

ARTICLE

Strongly fused individuals feel viscerally responsible to self-sacrifice

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Abstract

Identity fusion is a visceral feeling of oneness that predicts extreme behaviour on behalf of the target of fusion. We propose that strongly fused individuals are characterized by feelings of visceral responsibility towards such target – unconditional, instinctive, and impulsive drive to care, protect and promote its well-being and interests – that motivates them to self-sacrifice. Two studies offered initial support when the target of fusion is an individual or a group (Studies 1a-1b). A final study added causal evidence that strongly fused learning that most ingroup members did not feel visceral responsibility towards the group expressed less willingness to self-sacrifice than those learning that ingroup members display high levels of visceral responsibility (Study 2). These findings offer novel evidence for the mechanisms underlying the effects of fusion on extreme behaviour on behalf of the target of fusion and the attenuation of its consequences.

KEYWORDS

care ethics, extreme behaviour, identity fusion, prosocial behaviour

INTRODUCTION

If I take on the other's reality as a possibility and begin to feel its reality, I feel also that I *must* act accordingly, that is, I am impelled to act as in my own behalf, but in behalf of the other.

Nel Noddings (2003; cursives are ours)

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Over the last decade, identity fusion – a visceral feeling of oneness with a group – has been established as one of the most competent predictors of fighting, killing, and dying for a group. Researchers have shown that the effects of fusion are particularly powerful when strongly fused individuals are physically, psychologically, or emotionally activated, which calls for the fact that strongly fused should display intrinsic motivation or inner strength that automatically motivates them and makes them viscerally responsible to act on behalf of the group. This kind of motivational mechanism has been described by care ethicists. Inspired by their view, we define visceral responsibility as an unconditional, instinctive, and impulsive drive to care, protect, and promote the well-being of the target group and its interests. The main goal of this investigation is to determine whether visceral responsibility is characteristic of strongly fused individuals and if this inner strength is an underlying mechanism to explain the effects of fusion on pro-group behaviour.

Identity fusion

Identity fusion research originated to unravel why some individuals, such as terrorists or social activists, engage in extreme self-sacrificial acts on behalf of the group (e.g., Gómez et al., 2017, 2020, 2021; Gómez, Brooks et al., 2011; Swann et al., 2009, 2012; Whitehouse, 2018). Identity fusion is a visceral feeling of oneness in which the psychological divide that separates the personal self from the group blurs.

In a state of fusion, the personal self – the characteristics of individuals that make them unique – aligns firmly with the social self – the characteristics of people that derive from their group membership – such that both identities remain simultaneously active and synergistically motivate behaviour. Fused people not only develop a strong allegiance to the group category and the values and goals that it represents – collective ties – but also a strong allegiance to fellow group members – relational ties –, who are seen as if they were brothers and/or sisters, even if they are not personally acquainted with them (for an extensive discussion and empirical distinction, see Gómez et al., 2019). Together, these strong allegiances trigger intense feelings of personal agency – capacity to initiate and control intentional behaviours – that are used to selectively advance the interests of the group. Furthermore, because identity fusion is highly demanding and gives meaning to the personal and social self, once people become fused, they tend to remain fused (Swann et al., 2012). One of the most characteristic demonstrations of the interconnection between the self and the group among strongly fused individuals is that when feelings of fusion are experienced, the relational ties established with the group and its members drive strongly fused individuals to react to threats to the group as a personal threat, and to perceive that personal threats also represent a threat to the group (Gómez, Brooks et al., 2011; Swann et al., 2009), which compels them to act on behalf of the group as if they were acting in their own behalf and to incur in great risks and personal sacrifices for it.

Research on the consequences of identity fusion has systematically shown that this experience of psychological oneness motivates willingness for several types of extreme pro-group actions. Identity fusion predicts, among others, willingness to (1) fight and die for the group and its members (Bortolini et al., 2018; Carnes & Lickel, 2018; Gómez, Brooks et al., 2011; Gómez et al., 2011; Paredes et al., 2018; Swann et al., 2010; Vázquez et al., 2017); (2) die to kill terrorists who threaten the group in an intergroup version of the trolley dilemma (Swann et al., 2010); (3) volunteer for armed combat (Gómez et al., 2017; Kunst et al., 2018; Whitehouse et al., 2014); (4) die to save the life of one or more group members in several versions of the trolley dilemma (Gómez, Brooks et al., 2011; Swann et al., 2014; Swann et al., 2010); (5) make costly sacrifices for the values that are central to the group (Sheikh et al., 2016); (6) give up important personal relationships to belong to the group (Swann et al., 2015); and (7) engage in violence to protect the stability and continuity of the group when it is seen as morally justifiable (Chinchilla et al., 2021). Importantly, identity fusion does not only predict intentions, but also actual extreme behaviour. For example, Swann et al. (2015) found that transsexuals who were fused with their cross-gender group were more than twice as likely to

have undergone irreversible surgical change of their primary sexual characteristics than non-fused transsexuals two years after the assessment of fusion, what represents, at the same time, an extreme behaviour for the self and to belong to the group which is the target of fusion. Also, Gómez et al. (2017) conducted interviews with imprisoned ISIS terrorists and combatants in the frontline against ISIS and discovered that all of them were fused with their group. And a study with a sample of Libyan revolutionaries (Whitehouse et al., 2014) showed that frontline combatants were more likely to be fused with their battalion than individuals who only provided logistical support and, consequently, were less exposed to physical risks.

In addition to that, other studies have found that fusion motivates behaviours that do not demand a strong personal sacrifice, but that nonetheless benefit the groups towards which it is experienced. For instance, people who are strongly fused are more willing to remain in the group after having been ostracized (Gómez et al., 2011); deny its wrongdoing (Besta et al., 2014); defend its reputation (Ashokkumar et al., 2019); and write support notes to group members who have been victims of a violent extremist attack (Buhrmester et al., 2014). They also are more inclined to make real monetary donations to needy members (Buhrmester et al., 2014; Swann et al., 2010); maximize the economic advantage of the ingroup over other groups at their own expense (Buhrmester et al., 2018); and exert actual physical effort to race an avatar representing the group (Swann et al., 2010).

