

## ARTICLE

# Diluting perceived immigration threat: When and how intersectional identities shape views of North African immigrants

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## Abstract

In the European context, North African immigrants are often perceived as a threat to societal values and resources. Studies suggest that intersected identities (e.g., gay North African immigrant) may dilute the threat associated with one of those social categories (e.g., North African immigrant). However, the mechanisms underlying this dilution effect remain largely misunderstood. Three studies ( $N_{\text{Total}} = 1118$ ) examine *when* and *how* immigration threat perception can be lessened, considering immigrants' intersecting identities. Using a mediated-moderation model, we tested the hypothesis that, when perceived value incongruence between North African and gay identities (the moderator) is high, gay North African men will be perceived as 'less North African' than presumptively straight North African men (i.e., low group typicality: the mediator), which in turn would be associated with lower threat perception and less prejudice. Studies 1–2 revealed that participants evaluate North African immigrant men as less threatening when described as gay (vs. not). This threat dilution effect emerges especially *when* participants believe that North African immigrant and gay identities are highly incongruent. Studies 2–3 show that gay North African immigrants are perceived as less associated with typical attributes of the category 'North African immigrant', which may account for the diminished threat.

## KEYWORDS

attitudes, immigration, intergroup threat, intersectionality

## INTRODUCTION

In several European countries, particularly France, North African immigrants are often perceived as a threat to national identity (e.g., Badea et al., 2020). This perception stems from their immigrant status, their presumed ethnicity (e.g., Tunisian, Moroccan) and their perceived association with Islam and traditionalist principles, which are viewed as being in stark contrast to the modern values upheld by Western societies (Verkuyten et al., 2023). Although North African immigrants encompass different ethnicities and religions, public discourses tend to homogenize them into a single ‘monolithic community’, prototypically represented by the figure of a straight Muslim Arab man embodying traditional values (Warner & Wenner, 2006).

Most available research has examined the perceived threat associated with this prototypical figure. However, North African immigrants are a diverse group of individuals who possess other intersecting identities, such as being a woman or a member of a sexual minority, which influence how they are perceived (Choubak & Safdar, 2023; Savaş et al., 2021). Certain combinations of these identities are perceived as congruent (e.g., being straight, North African and immigrant). In contrast, other combinations are seen as incongruent and conflicting (e.g., being gay, North African and immigrant). Indeed, due to the expected association between North African identity, Islam and traditionalist values promoting heterosexuality, North African and gay identities are often viewed as incompatible (Rahman, 2010; Rahman & Valliani, 2016).

This perceived incongruence leads gay North African immigrants to be seen as less prototypical immigrants than straight North African immigrants, to be associated less with stereotypical characteristics of North African immigrants (i.e., traditional values like devoutness), and to trigger different assumptions about their motivations for migration (e.g., fleeing persecution); see Reese et al. (2024). As the threat associated with North African immigrants stems from the traditional values associated with their supposed ethnicity and religion, this low typicality, may produce a threat dilution for gay North African men. The present research aims to test this intersectional threat dilution assumption and its underlying mechanisms.

Drawing on intersectional person perception research, we propose that a threat dilution effect is likely to emerge *when* intersectional categories are perceived as incongruent, especially in terms of the values associated with each category. We then investigate *how* perceived value incongruence between intersected identities dilutes the threat, examining the effect of group typicality – the extent to which perceivers see gay North African men as stereotypical of the North African immigrant category – as a mediator of this threat dilution.

## Intersectional threat dilution effect and identities incongruence: A value perspective

Several theoretical models and empirical studies support an intersectional threat dilution effect (e.g., Hall et al., 2019). However, the question of *when* intersecting identities are associated with less bias compared to their constituent groups remains untested. The MOSAIC model (Model of Stereotyping through Associated and Intersectional Categories, Hall et al., 2019) predicts that the stereotypical incongruence between identities results in a stereotype dilution for people at the intersection of these categories. For instance, perceivers should evaluate Black women as less aggressive than Black people in general because Black's identity is stereotypically associated with aggression whereas women's identity is associated with gentleness. An intersectional dilution effect was particularly observed in empirical studies that examine intersected identities considered as stereotypically incongruent (e.g., ‘Black’ and ‘gay’; ‘Black’ and ‘obese’; ‘old’ and ‘gay’; Carnaghi et al., 2022; Coladonato et al., 2022; Petsko & Bodenhausen, 2019; Sim et al., 2022). For instance, obese Black men (Sim et al., 2022) and gay Black men (Remedios et al., 2011; Wilson et al., 2017) come across as more likable, and less threatening, than Black men.

Importantly, none of these studies directly tested the impact of perceived incongruence on the threat dilution effect (for reviews see Hudson et al., 2024; Sternberg et al., 2023). The authors only considered incongruence between identities in theoretical terms without assessing perceivers' differential perception of this incongruence. If the intersectional threat dilution effect is due to the perceived incongruence between identities, then it should be particularly present among perceivers who strongly believe that these identities are incongruent.

