Lambda = 0.72, $F(1,355) = 140.34$, $p < .001$, $\eta_p^2 = 0.28$, such that identification decreased from wave 1 to wave 2. However, the interaction between condition and waves was not significant, Wilks' Lambda = 1.00, $F(1,355) = 1.10$, $p = .295$, $\eta_p^2 = 0.003$. The 3-way interaction between type of scale, manipulation

and waves was not significant either, Wilks' Lambda = 1.00, $F(2,354) = 0.81$, $p = .922$, $\eta_p^2 = 0.00$. That is, our manipulation had no impact on reductions in identification from wave 1 to wave 2.

6.2.3. Feelings of agency

The regression on agency yielded a significant effect of the two-way interaction, $B = -0.32$, $p < .001$, 95% CI [-0.45, -0.18]. This interaction was due to the tendency for identity fusion at wave 1 to predict agency at wave 2 in the control condition, $B = 0.34$, $p < .001$, 95% CI [0.27, 0.40], but not in the degraded relational ties condition, $B = 0.02$, $p = .754$, 95% CI [-0.10, 0.14]. In addition, the main effect of condition was significant, $B = -0.42$, $p < .001$, 95% CI [-0.60, -0.24], such that agency was lower in the degraded relational ties condition than in the control condition. Finally, a significant main effect of fusion at wave 1 emerged, $B = 0.34$, $p < .001$, 95% CI [0.27, 0.40], indicating that fusion at wave 1 predicted agency at wave 2.

6.2.4. Fight/die for the group

The regression on willingness to fight and die yielded a significant two-way interaction, $B = -0.28$, $p < .001$, 95% CI [-0.39, -0.19]. Identity fusion at wave 1 predicted willingness to fight and die at wave 2 in the control condition, $B = 0.31$, $p < .001$, 95% CI [0.25, 0.37], but not in the degraded relational ties condition, $B = 0.03$, $p = .512$, 95% CI [-0.06, 0.13]. In addition, the main effect of condition was significant, $B = -0.35$, $p < .001$, 95% CI [-0.50, -0.19], such that willingness to fight and die was lower in the degraded relational ties condition than in the control condition. Finally, a significant main effect of fusion at wave 1 emerged, $B = 0.31$, $p < .001$, 95% CI [0.25, 0.37], in that fusion at wave 1 predicted willingness to fight and die at wave 2.

6.2.5. Commitment to help the group

The regression on the number of hours participants committed to help the group resolve conflicts yielded a significant two-way interaction, $B = -0.30$, $p = .002$, 95% CI [-0.49, -0.11]. Identity fusion at wave 1 predicted commitment to help the group at wave 2 in the control condition, $B = 0.24$, $p < .001$, 95% CI [0.11, 0.36], but not in the degraded relational ties condition, $B = -0.06$, $p = .378$, 95% CI [-0.21, 0.08]. In addition, the main effect of condition was significant, $B = -0.42$, $p < .001$, 95% CI [-0.67, -0.17], such that commitment to help the group was lower in the degraded relational ties condition than in the control condition. Finally, a significant main effect of fusion at wave 1 emerged, $B = 0.24$, $p < .001$, 95% CI [0.11, 0.36], indicating that fusion at wave 1 predicted commitment to help the group at wave 2.

6.2.6. Analyses of identification

Parallel analyses in which we sequentially substituted each of the three measures of identification for the measure of fusion at wave 1 showed no significant effects of the interaction between condition and identification. Only the main effects of condition and identification were significant (see Tables 9–11 of supplemental material).

6.2.7. Indirect effects

To determine if the interactive effect of our manipulation and fusion at wave 1 on the outcome measures (willingness to fight/die for the group and commitment to help the group) would be serially mediated by identity fusion at wave 2 and agency, we conducted a mediation test using Lavaan. As in Study 3, we based this model on previous evidence that fusion influences pro-group activity via personal agency (Gómez et al., 2011; Swann Jr., Gómez, Huici, et al., 2010). We treated the interaction between fusion at wave 1 (centered) and the experimental manipulation as the predictor, identity fusion (centered) at wave 2 as the first potential mediator, and agency (centered) as the second potential mediator. Fusion at wave 1 and the experimental manipulation (0 control, 1 degraded relational ties) served as covariates.
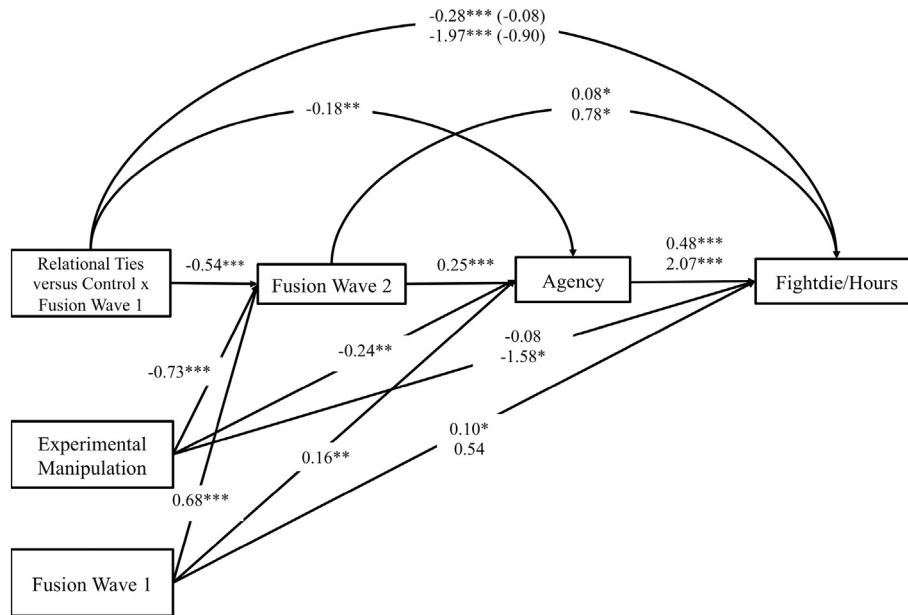
Fig. 4. Indirect effect of compromising collective and relational ties on willingness to fight/die and commitment to help the group via identity fusion and agency (Study 4).