Along with the studies focusing on fusion with social groups, other area of research that has received a considerable amount of attention from scientists concerns interpersonal fusion, that is, identity fusion with specific individuals, like the romantic partner, a sibling, or a twin. The results of this research also confirm that when this feeling of extraordinary connection is experienced at the interpersonal level, it motivates extreme and non-extreme prosocial behaviours. Thus, it has been discovered that fusion with an individual predicts willingness to fight and die (Vázquez et al., 2015) and engage in costly sacrifices (Vázquez et al., 2017) for him/her; and die to spare his or her life in an adapted version of the trolley dilemma (Joo and Park, 2017). Fusion with an individual also predicts, among other non-extreme behaviours, forgiveness after having been disappointed (Vázquez et al., 2017); and the use of more constructive responses to relationship conflict (Walsh & Neff, 2018).

But what makes people so extraordinary willing to protect and defend social groups or individuals when they fuse with them? Three different lines of research show that the effects of fusion are especially intense when strongly fused individuals become physically, psychologically, or emotionally activated and highlight the role played by automatic processes and visceral factors in the consequences of being fused. First, regarding physical activation, Swann et al. (2010) showed that elevating strongly fused participants' autonomic arousal through the practice of different types of physical exercise individually or in group – dodgeball, wind sprints, and Exercycle – amplified their tendency to endorse and engage in pro-group behaviours by increasing their feelings of personal agency. Second, concerning psychological activation, several studies have found that threatening the personal or social identity of strongly fused individuals by providing them with feedback inconsistent with their views potentiates their willingness to engage in extreme self-sacrifices for the group as compared to circumstances in which none of both identities is under threat (Gómez, Brooks et al., 2011; Swann et al., 2009). Lastly, respecting emotional activation, Swann et al. (2014) conducted various studies with different versions of the trolley dilemma, wherein participants were asked to choose between sacrificing their own lives to save the lives of one or more ingroup members or sacrificing several ingroup members to save their own lives. They found that, although all participants thought that self-sacrifice was the morally correct option, only strongly fused participants chose sacrificing themselves; and that their willingness to self-sacrifice increased when reflective control was disrupted and was caused by intense feelings of anxiety and emotional distress in response to the plight of the group members rather than by lack of concern with self-preservation. Taken together, these results hint to the possibility that fused individuals' extreme pro-group acts might be motivated by feelings of visceral responsibility like those described by care ethicists.

Care ethics, identity fusion, and feelings of visceral responsibility

Care ethics is an approach to ethics underpinned by an ontology of the person that conceives humans as essentially embedded within relationships (e.g., Gilligan, 1982; Noddings, 2003; Slote, 2007; Tronto, 1993). Advocates of the ethics of care see caring as grounded in feeling and contend that, when we value others and engage with them in caring relationships, our passions and social instincts give rise to automatic feelings of responsibility for their well-being (Tronto, 1993, 1998), causing a motivational shift in which behaviour is largely determined by the needs of the cared for without need for abstract reasoning or justification (Noddings, 2003).

Care ethics emerged in the early 1980s as a critique of the abstract and rationalistic conception of morals embraced by deontology and the liberal conception of justice (Gilligan, 1982), which are built upon an ontology of the person that sees humans as separate and autonomous beings and, because of that, are obligation or duty based. Considered from their perspective, moral decision makers figure out what obligations they have to respond to the situation and then act accordingly, even – or specially – when they do not want to do so (e.g., Kant, 1788/2011). Opposing this view, care ethics is built upon a conception of humans as beings relationally involved with others; and, consequently, this approach recognizes the moral role played by visceral factors and social instincts.

Care theorists look to Hume (1739/2000) and other moral sentimentalists as forefathers of their approach and see caring as grounded in feelings, receptivity to the needs of the other, and responsiveness (e.g., Noddings, 2003; Tronto, 1993, 1998). As their predecessors do, care ethicists contend that prosocial behaviours cannot be justified solely in rational terms because allowing or causing harm is not necessarily against reason. They also criticize that obligation-based ethics cannot accommodate extreme prosocial self-sacrifices, which are considered supererogatory behaviours – acts that go beyond our moral duties and cannot be justified recurring to them – (e.g., Slote, 2007). According to their view, to explain this type of behaviours, we must assume that there is a pre-existing moral relationship between people and that responding to the plight of the other is based on automatic, impulsive, or instinctive feelings of responsibility or natural care. Or, as Noddings (2003) put it, when we naturally care about others, we just care about them, no rational effort is required and ‘want’ and ‘must’ become the same thing.

The studies showing that fused people are willing to engage in supererogatory acts for the target of fusion and highlighting the role played by physical, psychological, and emotional activation suggest that strongly fused individuals may be motivated by feelings of responsibility akin to those described by care theorists (e.g., Noddings; Tronto, 1993, 1998); and other additional studies also point to this. For example, identity fusion with extended groups – groups in which people do not personally know each other – occurs when the relational ties that are established within the context of the family, which are commonly taken as prototypical instances of caring relationships, are projected to the group (Atran et al., 2014; Swann et al., 2014; Vázquez et al., 2015; Whitehouse et al., 2014). These ties mediate the relationship between fusion and endorsement of self-sacrifice (Swann et al., 2014); and degrading them diminishes the level of fusion (Gómez et al., 2019). People fused with a group also perceive themselves as more willing to engage in extreme acts for the group than other group members (Swann et al., 2009) and deem the group as relatively invulnerable, probably because the family-like ties lying at the core of fusion lead them to believe that other group members are also disposed to care and protect the group (Gómez, Brooks et al., 2011). Nonetheless, excluding the research by Swann et al. (2014), in which a preliminary approach to the issue using qualitative discourse analysis was made, no study has explored the postulates of care ethics within the fusion context. With this research we aim to address this gap by exploring the relationship between identity fusion, feelings of *visceral responsibility*, and willingness to engage in extreme or supererogatory prosocial behaviour. Following the lead of care theorists, we understand visceral responsibility as an *unconditional, instinctive, and impulsive drive to care, protect, and promote the interests and well-being of the target person or group*.