When it comes to the threat associated with immigrants, one interesting way to appraise perceived incongruence is to examine the perceived cultural values associated with each group (Schwartz & Struch, 1989; see also Bergstrom et al., 2024; Sternberg et al., 2024). This approach is particularly relevant because, in the European context, North African immigrant men are perceived both as a symbolic threat (to the majority group's values) and a realistic threat (to economic resources) because they are associated with 'traditional' values (e.g., tradition, religiosity) and viewed as low status (Badea et al., 2020). Conversely, gay men are seen as less threatening because they are more likely to be associated with 'modern' values (e.g., liberty, social justice) and perceived as a higher-status group than immigrant men (Meuleman et al., 2019). We reasoned that this perceived value incongruence may lead gay North African immigrants to come across as less prototypical of their immigrant group, and consequently less symbolically and realistically threatening. That is, individuals who perceive more incongruence between "North African" and "gay" identities will perceive gay North African men as less typical members of the North African immigrant group, and thus less threatening.

## Group typicality: An underlying mechanism of intersectional dilution effect

The question of *how* perceived value incongruence between intersected identities dilutes the threat associated with one identity also remains unaddressed. One plausible account for this phenomenon lies in the low perceived typicality of targets as members of their groups. Previous research has shown that people tend to exhibit less prejudice and feel less threatened by outgroup members perceived as physically non-typical of their groups (Yetkili et al., 2018). For instance, Black individuals with less typical characteristics of their racial groups are evaluated less negatively than more typical targets (Blair et al., 2004; Livingston & Brewer, 2002; Maddox, 2004). Similarly, gay men with highly prototypical physical characteristics of gay men are associated with more negative stereotypes than those with less prototypical characteristics (Beam & Wellman, 2024).

Another factor that can influence targets' perceived typicality is their membership in multiple stigmatized groups. According to the Intersectional Invisibility Model (Purdie-Vaughns & Eibach, 2008), multiple stigmatized individuals (e.g., gay North African men) are likely to be perceived as less prototypical members of each of their minority groups, as compared to individuals belonging to a single minority group (e.g., gay men, North African men). Although this non-prototypicality leads to 'disadvantages' (being culturally invisible and less represented in society; Remedios & Snyder, 2018), it could also have relative 'advantages', such as being less a target of prejudice or discrimination directed at the more typical group members (Ridgeway & Kricheli-Katz, 2013).

Empirical research on intersectional person perception studied this lower typicality for multiple stigmatized targets by examining stereotyping processes (Coladonato et al., 2024; Petsko & Bodenhausen, 2019; Preddie & Biernat, 2021). In line with the Intersectional Invisibility Model (Purdie-Vaughns & Eibach, 2008), this research indicated that multiple stigmatized intersectional targets (e.g., gay Black men) are less associated with the typical stereotypes ascribed to their constituent ingroups (Black men and gay men) compared to more typical targets (e.g., straight Black men, gay White men). Similar results have been found in the context of immigration. For instance, Choubak and Safdar (2023) found that straight immigrants were more associated with immigrant's typical characteristics than gay and lesbian immigrants were.

However, to the best of our knowledge, no integrative research has explored how perceived incongruence between intersecting identities – particularly within the context of immigration and

national identity – affects both the perceived typicality and the threat associated with these targets. Here, we examined whether a high incongruence between intersecting categories (e.g., North African and gay categories) may lead intersectional targets (e.g., gay North African men) to be perceived as less fitting the stereotypical attributes of the superordinate categories (e.g., North African men) which would, in turn, lead gay North African men to be perceived as less threatening than North African men.

## The present research

The present research focuses on the threat and prejudice associated with North African immigrant men vs. gay North African immigrant men. We conducted three experiments ( $N_{\text{Total}} = 1118$ ) and a pilot study<sup>1</sup> to examine *when* and *how* intersecting identities (gay North African) dilute bias associated with one social category (North African). We tested a mediated moderation model, with the following hypotheses: (a) participants will perceive gay North African men as less threatening than North African men believed to be straight (intersectional threat dilution hypothesis – Study 1 & 2); (b) this will be especially the case *when* participants see the constituent identities (North African and gay) as incongruent (moderation hypothesis – Study 1 & 2); (c) the moderating effect of perceived value incongruence on threat will be mediated by the lower typicality of gay North African immigrant as members of the North African group (mediated moderation hypothesis – Study 2 & 3).

Informed consent was obtained from each participant, and studies were approved by the Ethics Committee of the University of Paris Nanterre (Ethical Clearance Number: 2022-02-01). We report how we determined our sample sizes, all manipulations, measures and exclusions.<sup>2</sup>

Materials, databases, and statistical analysis are available at: [https://osf.io/8gnjp/?view\\_only=a27c22231bd74454a6f150e1d256ce29](https://osf.io/8gnjp/?view_only=a27c22231bd74454a6f150e1d256ce29). Study design, sample size, exclusion criteria, and analyses are pre-registered (Study 1: [https://aspredicted.org/WMR\\_2M4](https://aspredicted.org/WMR_2M4); Study 2: [https://aspredicted.org/13N\\_2JK](https://aspredicted.org/13N_2JK); Study 3: [https://aspredicted.org/8D1\\_JRK](https://aspredicted.org/8D1_JRK)).