Commitment to help the group was treated as a continuous variable because the ordered factors were not supported for mediational models in Lavaan. Thus, results regarding commitment to help the group must be interpreted cautiously.

As shown in Fig. 4, this model had three distinct indirect effects for each outcome variable: 1) the effect via fusion and agency serially (interaction > fusion > agency > outcome), 2) the effect via fusion alone (interaction > fusion > outcome), and 3) the effect via agency alone (interaction > agency > outcome). Results of the analysis of willingness to fight and die for the group indicated that all the indirect effects via identity fusion at wave 2 and agency were significant while controlling for fusion at wave 1 and the experimental manipulation. Relative to the control condition, undermining relational ties seemed to reduce willingness to fight and die for the group via 1) identity fusion and agency serially, $B = -0.07$, $p < .001$, 95% CI [−0.10, −0.04], 2) identity fusion alone, $B = -0.04$, $p = .017$, 95% CI [−0.08, −0.01], and 3) agency alone, $B = -0.09$, $p = .007$, 95% CI [−0.15, −0.02]. All the indirect effects were significant in the control condition: 1) via identity fusion and agency serially, $B = 0.08$, $p < .001$, 95% CI [0.05, 0.11], 2) identity fusion alone, $B = 0.05$, $p = .012$, 95% CI [0.01, 0.09], and 3) agency alone, $B = 0.08$, $p = .003$, 95% CI [0.03, 0.13]. However, indirect effects were smaller or not significant in the degraded relational ties condition: 1) via identity fusion and agency serially, $B = 0.02$, $p = .027$, 95% CI [0.002, 0.03], 2) identity fusion alone, $B = 0.01$, $p = .080$, 95% CI [−0.001, 0.02], and 3) agency alone, $B = -0.01$, $p = .697$, 95% CI [−0.05, 0.03].

Fig. 4 also shows that the analysis of commitment to help the group yielded similar results. All indirect effects through identity fusion at wave 2 and agency were significant while controlling for fusion at wave 1 and the experimental manipulation. Relative to the control condition, undermining relational ties seemed to reduce volunteering to resolve group's conflicts via 1) identity fusion and agency serially, $B = -0.28$, $p = .001$, 95% CI [−0.45, −0.11], 2) identity fusion alone, $B = -0.42$, $p = .028$, 95% CI [−0.80, −0.04], and 3) agency alone, $B = -0.37$, $p = .018$, 95% CI [−0.68, −0.06]. All the indirect effects were significant in the control condition: 1) via identity fusion and agency serially, $B = 0.35$, $p < .001$, 95% CI [0.16, 0.55], 2) identity fusion alone, $B = 0.53$, $p = .022$, 95% CI [0.08, 0.98], and 3) agency alone, $B = 0.34$, $p = .010$, 95% CI [0.08, 0.60]. Indirect effects were smaller or not significant in the degraded relational ties condition,

however: 1) via identity fusion and agency serially, $B = 0.07$, $p = .043$, 95% CI [0.002, 0.14], 2) identity fusion alone, $B = 0.11$, $p = .095$, 95% CI [−0.02, 0.23], and 3) agency alone, $B = -0.03$, $p = .698$, 95% CI [−0.20, 0.13].

6.2.8. Sensitivity power analysis

We performed two sensitivity power analyses using GPower (Faul et al., 2007) considering an alpha significance criterion of 0.05 and a sample size of 357 participants (in wave 2). The first analysis referred to changes in fusion and identification, that were tested with repeated measures ANOVAs. Given that we had two groups and two measurements, the sensitivity analysis yielded a minimum effect size of f (V) = 0.191 with 80% power. The second analysis was related to the regressions on agency, fight and die and commitment to help the group. Given that we had three predictors, the sensitivity analysis yielded a minimum effect size of $f^2 = 0.031$ with 80% power.

6.2.9. Summary

The results of Study 4 replicate Study 3 using a half-longitudinal design in which the measures of alignment with the group were collected more than a month prior to the experiment. Specifically, compromising relational ties weakened fusion (but not identification) and weakened fusion apparently mediated diminutions in willingness to fight/die for the group as well as donations of one's time to the group. We also replicated the serial indirect effect from Study 3. That is, degradations in relational ties seemed to weaken fusion and, in turn, group-related agency, which in turn might mediate the effect of diminutions in fusion on willingness to fight/die for the group and donations of one's time to the group.