Identity fusion, self-sacrifice, and shared feelings of visceral responsibility

Strongly fused individuals might be driven to act on behalf of the target of fusion by feelings of visceral responsibility, or by a mental state in which satisfying the needs of the target becomes a goal that motivates behaviour directly, instinctively, and impulsively. This experience of visceral responsibility can explain why strongly fused are so extraordinarily willing to engage in extreme self-sacrifices for the target of fusion; although it can also give rise to the impression that they are invariably impelled to put the interest of the target ahead of their own interest to the highest possible extent, and thus ideally suited for being exploited by non-caring groups – for example, groups that may use the benefits of the care that is given to them to harm or subjugate its members. We believe, however, that this impression is not accurate.

Fused individuals are not disconnected from their social environment, and they might use some of the clues provided by it to regulate their feelings of visceral responsibility and their willingness to self-sacrifice, particularly, the clues conveying information about the extent to which the target of fusion also cares. Two different areas of inquiry lead us to assume this.

First, several authors have asserted that family-like relationships, like those established by fused individuals, are characterized by a shared sense of responsibility for one's another welfare (e.g., Earp et al., 2021; Gómez, Brooks et al., 2011). In these relationships, people typically record each other needs and offer non-contingent support to promote the others' welfare (e.g., Clark, 1984; Clark et al., 1998); but they also track the responsiveness of the others to their own needs, experience hurt feelings when the support that they need is not provided to them (e.g., Lemay et al., 2010), and may be even willing to engage in corrective violence under these circumstances (e.g., Fiske & Rai, 2015). On a similar vein, care ethicists have posited that trust and solidarity are needed to care, either because they exist beforehand and allow care (Van Nistelrooij, 2015) or because they result from care-receiving and enable that the caring process keeps going (Tronto, 2013).

Information about the degree in which visceral responsibility is shared with the target of fusion provides crucial cues to ascertain the quality of the relational ties established with it; and to determine whether family-like bonds, trust, and solidarity are being treasured or ignored. Following this, it is reasonable to assume that this information has a regulatory function among strongly fused and that their feelings of visceral responsibility and willingness to self-sacrifice augment when visceral responsibility is shared and diminish when it is not.

Second, descriptive normative information is one of the most powerful sources of social influence (e.g., Berkowitz, 1972; Cialdini & Goldstein, 2004; Deutsch and Gerald, 1955). The cumulative findings of this area of research show that descriptive norms about how similar people behave in a certain situation tend to induce conformity in most individuals (e.g., Cialdini & Trost, 1998). This effect has been widely used to influence prosocial behaviours (e.g., Agerström et al., 2016; Nook et al., 2016; Schultz et al., 2007), and it seems to take place even when people know that the norms are fully arbitrary (Pryor et al., 2019). Moreover, individuals regulate and experience their emotions in ways consistent with their group's emotion norm (Leonard et al., 2011; Weisbuch & Ambady, 2008). And the descriptive norm effect is strong enough to influence general goals in addition to single behaviours and to cross psychological domains, such that observing others' prosocial behaviours induces prosocial emotions and observing others' prosocial emotions induces prosocial behaviours (Nook et al., 2016). Therefore, visceral responsibility norms may influence strongly fused individuals through conformity processes too.

The idea that strongly fused individuals regulate their responses attending to the extent in which feelings of responsibility and caring are shared has not been formally tested before, but several findings indicate that they may be particularly sensitive to different signs of shared responsibility. In this respect, it has been discovered that perceiving generosity and benevolence as important principles for the group, sharing intense experiences with other group members, and admiring other group members for their personal sacrifices for the group cause identity fusion (Carnes & Lickel, 2018; Gómez et al., 2021; Whitehouse et al., 2017). Also, strongly fused individuals trust more in the target of fusion and are more willing to let the target of fusion sacrifice for them than the weakly fused (Heger & Gaertner, 2018; Vázquez et al., 2017; Whitehouse & Fitzgerald, 2020). The second goal of our research is providing original empirical evidence for the *shared responsibility effect*.

Overview of the studies

The central question we address here is whether strongly fused individuals are characterized by experiencing strong feelings of visceral responsibility towards the target of fusion, and if such feelings motivate them to self-sacrifice for it. In addition to that, we aim to determine whether descriptive information about the feelings of visceral responsibility experienced by the fusion target influences strongly fused individuals' willingness to self-sacrifice in a direction consistent with it.

To that end, we performed a series of three online studies. We expected that, independently of the target of fusion (an individual, Study 1a, or a group, Study 1b), identity fusion will be positively related to feelings of visceral responsibility and willingness to fight and die for such target. Also, we anticipated that the effect of fusion on willingness to fight and die will be mediated by feelings of visceral responsibility.

And additional study was conducted to offer causal evidence for this underlying process and examine the impact of shared feelings of visceral responsibility. We expected that learning that other ingroup members display low levels of visceral responsibility will attenuate the effects of fusion on willingness to fight and die as compared to learning that other ingroup members display high levels of visceral responsibility.

We did not determine sample size a priori. All the studies were open for a week and then were closed. Unless otherwise stated, participants were recruited using a snowball procedure wherein students from an open university invited their acquaintances to volunteer. The studies were conducted online, via Qualtrics. The materials of the studies and the data that support the findings are publicly available at 'Open Science Framework' at <https://osf.io/5amvq/>

Responses to the measures used in all studies ranged from 1 (*completely disagree*) to 7 (*completely agree*). Participants were asked for the sociodemographic variables at the end.

STUDIES 1A AND 1B

Studies 1a and 1b were designed to test whether individuals strongly fused with their romantic partner (Study 1a), or with their country (Study 1b), display strong feelings of visceral responsibility and willingness to fight and die for them. We expected that identity fusion would be positively related to visceral responsibility and willingness to fight and die. In addition, we anticipated that the positive relation between fusion and willingness to fight and die would be mediated by feelings of visceral responsibility.

As stated by identity fusion theory (Swann et al., 2012), fusion can be extended (with big groups in which people do not personally know most ingroup members, as the country) or local (with small groups as a group of friends or the family). More recently, the theory has been also applied to the ties that people establish with other individuals, values, and several types of entities (Gómez et al., 2020). We decided to use the country as fusion target because it is an example of fusion with an extended group and the group most used in fusion research. We chose to use the romantic partner as target because it is an example of fusion with one of the most important individuals in our lives.