## STUDY 1

In this study, we tested the intersectional threat dilution hypothesis according to which participants will see gay North African immigrants as less threatening than North African men in general. We examined the impact of perceived value incongruence between North African and gay identities on this effect. We also assumed gay North African men to be perceived differently from gay men.

## Method

### Participants

The final sample comprised 452 straight “native” French participants recruited online through social media posts ( $M_{\text{age}} = 44.5$ ,  $SD_{\text{age}} = 12.7$ ; 390 women;  $M_{\text{political orientation}} = 3.70$ ,  $SD_{\text{political orientation}} = 1.57$ ). We estimated the required sample size using G\*Power 3.1, for an ANCOVA (Faul et al., 2009). We assumed a small to medium effect size ( $f^2 = .15$ ), for three groups (between-participants design), one

<sup>1</sup>For the sake of brevity, the pilot study is reported in Appendix S1.

<sup>2</sup>As pre-registered, we followed the same exclusion rules across the three studies. We excluded participants who declared that they did not complete the study seriously ( $n_1 = 1$ ;  $n_2 = 1$ ;  $n_3 = 1$ ), whose time completion exceeded three standard deviations from the mean ( $n_1 = 8$ ;  $n_2 = 1$ ;  $n_3 = 3$ ), who identified as a sexual orientation minority ( $n_1 = 17$ ;  $n_2 = 45$ ;  $n_3 = 15$ ), who indicated that their mother tongue or those of their parents was not French ( $n_1 = 75$ ;  $n_2 = 71$ ;  $n_3 = 30$ ). Additionally, in Study 3, participants were excluded because they failed the attention check ( $n = 2$ ) or did not pass the manipulation check ( $n = 28$ ).

covariate, with .80 power, resulting in a required sample of 432. To account for potential exclusions, we aimed for 450 participants.

## Materials and procedure

After completing the value incongruence perception measure, participants were randomly assigned to give their opinion about one social group ('gay North African immigrant men', 'North African immigrant men' or 'Gay men'). Because multiple studies suggest that, without any additional information, prototypical group members are generally assumed to be heterosexual (Lick & Johnson, 2016), and white (Hegarty, 2017), we did not specify North African immigrants' heterosexual sexual orientation or gay men's ethnicity in the latter two conditions. Participants then completed measures regarding the target group to which they were assigned (acceptance, symbolic and realistic threats perception, and attitudes).

## Measures

### *Incongruence perception*

We measured the perception of incongruence between North African and gay identities using Schwartz's (1992) values inventory. Participants were presented with 8 values that correspond to 'Tradition' (e.g., devout) and 'Modernity' (e.g., broad-minded) dimensions. For both groups (i.e., 'North African immigrant men' and 'Gay men'; randomized order), they indicated to what extent each of these values is important as a guiding principle in the lives of this group's members (1 = *Not at all important* to 7 = *Absolutely important*). We computed 'Tradition' and 'Modernity' scores for each group by averaging the values corresponding to the tradition dimension and to the modernity dimension, respectively. We then computed two 'Tradition over Modernity' scores (one for each group) by subtracting the 'Modern' score from the 'Tradition' score. The perceived incongruence score corresponded to the difference between these two scores. A high perceived incongruence score indicated that participants perceived North African men to be strongly associated with traditional values (vs. modern values) while at the same time expressing the reverse view concerning gay men (cf., El-Tayeb, 2012; Mepschen & Duyvendak, 2012).

### *Acceptance of the target group*

We measured participants' acceptance of the target group using one item ('I think that these people should be welcome in France'; 1 = *'Not at all'* to 7 = *'Absolutely'*; reversed item).

### *Symbolic and realistic threat*

We assessed symbolic and realistic perceived threats concerning the target group using 10 items (e.g., 'I think that the values of these people are different from those of the majority of French people',  $\alpha = .86$ ; 'I think that these people have a negative impact on the financial resources in France',  $\alpha = .81$ ; Stephan & Stephan, 2000).

### *Attitudes towards the target group*

We measured attitudes using both emotional reactions (adapted from Cottrell & Neuberg, 2005; subsequently referred to as the 'Prejudice' measure) and a feeling thermometer (subsequently referred to as the 'Negative attitudes' measure). Participants indicated to what extent they experienced each of a series of positive (e.g., empathy) or negative emotions (e.g., disgust) when thinking about the target group (1 = *'Not at all'* to 7 = *'Absolutely'*;  $\alpha = .88$ ). They were then asked to report their global attitude on a 'feeling thermometer' scale ranging from 0 to 100, with 0 (100) indicating very cold (warm) feelings (reversed so that the higher the score, the more negative are attitudes towards the target group).

### Political orientation

We measured political orientation using a political self-placement question (1 = 'Very left-wing' to 7 = 'Very right-wing').