7. Study 5: does compromising relational ties and feelings of agency reduce commitment to pro-group action?

The results of the foregoing studies offer converging evidence for our hypotheses. Nevertheless, we included a fifth study to strengthen two aspects of our findings. First, to buttress our contention that group related agency mediated the effects of our manipulation in Studies 3 and 4, in Study 5 we manipulated agency. Second, studies 1–4 used three popular measures of identification that were developed in the tradition of social identity theory's emphasis on collective ties. In recent

years one set of authors, Leach et al. (2008), have adopted a broader conceptualization of identification stemming from a Lewian conceptualization of identification as a bond between group members (Lewin, 1948). Although most of the items in Leach's scale focus on collective ties, it also includes a relational ties component dubbed "ingroup solidarity" that is closely related to identity fusion (Bortolini, Newson, Natividade, Vázquez, & Gómez, 2018). To determine if degrading relational ties would diminish scores on the ingroup solidarity component of the Leach scale, we included this scale in Study 5.

As in previous studies, we expect the relational ties manipulation to influence fusion, willingness to fight and die and commitment to help the group but not the overall measures of identification. We also expected, however, that degrading relational ties would diminish scores on the ingroup solidarity component of the Leach scale. Finally, as in Study 4, we expected that degrading agency would reduce scores on the outcome measures, willingness to fight and die and commitment to help the group.

7.1. Method

7.1.1. Participants

As in the previous studies, we utilized the snowball technique to recruit 410 Spaniards (63.7% women, $M_{age} = 34.73$, $SD = 12.63$). Five participants did not follow the instructions for the manipulation or the control conditions and were dropped from the analyses (including these participants in the analyses did not change our conclusions). The final sample included 405 participants (64% women, $M_{age} = 34.82$, $SD = 12.62$). Participants completed the questionnaire online.

7.1.2. Procedure

The experimenter assigned participants to either the degraded relational ties or control conditions used in Studies 1–4. After the manipulation, participants completed the manipulation check of relational ties, $\alpha = 0.84$. After completing the manipulation check, participants responded to the state versions of the fusion scale, $\alpha s > 0.88$, and to the state version of the Leach et al. (2008) identification scale, $\alpha s > 0.91$.

After that, participants were randomly assigned to either a degraded agency condition or a no information control condition. In both conditions, participants learned that they would be taking a test of visual perception. They were instructed to watch the screen and capture as many details as possible during 4 s. We presented 10 screens where names of several countries or persons appeared in different color, size and/or order. After each screen participants had to answer a question regarding the information just presented (e.g., "How many times did the word Spain appear in black in the previous list?"). Once finished, all participants read the following information: "You have just completed the Group Self-Control and Personal Test (GSPT), designed to estimate the degree to which people control their responses". They further learned that several studies have discovered that personal control correlates with the control that people exercise over the groups to which they belong. Participants in the *degraded agency condition* received feedback telling them that they scored low on the test: only 20 points out of 100. They learned that such results indicate that they normally have little control over the events of their life, that low control has advantages and disadvantages, and that they would receive more information at the end of the study. Participants in the *no information condition* learned that they would receive their scores at the end of the study.

After the manipulation, participants responded to the Swann Jr. et al.'s (2009) 7-item measure of willingness to fight/die for the group, $\alpha = 0.86$, and to the same outcome measure used in Study 4 to determine how many hours they would commit to evaluating proposals to resolve the conflicts between the Spaniards. Finally, as a manipulation check, participants completed the same measure of group-related agency included in Studies 3–4, $\alpha = 0.80$.

7.2. Results and discussion

Table 2 shows the correlation coefficients for all the outcome variables.

We performed two regressions using the Lavaan package in R software. In the first regression, the predictor was relational ties (1 Relational ties, 0 Control) and the outcome measures were fusion and identification (the agency manipulation occurred after the measures of fusion and identification and was thus not included as a predictor). In the second regression, the predictors were Relational Ties (1 Relational ties, 0 Control), Agency (1 Degrading agency, 0 Control) and the two-way interaction; the outcome measures were willingness to fight and die and commitment to help the group. Commitment to help the group was coded as an ordered factor before conducting the analyses, as in Experiment 4. The non-significant effects are specified in the supplemental material (Table 13).

7.2.1. Changes in fusion

The regression on fusion yielded a significant effect of the relational ties manipulation, $B = -0.44$, $p = .001$, 95% CI $[-0.69, -0.19]$, such that fusion was lower in the degraded relational ties condition, $M = 1.80$, $SD = 1.17$, than in the control condition, $M = 2.24$, $SD = 1.36$.

7.2.2. Changes in identification

A regression revealed that degrading relational ties had no impact on overall identification, $B = -0.17$, $p = .135$. Follow-up analyses of the individual subscales of the Leach scale yielded only one significant effect for ingroup solidarity, $B = -0.36$, $p = .011$, 95% CI $[-0.64, -0.08]$, such that solidarity was lower in the degraded relational ties condition, $M = 2.46$, $SD = 1.44$, than in the control condition, $M = 2.82$, $SD = 1.41$. No significant effects of the relational ties manipulation emerged for the remainder subscales of the Leach scale, Bs = from -0.12 to -0.10, ps = from 0.042 to 0.537.