Method

Participants

Two hundred individuals who were involved in a romantic relationship at the time of the study volunteered to participate in Study 1a (96% Spaniards, 67% women, $M_{\text{age}} = 36.08$, $SD = 12.81$). In Study 1b, the sample was comprised by 182 volunteers (95.6% Spaniards, 67% women, $M_{\text{age}} = 36.56$, $SD = 13.43$).

Sensitivity power analyses

We conducted post-hoc sensitivity power analyses with the online tool developed by Schoemann et al. (2017) to determine the statistical power reached by both studies. Considering our sample sizes and the size of the effects, we found that Study 1a had 100% power and Study 1b had 99% power (see [Supplementary Materials](#)).

Procedure

First, *identity fusion* was rated by a reduced and adapted version of the verbal scale of fusion by Gómez, Brooks et al. (2011) including three items ('My partner/country and me are one', 'I feel immersed in my partner/country', and 'I feel a strong emotional bond with my partner/country', $\alpha_s = .83$ and $.86$, for studies 1a and 1b, respectively). Next, *feelings of visceral responsibility* were measured by a five-item scale developed for the studies ('I feel impulsively obliged to promote the well-being of my partner/country', 'I feel an unreflective duty to take care of my partner/country', 'I feel a duty, based on my deepest feelings, to further the interests of my partner/country', 'I feel an unreflective duty to try to stop something bad from happening to my partner/country', and 'I feel almost irrationally obliged to act on my partner/country's wishes', $\alpha_s = .90$ and $.91$, for Studies 1a and 1b, respectively). After that, *willingness to fight and die* was evaluated by a reduced and adapted version of the scale by Swann et al. (2009) including three items ('I would fight someone who physically threatened my partner/country', 'Hurting other people is acceptable if it means protecting my partner/country', and 'I would sacrifice my life if it saved the life of my partner/another member of my country', $\alpha_s = .75$ and $.70$, for Studies 1a and 1b, respectively). In Study 1a, participants were asked too for the number of months they had been in the relationship with his/her partner.

Principal axis factor analyses on the items of identity fusion, feelings of visceral responsibility, and willingness to fight and die with oblique rotation (direct oblimin) showed that each item loaded onto the expected factor, with factor loadings ranging from .629 to .927, in Study 1a, and from .613 to .939, in Study 1b. Additional confirmatory factor analyses revealed that the hypothesized three-factor model fitted the data adequately and has a better adjustment than alternative two-factor and single-factor models in the two studies (see [Supplementary Materials](#)).

Results

[Table 1](#) shows the means, standard deviations, and bivariate correlations between the variables. In both studies, the correlations between fusion, feelings of visceral responsibility, and willingness to fight and die were significant, positive, and moderate (between .35 and .44, $p_s < .001$). In Study 1a, the number of months in the relationship with the partner did not correlate significantly with any of the other variables, and the analyses controlling for this variable did not alter the results. Consequently, we report the results of the analyses without controlling for time.

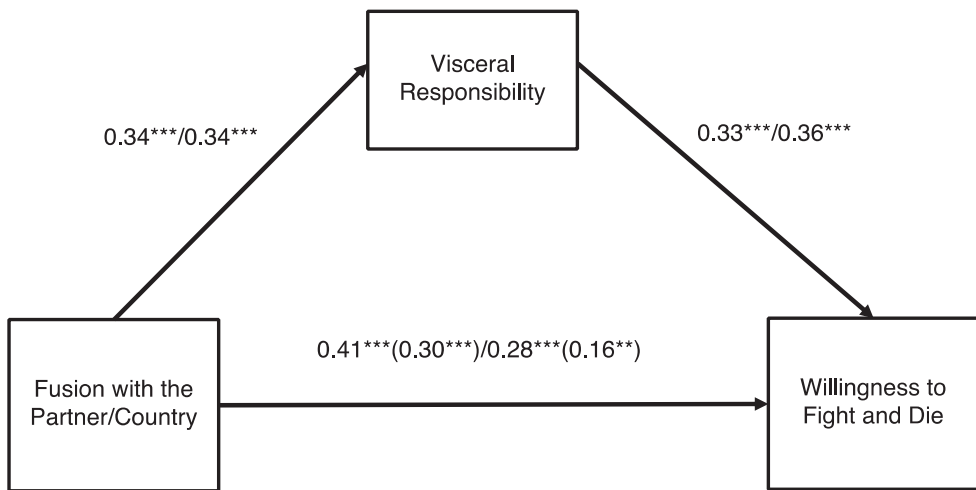
To test our hypotheses that the positive relation between identity fusion and willingness to fight and die would be mediated by feelings of visceral responsibility, we performed bootstrapped (n boots = 5,000) mediation analysis with PROCESS (Hayes, 2018; Model 4). Identity fusion (mean centred) was included as the predictor, feelings of visceral responsibility (mean centred) as the mediator, and willingness to fight and die as the outcome variable (see [Figure 1](#)).

In Study 1a, results yielded significant effects of fusion on visceral responsibility, $B = 0.34$, $t(198) = 5.33$, $p < .001$, 95% CI [0.212, 0.461], and willingness to fight and die, $B = 0.41$, $t(198) = 6.70$, $p < .001$, 95% CI [0.291, 0.534], such that visceral responsibility and willingness to fight and die for the partner increased as fusion went stronger. The indirect effect of identity fusion on willingness to fight and die for the partner via feelings of visceral responsibility was significant too, $B = 0.11$, 95% CI [0.054, 0.185].

TABLE 1 Descriptives and bivariate correlations between the measures (Studies 1–2)

Study	Variable	<i>M</i>	<i>SD</i>	1.	2.	3.
Study 1a	1. Fusion with the Partner	4.28	1.69	-	-	-
	2. Visceral Responsibility	3.11	1.61	.35**	-	-
	3. Fight and Die	4.20	1.63	.43**	.44**	-
	4. Months in the Relationship	117.59	128.53	.03	-.01	.12
Study 1b	1. Fusion with the Country	4.30	1.57	-	-	-
	2. Visceral Responsibility	2.18	1.27	.42**	-	-
	3. Fight and Die	2.23	1.27	.35**	.44**	-
Study 2	A. Low visceral responsibility condition					
	1. Fusion with the Country	3.55	1.45	-	-	-
	2. Visceral Responsibility	2.55	1.30	.41**	-	-
	3. Fight and Die	2.03	1.15	.25**	.51**	-
	B. High visceral responsibility condition					
	1. Fusion with the Country	3.71	1.66	-	-	-
	2. Visceral Responsibility	2.85	1.58	.71**	-	-
	3. Fight and Die	2.38	1.34	.51**	.63**	-
	C. Correlations across experimental conditions					
	1. Fusion with the Country	3.63	1.55	-	-	-
2. Visceral Responsibility	2.69	1.45	.57**	-	-	
5. Fight and Die	2.20	1.25	.39**	.58**	-	

Note: ** $p < .01$.