Finally, participants indicated whether they had completed the study seriously, provided sociodemographic information, and were debriefed.

## Results and discussion

We performed two ANCOVAs on each dependent variable, with the target group, incongruence perception (centered), and their interaction as independent variables. Descriptive statistics and correlations are presented in Table S1.

The target group's main effect proved significant for all measures. Participants evaluated gay North African men more positively than North African men and more negatively than gay men in general, except concerning realistic threats for which the difference between gay North African and North African was not significant,  $t(446) = 2.20$ ,  $p_{\text{Bonferroni}} = .084$ ,  $d = .26$ , 95% CI [.03, .50], see Table 1.

The key target group by perceived value incongruence interaction was significant for both acceptance and symbolic threat,  $F(2, 446) = 3.34$ ,  $p = .037$ ,  $\eta_p^2 = .015$ , [0.01, 0.04], and  $F(2, 446) = 3.36$ ,  $p = .036$ ,  $\eta_p^2 = .015$ , [0.01, 0.04], respectively. Specifically, participants accepted gay North African men more than North African men when perceived value incongruence was high:  $b = -1.23$ , [0.70, 1.77],  $t(446) = 4.52$ ,  $p < .001$ ,  $\eta_p^2 = .044$ , [0.01, 0.19] rather than low,  $b = -0.30$ , [-0.24, 0.84],  $t(446) = 1.09$ ,  $p = .278$ ,  $\eta_p^2 = .003$ , [0.00, 0.01],  $\bar{\kappa} = 2.44$ ,  $p = .015$ . The difference in acceptance between gay North African men and gay men was significant at both levels of perceived incongruence: low,  $b = 1.04$ , [-1.56, -0.53],  $t(446) = 3.99$ ,  $p < .001$ ,  $\eta_p^2 = .034$ , [0.00, 0.15]; high,  $b = 0.87$ , [-1.39, 0.35],  $t(446) = 3.28$ ,  $p = .001$ ,  $\eta_p^2 = .024$ , [0.00, 0.11];  $\bar{\kappa} = 0.46$ ,  $p = .644$ .

Similarly, they perceived gay North African men less symbolically threatening than North African men when perceived value incongruence was high,  $b = 1.34$ , [0.92, 1.75],  $t(446) = 6.34$ ,  $p < .001$ ,  $\eta_p^2 = .083$ , [0.01, 0.32], rather than low,  $b = 0.60$ , [0.18, 1.01],  $t(446) = 2.81$ ,  $p = .005$ ,  $\eta_p^2 = .017$ , [0.00, 0.08],  $\bar{\kappa} = 2.49$ ,  $p = .013$ . Moreover, the difference between gay North African men and gay men concerning symbolic threat was significant across both levels of perceived incongruence: low,  $b = -1.63$ , [-2.03, -1.23],  $t(446) = 8.07$ ,  $p < .001$ ,  $\eta_p^2 = .127$ , [0.00, 0.43]; high,  $b = -1.45$ , [-1.85, -1.05],  $t(446) = 7.10$ ,  $p < .001$ ,  $\eta_p^2 = .102$ , [0.00, 0.36];  $\bar{\kappa} = 0.64$ ,  $p = .525$ .

Finally, the target group by perceived value incongruence interaction was not significant for realistic threat,  $F(2, 446) = 1.98$ ,  $p = .139$ ,  $\eta_p^2 = .009$ , [0.00, 0.03], prejudice,  $F(2, 446) = 0.87$ ,  $p = .421$ ,  $\eta_p^2 = .004$ , [0.00, 0.02], and negative attitudes,  $F(2, 446) = 0.82$ ,  $p = .441$ ,  $\eta_p^2 = .004$ , [0.00, 0.02].<sup>3</sup>

Overall, Study 1 provided encouraging support for the intersectional threat dilution hypothesis. North African immigrants described as gay triggered less symbolic threats than North African immigrants whose sexual orientation was unspecified. At the same time, gay North African immigrants came across as more threatening than gay men. Interestingly, perceived value incongruence accounted more for the difference between gay North African immigrants and North African immigrants than for the difference between gay North African immigrants and gay men. This is not surprising, as this study focuses on threats that are much more associated with immigrants than with gay individuals. For this reason, the next study focuses on attitudes and threats associated with North African immigrants (gay vs. not).

<sup>3</sup>As pre-registered, we ran the same analyses controlling for participants' political orientation. The pattern of results did not change, except concerning the interaction between target and perceived incongruence that became significant for realistic threat,  $F(2, 443) = 3.83$ ,  $p = .022$ ,  $\eta_p^2 = .017$ , [0.01, 0.03], (see Appendix S1 for the full analyses).



TABLE 1 Evaluations as a function of target group and measure—Study 1.