7.2.3. Fight/die for the group

The regression on fight and die yielded significant effects of the relational ties manipulation, $B = -0.40$, $p = .029$, 95% CI $[-0.76, -0.04]$, and the agency manipulation, $B = -0.31$, $p = .030$, 95% CI $[-0.60, -0.03]$. Participants in the degraded relational ties condition, $M = 1.02$, $SD = 0.86$, were less willing to fight and die for the group than those in the control condition, $M = 1.27$, $SD = 1.30$. Additionally, participants in the degraded agency condition, $M = 1.06$, $SD = 0.96$, were less willing to fight and die for the group than those in the control condition, $M = 1.24$, $SD = 1.26$. The effect of the interaction was not significant.

7.2.4. Commitment to help the group

The regression on commitment to help the group yielded a significant effect of the relational ties manipulation, $B = -0.42$, $p = .015$, 95% CI $[-0.77, -0.08]$, and a marginal effect of the Agency manipulation, $B = -0.30$, $p = .053$, 95% CI $[-0.61, 0.00]$. Participants in the degraded relational ties condition, $M = 1.00$, $SD = 2.14$, were less committed to the group than those in the control condition, $M = 1.86$, $SD = 2.98$. Additionally, participants in the degrading agency condition, $M = 1.12$, $SD = 2.27$, were less committed to the group than those in the control condition, $M = 1.78$, $SD = 2.95$. The effect of the interaction was not significant.

7.2.5. Indirect effects

To determine if degraded relational ties influenced our outcome measures (willingness to fight/die for the group and commitment to help the group) through identity fusion depending on group-related agency, we tested the mediation model depicted in Fig. 5 using Lavaan. The relational ties manipulation was entered as the predictor, identity fusion (centered) as the potential mediator, and the agency
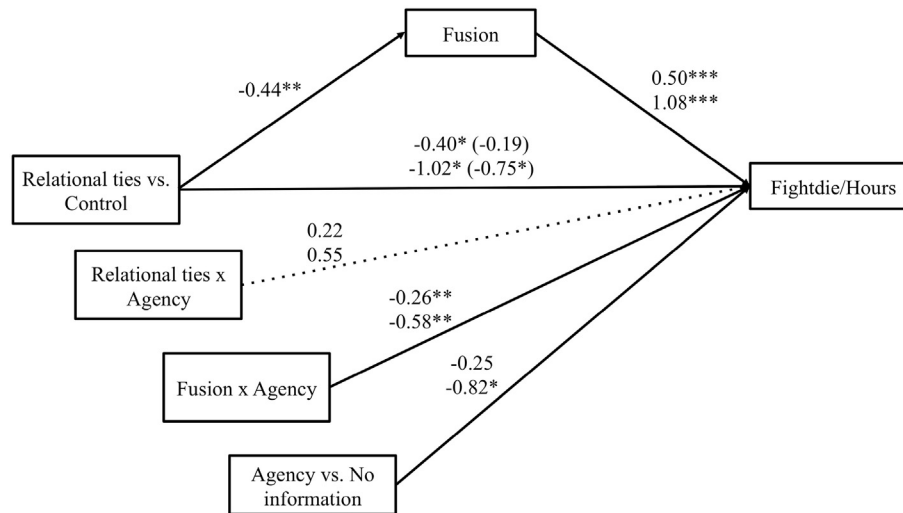
Fig. 5. Indirect effect of compromising relational ties on willingness to fight/die and number of hours via identity fusion depending on the agency manipulation (Study 5).

manipulation as the moderator of the relationship between fusion and the outcome variables. As in Experiment 4, commitment to help the group was considered as a continuous variable because the ordered factors were not supported for mediational models in Lavaan. Thus, results regarding commitment to help the group must be interpreted cautiously.

As shown in Fig. 5, all the indirect effects via identity fusion were significant. However, the effects were higher in the control as compared to the degraded agency condition. Degrading relational ties seemed to reduce willingness to fight and die for the group through identity fusion in both the control condition, $B = -0.22$, $p = .001$, 95% CI [-0.35, -0.08], and in the degraded agency condition, $B = -0.10$, $p = .008$, 95% CI [-0.18, -0.03]. Undermining relational ties seemed to reduce commitment to help the group as compared to the control condition via identity fusion both in control condition, $B = -0.47$, $p = .001$, 95% CI [-0.77, -0.18], and in the degraded agency condition, $B = -0.22$, $p = .010$, 95% CI [-0.39, -0.05].

Given that solidarity presented a similar pattern of results as fusion, we tested the same mediational analysis considering solidarity as the potential mediator of the effect of ties on willingness to fight and die and commitment to help the group. Undermining relational ties seemed to reduce willingness to fight and die for the group as compared to the control condition via solidarity only in the no information condition, $B = -0.07$, $p = .039$, 95% CI [-0.13, -0.004], but not in the degrading agency condition, $B = -0.04$, $p = .124$, 95% CI [-0.09, 0.01]. The indirect effects on commitment to help the group via solidarity was only marginal in the no information condition, $B = -0.12$, $p = .063$, 95% CI [-0.25, 0.01], and not significant in the degraded agency condition, $B = -0.05$, $p = .353$, 95% CI [-0.14, 0.05].

7.2.6. Sensitivity power analysis

We performed two sensitivity power analyses using GPower (Faul et al., 2007) considering an alpha significance criterion of 0.05 and a sample size of 405 participants. The first analysis referred to the regressions on fusion and Leach et al.'s subscales, where we only had one predictor (relational ties manipulation). The minimum effect to be detected with 80% power was $f^2 = 0.019$. The second sensitivity analysis was related to fight and die and commitment to help the group considering three predictors (relational ties manipulation, agency manipulation and its interaction). The analysis revealed that we could detect a minimum effect size of $f^2 = 0.027$ with 80% power.