*** $p < .001$, ** $p < .01$

FIGURE 1 Indirect effects of identity fusion on willingness to fight and die for the romantic partner/country via feelings of visceral responsibility (Studies 1a and 1b)

In Study 1b, results showed significant effects of fusion on visceral responsibility, $B = 0.34$, $t(180) = 6.25$, $p < .001$, 95% CI [0.233, 0.448], and willingness to fight and die, $B = 0.28$, $t(180) = 5.02$, $p < .001$, 95% CI [0.172, 0.396], meaning that visceral responsibility and willingness to fight and die for

the country increased as fusion went stronger. The indirect effect of identity fusion on willingness to fight and die for the country via feelings of visceral responsibility was also significant, $B = 0.12$, 95% CI [0.053, 0.205].

Discussion

As expected, the results indicated that identity fusion was positively related to feelings of visceral responsibility and willingness to fight and die. Also as predicted, the effect of fusion on fight and die appeared to be mediated by feelings of visceral responsibility. The results were replicated independently of the target of fusion, an individual (Study 1a, the partner), or a group (Study 1b, the country).

These results are consistent with our thesis that one of the mechanisms through which identity fusion motivates extreme self-sacrifice is via feelings of visceral responsibility. However, although promising, the previous studies concur on the same limitation, as it is that the correlational nature of the design does not allow to establish causality. Study 2 was conducted to solve this limitation by manipulating feelings of visceral responsibility.

STUDY 2

As recommended by Spencer et al. (2005), we complement our findings of correlational mediation in Studies 1a and 1b by manipulating the hypothesized mediator through bogus feedback about the extent in which ingroup members feel viscerally responsible towards the group. For this purpose, after assessing identity fusion with the country, we told participants either that most ingroup members feel visceral responsibility towards the country or that most ingroup members do not feel visceral responsibility towards the country.

We hypothesized that, as compared to telling participants that most ingroup members feel visceral responsibility towards the country, telling participants that most ingroup members do not feel visceral responsibility towards the country would attenuate feelings of visceral responsibility and willingness to fight and die among strongly fused participants. In accordance with previous findings showing that the devotion to the group of fused individuals goes beyond the devotion manifested by their fellow group members (e.g., Swann et al., 2009), we anticipated positive relationships between fusion and feelings of visceral responsibility, and between fusion and willingness to fight and die, across conditions.

Method

Participants

Three hundred three Spaniards volunteered for the study (60.4% women; $M_{\text{age}} = 35.08$; $SD = 13.35$).

Sensitivity power analysis

We conducted a post-hoc sensitivity power analysis with G*Power (Faul et al., 2007) for lineal multiple regression (fixed model, R^2 deviation from zero) to determine the statistical power reached by Study 2 considering the effect size found in the moderated multiple regression on willingness to fight and die ($f^2 = .23$). With our sample size and three predictors (identity fusion, experimental condition, and the two-way interaction), Study 2 had 100% power.

Procedure

First, participants responded to the same measure of *fusion with the country* used in previous studies ($\alpha = .84$). After that, all participants read the following text: ‘In some previous studies conducted by our research team, we have presented thousands of Spaniards a series of questions to assess their feelings of visceral responsibility towards Spain. People who feel viscerally responsible for their country are willing to protect and defend it because their deepest feelings and emotions impel them to do so; and we wanted to know whether the Spaniards feel this type of visceral responsibility or not’.

Participants were then randomly assigned to one of the two experimental conditions. In the *high visceral responsibility condition* ($N = 145$), participants learned that most Spaniards feel viscerally responsible towards Spain, and that the feelings that they experience is what impulse them in an almost irrational way to do things to protect and defend Spain. In the *low visceral responsibility condition* ($N = 158$), participants learned that most Spaniards do not feel viscerally responsible towards Spain, and that the feelings that they experience do not impulse them to do things to protect and defend Spain.

As manipulation check, participants were asked to complete the measure of *feelings of visceral responsibility* ($\alpha = .92$). Finally, they were requested to answer to the *willingness to fight and die* scale ($\alpha = .74$) from Studies 1a and 1b.

Principal axis factor analyses on the items of identity fusion, feelings of visceral responsibility, and willingness to fight and die with oblique rotation (direct oblimin) showed that each item loaded onto the expected factor, with factor loadings ranging from .420, 1.02. Additional confirmatory factor analyses revealed that the hypothesized three-factor model fitted the data adequately and has a better adjustment than alternative two-factor and single-factor models (see [Supplementary Materials](#)).

Results

[Table 1](#) shows the bivariate correlations and descriptive statistics within the low visceral responsibility (Panel A), the high visceral responsibility (Panel B), as well as across conditions (Panel C). All the variables were positively related.

A preliminary t-test showed that, as anticipated, the level of fusion with the country did not vary as a function of the experimental condition, $t(301) = -0.88, p = .378, 95\% \text{ CI} [-0.508, 0.193]$.

Moderation analyses

To determine whether our manipulation worked as expected, we performed bootstrapped (n boots = 5,000) moderated multiple regressions using the Macro PROCESS (Hayes, 2018; Model 1), including identity fusion (mean centred) as predictor, experimental condition (0 = low visceral responsibility; 1 = high visceral responsibility) as moderator, and feelings of visceral responsibility as outcome variable. The same analyses were also performed to test the effects on the outcome variable, but regressing willingness to fight and die on the predictor variables.