	Target group			<i>F</i>	<i>p</i>	$\eta^2_p$	95% CI
	North African <i>N</i> = 141 <i>M</i> (SD)	Gay north African <i>N</i> = 145 <i>M</i> (SD)	Gay <i>N</i> = 166 <i>M</i> (SD)				
Acceptance	4.84 <sub>a</sub> (1.94)	5.61 <sub>b</sub> (1.83)	6.57 <sub>c</sub> (1.06)	43.77	<.001	.164	0.10, 0.22
Realistic threat	3.88 <sub>a</sub> (1.38)	3.54 <sub>b</sub> (1.39)	2.71 <sub>b</sub> (1.08)	34.48	<.001	.134	0.08, 0.19
Symbolic threat	4.78 <sub>a</sub> (1.24)	3.81 <sub>b</sub> (1.46)	2.27 <sub>c</sub> (1.09)	158.50	<.001	.415	0.35, 0.47
Prejudice	3.45 <sub>a</sub> (1.25)	2.56 <sub>b</sub> (1.22)	2.07 <sub>c</sub> (0.97)	56.42	<.001	.202	0.14, 0.26
Negative attitudes	47.37 <sub>a</sub> (22.32)	33.73 <sub>b</sub> (23.50)	20.65 <sub>c</sub> (22.35)	53.67	<.001	.194	0.13, 0.25

Note: For each measure, means showing different subscripts differ significantly at *p* < .001, as indicated by Bonferroni-corrected *t*-tests.

## STUDY 2

In Study 2, we tested whether perceived group typicality, i.e., the extent to which participants perceive gay North African immigrants as typical of their immigrant group, constitutes an underlying mechanism by which gay North African men end up being less the target of ethnic biases. To address this question, we tested a mediated moderation model, including group typicality as a mediator. A second goal of Study 2 was to obtain generalizable results across participants' genders. As in most psychology studies, Study 1 sampled mostly women (86%). However, prejudice has been shown to depend on gender. Straight women tend to express less prejudice towards gay men than straight men, particularly because the latter may perceive gay men as a threat to masculinity (Herek, 1988). Thus, one could argue that the above results are specific to women and may not generalize to other genders. In Study 2, we aimed to secure a more gender-balanced sample to address this limitation.

## Method

### Participants

The sample comprised 446 straight 'native' French participants recruited via posts on social media ( $M_{\text{age}} = 46.9$ ,  $SD_{\text{age}} = 15.0$ ; 237 women;  $M_{\text{political orientation}} = 3.88$ ,  $SD_{\text{political orientation}} = 1.68$ ). We estimated the required sample size using G\*Power 3.1. We assumed a small to medium effect size ( $f^2 = .15$ ) for two groups (between-participants design), one mediator, and one moderator, with 85% power, resulting in a required sample size of 401. Again, to account for potential exclusions, we aimed to reach 450 participants.

### Materials and procedure

Participants first completed measures of political orientation and perceived value incongruence. We then randomly assigned them to one of two conditions ('gay North African immigrant' or 'North African immigrant'). We measured group typicality using both positive and negative stereotypical traits of North African immigrants in France (e.g., devout, misogynist; Fourgassie et al., 2023). We also included other items as fillers (e.g., clumsy). Importantly, these traits were positive and negative, ensuring that our results would not be related to the valence of the traits.<sup>4</sup> Participants had to indicate the extent to which each trait is typical of the target group (North African immigrant men or gay North African immigrant men);  $\alpha = .79$ . Finally, they responded to a series of target evaluation measures: acceptance, symbolic ( $\alpha = .85$ ) and realistic threat ( $\alpha = .88$ ), and negative attitudes.

## Results and discussion

### Target evaluation and impact of perceived incongruence

We ran the same analyses as in Study 1. Descriptive statistics and correlations are presented in Table S2. Again, participants evaluated gay North African men less negatively than North African men whose sexual orientation was unspecified, see Table 2. As in Study 1, the interaction between target group and incongruence perception was significant for acceptance, symbolic threat, and was, in this study, also

<sup>4</sup>A mixed ANOVA 2(Target: North African vs. gay North African)  $\times$  2(Traits: Typical vs. Filler)  $\times$  2(Valence: Positive vs. Negative) with the last two factors within-participants showed that gay North African immigrants were significantly less associated with typical traits as compared to fillers, on both positive and negative traits,  $F(1, 444) = 18.58$ ,  $p < .001$ ,  $\eta_p^2 = .040$ , [.01, .08].



TABLE 2 Evaluations as a function of target group and measure – Study 2.