7.2.7. Summary

Experiment 5 replicates and extends the results of previous studies in that compromising relational ties weakened fusion but not overall identification scores. Furthermore, providing participants with information indicating that their group-related agency was low reduced fusion which, in turn, might diminish their willingness to fight and die as well as their efforts to help the group. Interestingly, these indirect effects were smaller when participants were led to perceive themselves as low in agency as compared to a no information condition. However, the indirect effects via solidarity were not significant, except for the indirect effect on willingness to fight and die when no information about agency was provided.

One potential limitation of the previous studies could be the nature of our manipulations. Regarding the manipulation designed to degrade relational ties, one could argue that our manipulation did not capture the idea of seeing ingroup members "as if they were their own families". Regarding the manipulation designed to degrade collective ties, one could argue that we may have manipulated negative perceptions or feelings toward some sub-group such as the government or other institutions, rather than toward the group as a whole. To address these concerns, we conducted an additional study.

8. Study 6: does the impact of degrading relational and collective ties generalize to different manipulations and to a new group category?

The results of the Studies 1–5 offer converging evidence for our predictions. Nevertheless, we added a sixth study to extend four aspects of our results. First, we sought to generalize our previous findings to another group category: females. Second, we developed new strategies for degrading relational and collective ties to determine if our findings were not an artifact of the specific manipulations we employed. Third, we attempted to degrade relational ties by asking participants to report specific examples involving close friends or family members. Fourth, we attempted to degrade collective ties by asking participants to report examples of negative actions by other ingroup members with whom they were unacquainted that made them feel very far from the group in general and that made them question their relationship with the group.

8.1. Method

8.1.1. Participants

As in studies 1–5, we utilized the snowball technique to recruit 276

females (91.7% Spaniards, M_{age} = 38.97 years, SD = 11.55). Participants completed the questionnaire online.

8.1.2. Procedure

As in the Studies 1–3, the experimenter assigned participants to one of three conditions: *degraded relational ties, degraded collective ties or control.* In the *relational ties* condition, participants were asked to report specific examples in which they felt that they had suffered from degradations in their relational ties to other females who were "close friends or family members" (e.g., "One of my sisters, when I was pregnant, cruelly questioned my reasons why I had decided to become a mother. She did it knowing that it would be an issue that would be painful for me, since I was very insecure economically at that time and I was afraid of making ends meet"). In the *collective ties* condition, participants were asked to report examples of negative actions by other females with whom they were unacquainted that made them feel very distant from other females in general and that made them question their relationship with the group (e.g., "A university professor took advantage of her power over a student to obtain sexual favors"). As in previous studies in this manuscript, in the *control condition* participants described their two last trips to their workplace or university.

As checks on the manipulations, participants responded to two, 3-item scales. One scale measured their relational ties to other females (e.g.,"Right now, I feel strong ties to all other individual females") α = 0.901; the other scale measured collective ties to other females: (e.g. "Right now, I feel strong ties to females as a group") α = 0.942.

After completing the manipulation check, participants responded to two measures of alignment with females, including the state version of the fusion scale, α = 0.91, and the state version of Leach et al.'s (2008) identification scale, αs > 0.85. They then completed the 5-item measure of agency with reference to females (e.g., "I am able to control what females do," α = 0.86, and Swann Jr. et al.'s (2009) 7-item measure of willingness to fight/die for females (e.g. "I would sacrifice my life if it saved another female's life"), α = 0.74. Finally, we included the same measure of commitment to help the group used in Studies 4–5, but in this case the goal was to reduce gender violence. Participants committed themselves to work on this task for a time duration of their choosing.

8.2. Results and discussion

Table 3 shows the correlations between the outcome measures. Identity fusion with women correlated significantly with agency, willingness to fight and die for women and commitment to help the group. The components of identification with the group were significantly related to some of these outcome measures but these relationships were inconsistent across subscales.

As in previous experiments, below we report significant effects for the relation between our predictors and the outcome variables. We report non-significant effects in the supplemental material (Table 15). As the condition had three levels, we created the same two dummy codes with the control condition as the comparison group, as we did in Studies 1–3. The first dummy code (D1) compared the control condition with the degraded collective ties condition, whereas the second (D2) compared the control condition with the degraded relational ties condition. As 8.3% of participants were not Spaniards, most belonging to different South-American countries, and there might be cultural differences that could affect the results, nationality was included as a covariate. We conducted the analyses with and without this covariate and the results were the same.

8.2.1. Fusion

The fusion regression yielded significant effects of both D1 (collective ties vs. control), B = −1.08, p < .001, 95% CI [−1.50, −0.65], and D2 (relational ties vs. control), B = −0.89, p < .001, 95% CI [−1.31, −0.47]. Participants in the degraded collective ties,

M = 2.22, SD = 1.58, and degraded relational ties conditions, M = 2.47, SD = 1.39, expressed less fusion than participants in the control condition, M = 3.33, SD = 1.27.