Feelings of visceral responsibility

Results yielded a significant interaction between identity fusion and experimental condition, $B = 0.30, t(299) = 3.51, p < .001, 95\% \text{ CI} [0.133, 0.473]$, meaning that the effect of identity fusion on feelings of visceral responsibility towards the country varied as a function of experimental condition. Simple slope analysis revealed that identity fusion was positively related to feelings of visceral responsibility in both the high visceral responsibility condition, $B = 0.67, t(299) = 11.55, p < .001, 95\% \text{ CI} [0.559, 0.788]$, and the low visceral responsibility condition, $B = 0.37, t(299) = 5.79, p < .001, 95\% \text{ CI} [0.244, 0.496]$, but

the relationship between both variables was weaker in the condition of low visceral responsibility (for details see Table 2 and Figure 2).

Additional analyses showed as well that the effect of experimental condition was significant among strongly fused participants, $B = 0.73, t(299) = 3.68, p < .001, 95\% \text{ CI } [0.341, 1.125]$, who feel more viscerally responsible for the country in the condition of high visceral responsibility. However, the effect of condition was not significant among weakly fused participants, $B = -0.28, t(299) = -1.44, p = .152, 95\% \text{ CI } [-0.660, 0.103]$.

The main effect of identity fusion was significant too, $B = 0.37, t(299) = 5.79, p < .001, 95\% \text{ CI } [0.244, 0.496]$, indicating that feelings of visceral responsibility increased as fusion went stronger. The effect of experimental condition was not significant, $B = 0.21, t(299) = 1.61, p = .107, 95\% \text{ CI } [-0.047, 0.478]$.

Willingness to fight and die

Results showed a significant interaction between identity fusion and experimental condition, $B = 0.21, t(299) = 2.53, p = .012, 95\% \text{ CI } [0.047, 0.380]$, indicating that the effect of identity fusion on willingness to fight and die for the country varied as a function of experimental condition. Simple slope analysis showed that fusion was positively related to willingness to fight and die in both the high visceral responsibility condition, $B = 0.41, t(299) = 7.19, p < .001, 95\% \text{ CI } [0.297, 0.521]$, and the low visceral responsibility condition, $B = 0.19, t(299) = 3.14, p = .002, 95\% \text{ CI } [0.073, 0.318]$, although the relationship

TABLE 2 Moderated regression on feelings of visceral responsibility (Study 2)

Predictor	<i>B</i>	<i>SE</i>	<i>t</i> (299)	<i>p</i>	LLCI	ULCI
Constant	2.58	.09	27.91	.000	2.395	2.759
Fusion	0.37	.06	5.79	.000	0.244	0.496
Condition	0.21	.13	1.61	.107	-0.047	0.478
Fusion X Condition	0.30	.09	3.51	.000	0.133	0.473
Simple slopes						
High Visceral Responsibility	0.67	.05	11.55	.000	0.559	0.788
Low Visceral Responsibility	0.37	.06	5.79	.000	0.244	0.496
High Fusion (+1 SD)	0.73	.20	3.68	.000	0.341	1.125
Low Fusion (-1SD)	-0.28	.19	-1.44	.152	-0.660	0.103

Note: $R^2 = .36$.

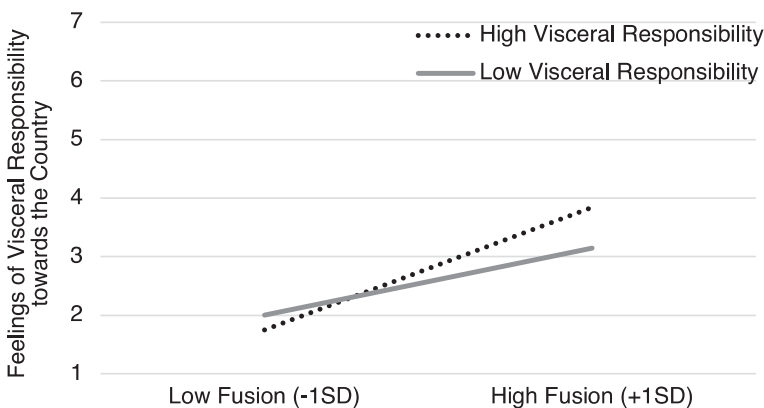


FIGURE 2 Feelings of visceral responsibility as a function of identity fusion and experimental condition (Study 2)

between both variables was smaller in the condition of low visceral responsibility (for more details see Table 3 and Figure 3).

Additional analyses revealed too that the effect of experimental condition was significant among strongly fused participants, $B = 0.67$, $t(299) = 3.42$, $p = .001$, 95% CI [0.283, 1.049], who were more willing to fight and die for the country in the condition of high visceral responsibility. Contrarily to that, the effect of condition was not significant among weakly fused participants, $B = -0.05$, $t(299) = -0.24$, $p = .806$ 95% CI [-0.419, 0.326].

The main effect of identity fusion was also significant, $B = 0.19$, $t(299) = 3.14$, $p = .002$, 95% CI [0.073, 0.318], meaning that willingness to fight and die for the country increased as fusion went stronger. Lastly, the main effect of experimental condition was significant too, $B = 0.30$, $t(299) = 2.31$, $p = .021$, 95% CI [0.045, 0.558], revealing that willingness to fight and die was stronger in the condition of high visceral responsibility than in the condition of low visceral responsibility.

Mediational analysis

Lench et al. (2014) advice conducting mediational analysis with manipulation checks to correctly determine the causal role of the intended mental state in generating the outcome. Following their suggestion, we performed bootstrapped (boots = 5,000) mediational analysis with the Macro PROCESS (Hayes, 2018; Model 8), including identity fusion (mean centred) as predictor, experimental condition (0 = low

TABLE 3 Moderated regression on willingness to fight and die (Study 2)

Predictor	<i>B</i>	<i>SE</i>	<i>t</i> (299)	<i>p</i>	LLCI	ULCI
Constant	2.05	.09	22.70	.000	1.869	2.234
Fusion	0.19	.06	3.14	.002	0.073	0.318
Condition	0.30	.13	2.31	.021	0.045	0.558
Fusion X Condition	0.21	.08	2.53	.012	0.047	0.380
Simple slopes						
High Visceral Responsibility	0.41	.06	7.19	.000	0.297	0.521
Low Visceral Responsibility	0.19	.06	3.14	.002	0.073	0.318
High Fusion (+1SD)	0.67	.19	3.42	.001	0.283	1.059
Low Fusion (-1SD)	-0.05	.19	-0.24	.806	-0.419	0.326

Note: $R^2 = .19$.