	Target group		<i>F</i>	<i>p</i>	$\eta^2_p$	95% CI
	North African <i>N</i> =236 <i>M</i> (SD)	Gay North African <i>N</i> =210 <i>M</i> (SD)				
Acceptance	4.74 (1.84)	5.20 (1.99)	6.27	.013	.014	0.01, 0.04
Realistic threat	4.00 (1.55)	3.63 (1.45)	6.74	.010	.015	0.01, 0.04
Symbolic threat	4.84 (1.28)	4.10 (1.40)	34.44	<.001	.072	0.03, 0.12
Negative attitudes	48.10 (25.7)	39.70 (23.8)	12.81	<.001	.028	0.01, 0.03

significant for negative attitudes,  $b = 0.15$ ,  $[-0.30, -0.00]$ ,  $t(442) = 2.00$ ,  $p = .046$ ,  $\eta^2_p = .009$ ,  $[0.01, 0.03]$ ,  $b = -0.13$ ,  $[-0.24, -0.03]$ ,  $t(442) = -2.53$ ,  $p = .012$ ,  $\eta^2_p = .014$ ,  $[0.01, 0.04]$  and  $b = -2.96$ ,  $[-4.90, -1.02]$ ,  $t(442) = -3.00$ ,  $p = .003$ ,  $\eta^2_p = .020$ ,  $[0.01, 0.05]$ , respectively. Again, participants evaluated gay North African immigrants more positively than North African immigrants, especially when participants perceived high-value incongruence between North African and gay identities. The pattern of this interaction for realistic threat only approached statistical significance,  $b = -0.11$ ,  $[-0.23, 0.01]$ ,  $t(442) = -1.81$ ,  $p = .070$ ,  $\eta^2_p = .007$ ,  $[0.00, .03]$ .<sup>5</sup> Thus, the mediated moderation model only included acceptance, symbolic threat and negative attitudes as dependent variables.

Mediated moderation model

We then tested the key mediated moderation hypothesis, according to which group typicality would play a mediating role. To test this hypothesis, we conducted three mediated moderation analyses following the steps recommended by Muller et al. (2005), via three multiple regression models for each outcome (see Table 3). These models included the following variables: target group as the predictor (*X*), (centered) perceived value incongruence as the moderator (*Mo*), (centered) group typicality as the mediator (*Me*) and acceptance (*Y*<sub>1</sub>), symbolic threat (*Y*<sub>2</sub>) and negative attitude (*Y*<sub>3</sub>) as outcomes, see Figure 1.

To support a mediated moderation effect, after proving a significant interaction between target type (*X*) and perceived value incongruence (*Mo*), two further conditions should be met (Muller et al., 2005). Firstly, the above interaction effect should be reduced or non-significant when group typicality (*Me*) and its interaction with perceived value incongruence (*Me*\**Mo*) are included in the model. Secondly, one or both of the following conditions should be met: the relation between target type (*X*) and group typicality (*Me*) and/or the effect of group typicality (*Me*) on the dependent variable should be moderated by perceived value incongruence.

The analyses revealed that these two last conditions were met for acceptance, symbolic threat and negative attitudes, supporting the role of group typicality as a mediator of the moderation effect. For instance, the main effect of target group on symbolic threat was not significant,  $b = -0.16$ ,  $[-0.42, 0.10]$ ,  $t(440) = -1.20$ ,  $p = .232$ ,  $\eta^2_p = .003$ ,  $[0.00, 0.02]$  and the direct effect of target type on symbolic threat was no longer moderated by perceived value incongruence,  $b = -0.02$ ,  $[-0.12, 0.09]$ ,  $t(440) = -0.27$ ,  $p = .785$ ,  $\eta^2_p = .000$ ,  $[0.00, 0.01]$ , when we included group typicality (*Me*) and its interaction with perceived value incongruence (*Me*\**Mo*) in the analysis, supporting the hypothesized mediated moderation model. The results were similar concerning acceptance and negative attitudes (see Table 3). In line with our hypothesis, gay North African men came across more favourably than North African men, especially when

<sup>5</sup>Because Studies 1 and 2 relied on the same experimental manipulation and dependent variables, we conducted an integrative data analysis ( $N = 732$ ) to conduct a more powerful test of the incongruence effect (Curran & Hussong, 2009). The interaction was found to be significant for all outcomes, including realistic threat, suggesting that the effect on realistic threat may be rather small and presumably requires more power to emerge (see Appendix S1).

TABLE 3 Least squares regression results for mediated moderation – Study 2.

Model 1 – Acceptance									
Predictors	Equation 1 (criterion acceptance)			Equation 2 (group typicality)			Equation 3 (criterion acceptance)		
	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>
X: Target	0.45	.24	2.50*	−1.08	−.91	−11.23**	−0.21	−.11	−1.04
Mo: INC	−0.05	−.06	−1.33	0.12	.23	5.62**	0.02	.03	0.57
XMo: Target*INC	0.15	.19	2.00*	−0.15	−.29	−3.55**	0.02	.03	0.25
ME: TYP							−0.58	−.36	−6.69**
MEMO: TYP*INC							−0.05	−.07	−1.43
Model 2 – Symbolic threat									
Predictors	Equation 1 (criterion symbolic threat)			Equation 2 (group typicality)			Equation 3 (criterion symbolic threat)		
	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>
X: Target	−0.73	−.53	−5.87**	−1.08	−.91	−11.23**	−0.16	−.12	−1.20
Mo: INC	0.07	.12	2.57*	0.12	.23	5.62**	0.01	.01	0.19
XMo: Target*INC	−0.13	−.23	−2.53*	−0.15	−.29	−3.55**	−0.02	−.03	−0.27
ME: TYP							0.50	.43	8.63**
MEMO: TYP*INC							0.04	.09	2.03*
Model 3 – Negative attitudes									
Predictors	Equation 1 (criterion negative attitudes)			Equation 2 (group typicality)			Equation 3 (criterion negative attitudes)		
	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>
X: Target	−8.33	−.33	−3.58**	−1.08	−.91	−11.23**	−1.30	−.05	−0.50
Mo: INC	0.92	.09	1.86	0.12	.23	5.62**	0.12	.01	0.24
XMo: Target*INC	−2.96	−.28	−3.00**	−0.15	−.29	−3.55**	−1.08	−.10	−1.00
ME: TYP							5.86	.28	5.18**
MEMO: TYP *INC							0.95	.11	2.30*