8.2.2. Identification

The regression on the Leach et al.'s scale only yielded a significant effect of D1 (collective ties vs. control), B = −0.30, p = .029, 95% CI [−0.56, −0.03]. The effect of D2 (relational ties vs. control) was not significant, B = −0.20, p = .132, 95% CI [−0.46, 0.06]. Only the solidarity subscale of Leach's identification measure yielded a significant effect of D1, B = −0.56, p = .008, 95% CI [−0.97, −0.15]. The effect of D2 was marginal, B = −0.38, p = .055, 95% CI [−0.77, 0.01]. Participants in the degraded collective ties, M = 3.76, SD = 1.35, and degraded relational ties conditions, M = 3.87, SD = 1.43, expressed less solidarity than participants in the control condition, M = 4.29, SD = 1.15. None of the effects of D1 or D2 were significant for any of the other subscales, ps > 0.10.

8.2.3. Agency

The regression on agency yielded significant effects of both D1, B = −0.66, p < .001, 95% CI [−0.95, −0.37], and D2, B = −0.64, p < .001, 95% CI [−0.93, −0.35]. Participants in the degraded collective ties, M = 0.85, SD = 0.95, and degraded relational ties conditions, M = 087, SD = 0.89, expressed weaker feelings of agency for the group than participants in the control condition, M = 1.51, SD = 1.17.

8.2.4. Fight/die for the group

The regression on willingness to fight and die yielded significant effects of both D1, B = −0.74, p < .001, 95% CI [−1.02, −0.46], and D2, B = −0.58, p < .001, 95% CI [−0.85, −0.31]. Participants in the degraded collective ties, M = 1.98, SD = 0.95, and degraded relational ties conditions, M = 2.19, SD = 0.90, expressed less willingness to fight and die for the group than participants in the control condition, M = 2.75, SD = 0.87.

8.2.5. Commitment to help the group

The regression on commitment to help the group yielded significant effects of both D1, B = −0.65, p = .001, 95% CI [−1.04, −0.26], and D2, B = −0.58, p = .002, 95% CI [−0.94, −0.21]. Participants in the degraded collective ties, M = 1.06, SD = 1.62, and degraded relational ties conditions, M = 1.26, SD = 1.97, expressed less commitment to help the group than participants in the control condition, M = 5.81, SD = 12.49.

8.2.6. Indirect effects

To determine if the effect of our manipulations on willingness to fight/die for the group and commitment to help the group were serially mediated by identity fusion and agency, we tested the mediation model depicted in Fig. 6 using the Lavaan package in R software. D1 and D2 were entered as predictors, identity fusion was the first potential mediator, agency was the second potential mediator and willingness to fight/die and commitment to help the group were the outcome variables. Nationality was entered as a covariate. This model had three distinct indirect effects for each dummy code: 1) the effect via fusion and agency serially (condition > fusion > agency > fight/die/commitment), 2) the effect via fusion alone (condition > fusion > fight/die/commitment), and 3) the effect via agency alone (condition > agency > fight/die/commitment). Results indicated that all these indirect effects were significant for fight/die for the group and commitment to help the group. As in Experiment 5, commitment to help the group was considered as a continuous variable because the ordered factors were not supported for mediational models in Lavaan. Thus, results regarding commitment to help the group must be interpreted cautiously.

Relative to the control group, undermining collective ties (Dummy 1) seemed to weaken willingness to fight and die for the group via 1)
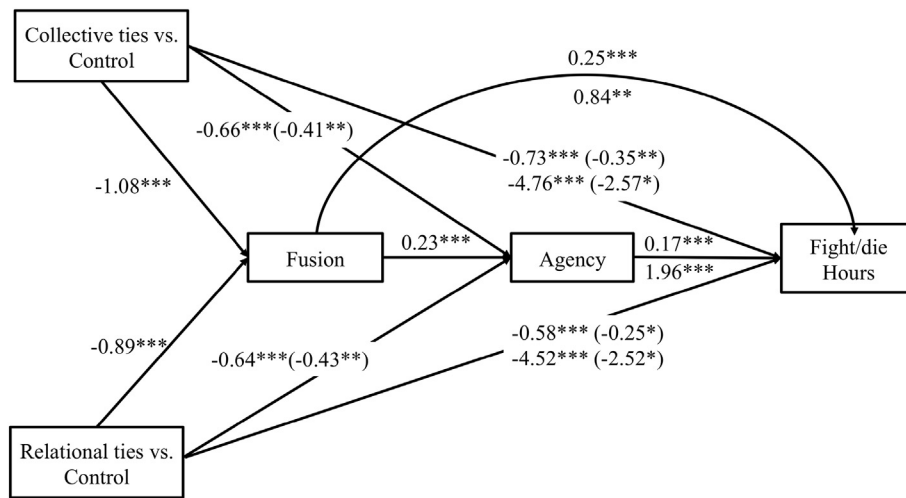
Fig. 6. Indirect effect of compromising collective and relational ties on willingness to fight/die and commitment to help the group via identity fusion and agency (Study 6).

identity fusion and agency serially, $B = -0.04$, $p = .010$, 95% CI $[-0.08, -0.01]$, 2) identity fusion alone, $B = -0.27$, $p < .001$, 95% CI $[-0.40, -0.14]$, and 3) agency alone, $B = -0.07$, $p = .031$, 95% CI $[-0.14, -0.01]$. Relative to the control group, undermining relational ties (Dummy 2) seemed to weaken willingness to fight and die for the group via 1) identity fusion and agency serially, $B = -0.04$, $p = .013$, 95% CI $[-0.06, -0.01]$, 2) identity fusion alone, $B = -0.22$, $p < .001$, 95% CI $[-0.34, -0.10]$, and 3) agency alone, $B = -0.08$, $p = .021$, 95% CI $[-0.14, -0.01]$.