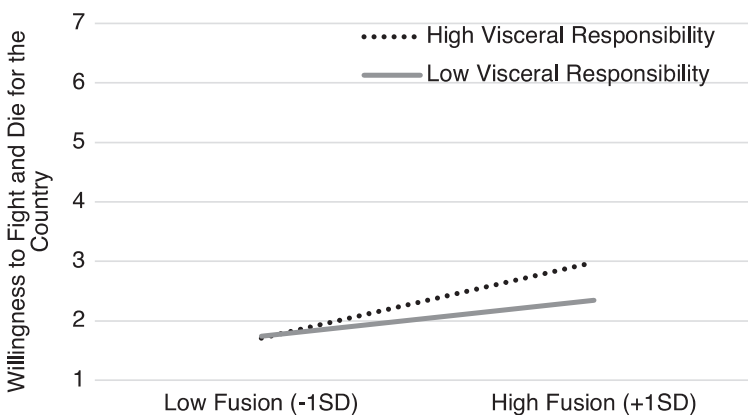


FIGURE 3 Willingness to fight and die as a function of identity fusion and experimental condition (Study 2)

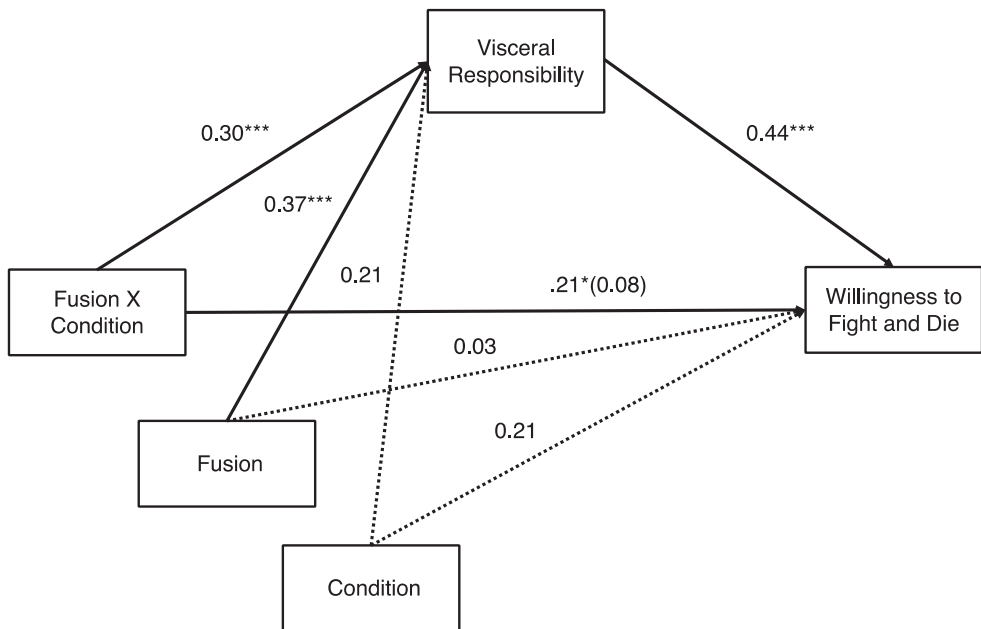
visceral responsibility; 1 = high visceral responsibility) as moderator, feelings of visceral responsibility (mean centred) as mediator, and willingness to fight and die as outcome variable (see Figure 4). Results confirmed that the overall indirect effect of the interaction between identity fusion and experimental condition on willingness to fight and die through feelings of visceral responsibility was significant, $B = 0.13$, 95% CI [0.048, 0.229]. Additionally, the indirect effect of identity fusion on willingness to fight and die for the country via visceral responsibility was significant in both the high visceral responsibility condition, $B = 0.30$, 95% CI [0.207, 0.394], and the low visceral responsibility condition, $B = 0.16$, 95% CI [0.092, 0.246].

Discussion

The results of Study 2 showed that manipulating visceral responsibility influenced willingness to fight and die for strongly fused individuals. Those who were informed that feelings of visceral responsibility are low among ingroup members reported less willingness to fight and die for the group than those who were informed that feelings of visceral responsibility are high.

GENERAL DISCUSSION

The present research examined, for the first time, the relationship between identity fusion, feelings of visceral responsibility, and extreme prosocial behaviour. In two studies considering fusion with an individual (the romantic partner, Study 1a) or with a group (the country, Study 1b), we found that strongly fused participants experienced more feelings of visceral responsibility towards the target of fusion and were more willing to fight and die for it; and that the relationship between fusion and willingness to



*** $p < .001$, * $p < .05$

FIGURE 4 Indirect effects of the interaction between identity fusion and experimental condition on willingness to fight and die for the country via feelings of visceral responsibility (Study 2)

fight and die seemed to be mediated by visceral responsibility. After that, we manipulated participants' feelings of visceral responsibility towards the country by providing them with bogus information about the feelings of visceral responsibility experienced by their fellow citizens (Study 2); and found that strongly fused participants who learned that visceral responsibility is not felt by most ingroup members were less willing to fight and die for the country as compared to those who learned that feelings of visceral responsibility are widely shared. Moreover, the relationship between identity fusion and willingness to fight and die was mediated by feelings of visceral responsibility in the two experimental conditions.