Abbreviations: INC, perceived incongruence; TYP, perceived group typicality.

\* $p < .05$ .

\*\* $p < .01$ .

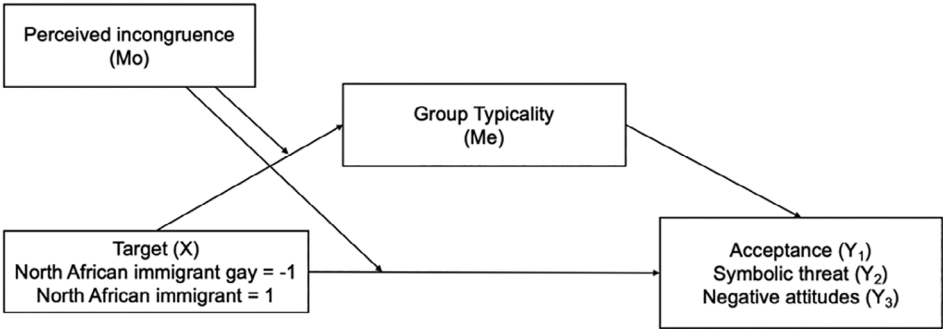


FIGURE 1 Hypothesized mediated moderation model.

perceived value incongruence was high. Importantly, lower perceived group typicality accounted for this effect.

## Alternative causal model

One could argue that perceiving gay North African immigrants as less threatening as compared to North African immigrants could be one underlying mechanism through which they are perceived as less fitting the typical traits associated with their ethnic group (i.e., reverse mediation model). We thus tested this alternative model by swapping the dependent variables and the mediator in the above equations. The target group by perceived incongruence interaction remained significant when controlling for acceptance,  $b = -0.12$ ,  $[-0.20, -0.04]$ ,  $t(440) = -3.06$ ,  $p = .002$ ,  $\eta_p^2 = .021$ ,  $[0.01, 0.05]$ , symbolic threat,  $b = -0.09$ ,  $[-0.17, -0.02]$ ,  $t(440) = -2.35$ ,  $p = .019$ ,  $\eta_p^2 = .012$ ,  $[0.01, 0.04]$ , and negative attitudes,  $b = -0.11$ ,  $[-0.19, -0.03]$ ,  $t(440) = -2.61$ ,  $p = .009$ ,  $\eta_p^2 = .015$ ,  $[0.01, 0.05]$ . In short, these analyses clearly questioned the viability of this alternative model.

As noted by Spencer et al. (2005) and Judd et al. (2014), to ensure that a mediation analysis is theoretically relevant, it is also important to ascertain the discriminant validity between the mediator and the independent variable, and between the mediator and the outcome variables. Group typicality corresponds to the extent to which intersectional targets are associated with characteristics considered typical of the superordinate ethnic category (e.g., devout). This is conceptually distinct from the independent variable (target group) and from each of the dependent measures. One may associate a target group with a specific set of traits without necessarily perceiving this group as threatening. The correlations between the mediating variable and the outcomes confirm that the variables are distinct (see Table S2).

## Impact of participants' gender

To examine the impact of participants' gender, we conducted multiple regression analyses for each of the dependent variables with the target group, perceived incongruence, participants' gender,<sup>6</sup> and their interaction as predictor variables. We found a gender effect on acceptance,  $b = 0.37$ ,  $[-0.73, -0.02]$ ,  $t(437) = 2.05$ ,  $p = .041$ ,  $\eta_p^2 = .010$ ,  $[0.01, 0.03]$ , and on negative attitudes,  $b = -5.34$ ,  $[-9.89, -0.78]$ ,  $t(437) = -2.31$ ,  $p = .022$ ,  $\eta_p^2 = .012$ ,  $[0.01, 0.04]$ . Women generally exhibited more acceptance and less negative attitudes than men did (*ns* for realistic threat and symbolic threat).