Relative to the control group, undermining collective ties (Dummy 1) seemed to weaken commitment to help the group via 1) identity fusion and agency serially, $B = -0.49$, $p = .004$, 95% CI $[-0.83, -0.16]$, 2) identity fusion alone, $B = -0.90$, $p = .017$, 95% CI $[-1.65, -0.16]$, and 3) agency alone, $B = -0.80$, $p = .020$, 95% CI $[-1.47, -0.13]$. Relative to the control group, undermining relational ties (Dummy 2) seemed to weaken commitment to help the group via 1) identity fusion and agency serially, $B = -0.41$, $p = .006$, 95% CI $[-0.70, -0.12]$, 2) identity fusion alone, $B = -0.75$, $p = .022$, 95% CI $[-1.39, -0.11]$, and agency alone, $B = -0.85$, $p = .012$, 95% CI $[-1.51, -0.19]$.

We conducted parallel analyses in which we sequentially substituted each of the five subscales of identification for the measure of fusion. The serial indirect effects (via identification and agency) were not significant for any subscale, nor for fight/die nor commitment to help the group. Although some significant indirect effects of D1 and D2 via identification or agency alone emerged, the pattern was inconsistent across outcome measures (see Tables 16 and 17 of supplemental material).

8.2.7. Sensitivity power analysis

We performed a sensitivity power analyses using GPower (Faul et al., 2007) considering an alpha significance criterion of 0.05, a sample size of 276 participants and three predictors (two dummy variables and nationality). The minimum effect to be detected with 80% power was $f^2 = 0.04$.

8.2.8. Summary

The results of Experiment 6 replicate and extend the results of previous studies in that compromising collective and relational ties toward one's gender group weakened fusion. Both manipulations also reduced the solidarity subscale of Leach's measure but only the collective ties manipulation significantly reduced the other subscales and total scores. Furthermore, reduced fusion seemed to undermine agency and, in turn, participants' willingness to fight and die as well as efforts

to help the group. In contrast, these serial indirect effects via identification subscales were not significant in any case. Thus, our findings replicated the earlier studies in this report despite our having modified the manipulations of degrading collective or relational ties and focusing on a different group.

9. General discussion

Our findings provide a fresh perspective on how to most effectively diminish alignment with one's group. A series of experiments indicated that manipulations designed to degrade relational ties weakened identity fusion but not overall group identification. In contrast, manipulations designed to compromise collective ties weakened both fusion and identification. Moreover, a study using a half-longitudinal design showed that compromising relational ties decreased identity fusion when we compared participants' scores before and after the manipulation. Furthermore, compromising both relational and collective ties weakened group-related agency, willingness to fight and die for the group, and commitment to work on behalf of the group. Our results also revealed that degrading group-related agency diminished willingness to fight and die for the group and efforts to help the group. A final study supported the generality of the foregoing effects by showing that they generalized to different manipulations and a different group (gender as compared to country).

A key finding here is that collective ties, relational ties and group-related personal agency were intimately interrelated among strongly fused individuals. For example, identity fusion apparently mediated the impact of compromising collective or relational ties on reductions in group-related agency. Likewise, group-related agency seemed to mediate the effect of identity fusion on willingness to fight and die for the group and donations of one's time to the group. Moreover, a serial-mediational analysis suggested that identity fusion and group-related agency might account for the effects of collective ties (Study 3) and relational ties (Studies 3–4) on willingness to fight and die as well as commitment of one's time to support the group. Furthermore, experimentally reducing group related agency diminished subsequent willingness to fight and die for the group and amount of time participants pledged to support the group. Finally, these effects emerged whether we focused on gender or country as the group under scrutiny.

Our evidence suggesting that our measures of identification may mediate the effect of collective ties, but not relational ties, on pro-group behavior is consistent with social identity theory's (Tajfel & Turner, 1979) assumption that collective ties underlie and motivate pro-group behavior. It is noteworthy that this result emerged for three distinct

measures of identification. Our findings therefore address the concern that previous research on identity fusion has relied almost exclusively on Mael and Ashforth's (1992) measure of identification as a rival to measures of identity fusion and has overlooked more recently developed measures featured in the research we present here, such as the one developed by Ellemers et al. (1999), Postmes et al. (2013), and Leach et al. (2008).

Our findings also indicate that fusion is qualitatively different from identification. Witness, for example, that in our studies, identity fusion was related to collective ties, relational ties and group-related agency while identification was primarily related to collective ties. We should add two qualifiers to this generalization. First, the relational ties manipulation did produce several marginal effects on the Ellemers' scale, perhaps because 2 of its 10 items allude to relational ties (see Supp. Materials). Second, in the last two studies: degrading relational ties did reduce scores on one of 5 components of Leach et al.,'s measure (but not the total score nor the other 4 components of identification in Leach's scale). This is significant because the Leach scale was specifically designed to be representative of previous research on identification. Apparently, when researchers deliberately attempt to create representative measures of identification, they accord relational ties a relatively minor role.

Our evidence that measures of fusion tap collective and relational ties equally well whereas measures of identification favor collective ties may help explain why past researchers have consistently found that fusion measures predict endorsement of extreme pro-group behavior with greater fidelity than measures of identification (for reviews, see Fredman et al., 2015; Gómez & Vázquez, 2015; Swann Jr & Buhrmester, 2015). That is, the predictive advantage of fusion measures may stem from the fact that fusion is uniquely linked to collective ties, relational ties and group-related agency.