Our results make contributions to different domains. Theoretically, our studies advance identity fusion research and tie it to care ethics in at least three different ways. First, by showing that strongly fused individuals are willing to fight and die because they feel viscerally responsible to protect and promote the well-being of the target of fusion, they highlight a new mediational mechanism not examined before: feelings of visceral responsibility. Our studies complement previous research on the role of physical, psychological, and emotional activation as explicative mechanisms of the effect of identity fusion on extreme pro-group behaviours (Gómez, Brooks et al., 2011; Swann et al., 2009, 2010, 2014). The findings manifest that, without need for further abstract justification, fusion may generate automatic, impulsive, and instinctive feelings of visceral responsibility that motivate strongly fused to care and defend the interests of the target of fusion at a high cost to the self, as anticipated by some descriptions of responsibility or natural care (e.g., Noddings, 2003; Tronto, 1993)¹. Second, our studies add to previous research on the moderators that weaken fusion effects on extreme self-sacrifices, like knowing that self-sacrifices can be reasonably delayed or holding doubts about the own degree of fusion (Paredes et al., 2018, 2019), revealing that strongly fused individuals' willingness to engage in extreme pro-group behaviours diminishes when they learn that other group members are not committed to care and protect the group's interests. These results are consistent with the discovery that degrading either relational ties – sentiments towards individual group members – or collective ties – sentiments towards the group as a whole – diminishes identity fusion (Gómez et al., 2019); and they lend indirect support to the idea that strongly fused individuals perceive themselves as essentially imbued in caring relationships and that some shared responsibility or solidarity on the part of the target of fusion is needed to sustain a high level of care, as envisioned by care theorists too (e.g., van Nistelrooij, 2015; Noddings, 2003; Tronto, 2013). Third, and also following the assumptions of care ethics (e.g., van Nistelrooij, 2015; Slote, 2007), by showing that although to a lesser extent, identity fusion predicts willingness to fight and die even when participants are told that most ingroup members do not feel viscerally responsible for the group, our studies indicate that the extreme pro-group behaviours typical of the strongly fused might not rest entirely on strict reciprocity and not disappear when the expectation of mutualistic compensation breaks down. It seems then that the moral machinery sustaining extreme prosocial behaviour among the strongly fused is fuelled by the passions and social instincts that regulate caring relationships rather than by abstract moral principles or imperatives, which might not have the strength needed to motivate costly personal sacrifices (e.g., Slote, 2007).

At a practical level, our studies have several implications as well. Because people generally fuse with groups that do not comprise everyone, identity fusion entails a strong risk of moral parochialism, which can be particularly dangerous in the case of individuals fused with groups that legitimize the use of violence, such as terrorists (e.g., Chinchilla et al., 2021; Gómez et al., 2017, 2020). Relating to that, our research points to several paths on which program developers and practitioners could embark to prevent the problems related to parochialism. For instance, when dealing with individuals who are already fused with violent groups, the deployment of persuasive messages to challenge the assumption that feelings of visceral responsibility are shared within the group might lessen their

¹It is also the first time that a mediational mechanism of the effects of fusion has been explored out of the domain of fusion with a group, and the first case where a mediator has been demonstrated to work with fusion with different types of entities – that is, individuals and social groups.

proneness to engage in violence. Although the use of this strategy alone might not suffice to deter aggression, it has the advantage that it can be easily combined with other actions without substantially increasing the costs of interventions. In general, it might also be useful to develop programmes aimed at promoting fusion with inclusive groups characterized by highly permeable and flexible borders. In this respect, Talaiifar and Swann (2018) have posited that we should work to foster fusion with humanity because that can give us less reasons to fight one another and more reasons to work together towards mutually beneficial outcomes.

Undoubtedly, our research has limitations as well. Our studies do not provide direct evidence in support of the causal role of identity fusion on feelings of visceral responsibility. It is much more plausible that the feelings of oneness that the fused experience take precedence and cause visceral responsibility than the other way around, but future research should address this issue by collecting longitudinal data and/or experimentally manipulating fusion.

Our studies signal some future lines of research that could be pursued too. One interesting option would be testing whether the mediational mechanism that we have discovered generalizes to mindless entities, like values, objects, or firms. The fact that previous research has extended the scope of identity fusion from groups to other targets as individuals, values, etc. does not mean that the underlying mechanisms that increase, decrease, or mediate the effects of fusion are identical in all cases. While we have demonstrated that visceral responsibility mediates the effect of fusion on self-sacrifices considering fusion with a group and with an individual, it is not entirely clear whether the same mechanism also operates when fusion is felt towards entities that do not have mind. We suspect that fused individuals also feel visceral responsibility towards such entities but that these feelings are not based on the same processes that are important in the case of fusion with sentient beings – for example, the expectation of causing or avoiding suffering or pain – unless they anthropomorphize them (e.g., Epley et al., 2007). Also, other studies could explore the specific emotions that give rise to feelings of visceral responsibility among the fused. We think that the most obvious candidate is empathy or sympathetic concern (e.g., Batson, 2019; Slote, 2007). Lastly, future research should explore as well if the findings of our studies apply to other types of relational bonds, such as those based on communal sharing (Fiske, 1992).

CONCLUSIONS

The instinct for self-preservation is one of the most powerful drivers of behaviour, but it can be overpassed by our want to help. From abnegate comrades and loyal friends to old and current terrorists and social activists, countless of examples illustrate that humans are often willing to incur in extreme personal sacrifices, and even to die, for the people and groups cherished to them. Such examples exceed our moral expectations and are so perplexing that we have been wondering what kind of psychological processes might explain this type of acts during millennia. The path to a definitive answer to this question is still long; but the evidence accumulated let us make some empirically based conjectures about what we would find by digging into the mind of individuals who engage in extreme self-sacrifices on others' behalf. As the quote that opens this paper illustrates, we will probably discover that when our reality merges with that of the other and we start to feel its reality, our passions also compel us to act on behalf of the other as if it was on our own behalf, giving rise to feelings of visceral responsibility that motivate us to engage in significant personal sacrifices. In the context of social psychology, this feeling of utmost closeness has been captured in the most faithful way by the construct of identity fusion; and the moral machinery lying at its core has been described by the ethics of care.

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CONFLICT OF INTEREST

All authors declare no conflict of interest.

AUTHOR CONTRIBUTION

Juana Chinchilla: Conceptualization (equal); Data curation (equal); Formal analysis (equal); Investigation (equal); Methodology (equal); Software (equal); Validation (equal); Visualization (equal); Writing – original draft (equal); Writing – review & editing (equal). **Alexandra Vázquez:** Conceptualization (equal); Funding acquisition (equal); Supervision (equal); Writing – review & editing (equal). **Ángel Gómez:** Conceptualization (equal); Funding acquisition (equal); Investigation (equal); Methodology (equal); Project administration (equal); Resources (equal); Supervision (equal); Writing – original draft (equal); Writing – review & editing (equal).

DATA AVAILABILITY STATEMENT

The materials of the studies and the data that support the findings are publicly available at ‘Open Science Framework’ at: <https://osf.io/5amvq/>

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