9.1. Limitations

One limitation of the experiments reported here is that we were able to diminish state, but not trait, fusion. This finding likely reflects the fact that people draw support for their cognitive structures from both the immediate social environment and chronically activated representations of the self and group. To produce more enduring changes in fusion and behavior, it will likely be important to develop interventions that are designed to reinforce temporary fusion changes through changes in the social environments that sustain people's identities. For example, whereas one-off reminders that one's group suffers from discord may lower fusion temporarily, repeated evidence of discord may be required to produce relatively permanent renunciations of the group. The latter possibility is supported by recent evidence that highly salient and sustained challenges to the integrity of the group can lower scores on trait measures of fusion (Vázquez et al., 2017).

Although temporary changes in state fusion are limited in some respects, they are nevertheless significant for at least two reasons. First, they are useful in identifying mechanisms that future researchers may amplify so as to produce changes in trait fusion. Second, despite their brevity, short-lived responses can be highly influential. Witness, for example, that the premise underlying the popularity of measures of implicit attitudes today is that people's instantaneous, unthinking reactions to stimuli uniquely reflect important underlying sentiments toward the attitude object (Payne, Vuletich, & Lundberg, 2017). It is thus important to understand the causes and consequences of such fleeting reactions.

Finally, our evidence of indirect effects must be interpreted cautiously. Although we found consistent results across Studies 2–6 that were also consistent with previous research (Gómez et al., 2011; Swann Jr., Gómez, Huici, et al., 2010), future studies should explore the proposed paths longitudinally to establish causality unequivocally.

9.2. Theoretical and practical implications

Although many contemporary social identity theorists have ventured beyond the original theory by acknowledging the importance of relational ties in motivating group behavior, our evidence indicates that four of the most commonly used measures of identification were relatively insensitive to manipulations of relational ties. In the future, researchers who are interested in measures of group alignment that capture relational as well as collective ties should either use fusion measures or develop measures of identification that are more balanced in assessing collective and relational ties.

To be sure, Leach et al. (2008) have recently developed a measure of identification that is designed to capture relational ties. Although the Leach scale has the virtue of being broader than earlier measures of identification, it should not be regarded as a substitute for our measure of identity fusion. At least four considerations support this conclusion. First, although one component of the Leach scale seems closely related to fusion, the fusion scale has elements that Leach's scale does not. For example, in addition to featuring items that assess connection to the group (e.g., "I have a deep emotional bond to my group"), the fusion scale also features items that assess reciprocal strength (e.g., "I make my country strong" and "I am strong because of my country"). Second, the inclusion of reciprocal strength items in the fusion scale is important, as it is likely that these items help explain why fusion is a better predictor of endorsement of extreme pro-group behavior than identification, even when the Leach scale is used to measure identification. For example, in our studies, fusion was consistently more strongly related to endorsement of fighting and dying for the group (r's = 0.44 & 0.51 for Studies 5 and 6 respectively) than the leach total score (r's = 0.22 & 0.21 for Studies 5 and 6 respectively) or each of the five Leach subscales (r's < 0.23 and 0.28 for Studies 5 and 6 respectively), with $ps < 0.001$ for all comparisons between correlations involving the fusion versus the leach scale. Third, even though elements of the Leach scale were associated with fusion, overall the scale is still primarily a measure of collective ties. Note, for example, that Leach total scores were lowered when collective ties were compromised but not when relational ties were compromised (in contrast, fusion scores were lowered when either relational or collective ties were compromised). Fourth, the relative expansiveness of the Leach scale comes at a cost. Of the commonly used measures of identification, at 18 items the leach scale is roughly twice as long as its competitors. Our data as well as a decade of previous research suggests that our 7-item fusion scale is a relatively efficient measure that predicts a wide range of important outcomes. It is especially attractive for researchers interested in a relatively brief measure that assesses an even mixture of relational as well as collective ties and predicts extreme pro-group behavior with relatively high fidelity.

Regarding more practical concerns, governments have recently become increasingly alarmed by the steady increase in attacks launched by fringe groups. In response, researchers and practitioners have begun to work to develop ways of encouraging members to sever their ties to such groups. It is important to ask which theoretical orientation provides the optimal framework for such deradicalization programs. For example, if one takes social identity theory as the point of departure, one's deradicalization programs will emphasize collective ties, focusing on issues such as losing faith in the ideologies that the group represents (Bjørgo, 2005; Demant, Slootman, Buijs, & Tillie, 2008), or methods (Harris, 2015; Horgan, 2009). Nevertheless, there is widespread recognition that deradicalization requires more than challenging the ideology or values of the group. For example, some have noted that even when people have become disillusioned with the group's ideology, ties of friendship and loyalty to group members may still inspire loyalty to the group (Bjørgo, 2005). Our findings support this emphasis on the significance of relational as well as collective ties to the group and rival groups. In particular, our data indicate that one strategy for defusing people from a group is to challenge their conviction that the group is a

harmonious "family" or to increase the salience of rival groups. Such challenges will erode their assumption that the group will uniquely stand by them, insulate them from betrayal and bathe them in support for their core values and self-views. Sowing such doubts may cause them to rethink their willingness to tether their fate to the group and make sacrifices for it.

Open practices

Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2019.103853.

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