Results also showed a significant interaction between target group and gender on symbolic threat,  $b = -0.69$ ,  $[-1.18, -0.20]$ ,  $t(437) = -2.75$ ,  $p = .006$ ,  $\eta_p^2 = .017$ ,  $[0.01, 0.05]$ , and negative attitudes,  $b = -12.59$ ,  $[-21.68, -3.49]$ ,  $t(437) = -2.72$ ,  $p = .007$ ,  $\eta_p^2 = .017$ ,  $[0.01, 0.05]$ . Participants perceived gay North African men as less symbolically threatening than North African immigrant men, and more so among women than men,  $b = -1.06$ ,  $[-1.41, -0.72]$ ,  $t(437) = -6.05$ ,  $p < .001$ ,  $\eta_p^2 = .077$ ,  $[0.04, 0.13]$ , and  $b = -.37$ ,  $[-0.72, -0.03]$ ,  $t(437) = -2.11$ ,  $p = .036$ ,  $\eta_p^2 = .010$ ,  $[0.01, 0.04]$ , respectively. Similar results emerged for attitudes (*ns* for realistic threat and acceptance).

The three-way interaction between target group, perceived incongruence, and gender was significant only for negative attitudes,  $b = 4.29$ ,  $[0.44, 8.13]$ ,  $t(437) = 2.19$ ,  $p = .029$ ,  $\eta_p^2 = .011$ ,  $[0.01, 0.04]$ . Among men, there was a significant impact of perceived incongruence on attitudes towards North African immigrants,  $b = 3.56$ ,  $[1.78, 5.33]$ ,  $t(437) = 3.94$ ,  $p < .001$ ,  $\eta_p^2 = .034$ ,  $[0.01, 0.07]$ ; *ns* for gay North African men,  $b = -1.24$ ,  $[-3.14, 0.66]$ ,  $t(437) = -1.29$ ,  $p = .199$ ,  $\eta_p^2 = .004$ ,  $[0.00, 0.02]$ . However, there was no significant impact of perceived incongruence among women on their negative attitudes towards North African men,  $b = 0.89$ ,  $[-1.18, 2.96]$ ,  $t(437) = 0.84$ ,  $p = .401$ ,  $\eta_p^2 = .002$ ,  $[0.00, 0.03]$  and

<sup>6</sup>We excluded from the analyses one participant who did not mention their gender.

gay North African men,  $b = 0.37$ ,  $[-1.57, 2.30]$ ,  $t(437) = 0.37$ ,  $p = .710$ ,  $\eta_p^2 = .000$ ,  $[0.00, 0.01]$ . Because our sample mostly comprised women in Study 1, this may explain why the interaction between perceived incongruence and target on attitudes failed to reach significance, whereas it was significant in Study 2 (see Table S3).

These findings align with research showing that women generally exhibit more positive attitudes towards gay men than men do (Herek, 1988). Notably, the difference in perceived symbolic threat between gay North African men and North African men remained significant among men, suggesting that this dilution effect generalizes to men.

## STUDY 3

One important condition required to establish the mediating role of group typicality concerns the causal relation between variables. The goal of Study 3 was to test the causal relationship between group typicality and gay North Africans' evaluation by manipulating group typicality. We expected that gay North African men would be perceived as more threatening when they were depicted as fitting the stereotypical attributes of the North African immigrants as compared to when they were depicted as not fitting the stereotypical attributes of the North African immigrants or to a control condition.

## Method

The sample size was preregistered and calculated using G\*Power. For a multiple regression with three predictors, a small effect size ( $f^2 = .10$ ), and .90 power, the required sample size was 146. To ensure adequate cell sizes and to minimize the risk of overestimating the true population effect size (Perugini et al., 2018), we aimed for at least 200 participants. The final sample comprised 212 straight 'native' French participants recruited through social networks ( $M_{age} = 44.8$ ,  $SD_{age} = 13.4$ , 141 women;  $M_{political\ orientation} = 3.92$ ,  $SD_{political\ orientation} = 1.71$ ).

We randomly assigned participants to one of three experimental conditions ('high group typicality';  $n = 75$ , 'low group typicality';  $n = 65$ , control condition;  $n = 72$ ). We presented participants in the 'high/low group typicality' conditions with results of a survey allegedly conducted among French citizens and indicating a strong/weak association between gay North Africans and traits that are stereotypical of North Africans (e.g., devout). Importantly, these were the same traits as those used in Study 2 to measure group typicality. This ensured that the measured and manipulated variables corresponded to the same construct (Spencer et al., 2005). We presented survey results in a table including each stereotypical trait along with a scale ranging from 1 ('Not at all') to 7 ('Absolutely'), indicating how French citizens perceive gay North African men on each trait. In the 'high/low group typicality' conditions, the score displayed was above/below 4 for each trait, revealing that French citizens perceived gay North African men as strongly/weakly associated with these traits. As a manipulation check, participants had to recall the survey results for three traits (devout, misogynist, and proud). Participants who failed to recall the results for at least one trait ( $n = 28$ ) were excluded from the analysis. Control participants received no information regarding group typicality but saw the same measures as in Study 2 and the two other conditions (acceptance; symbolic threat,  $\alpha = .86$ ; realistic threat,  $\alpha = .87$ ; and negative attitudes), along with a measure of gay North African men's group typicality (i.e., rating gay North African men on the same traits used in the typicality manipulation).

## Results and discussion

We expected participants to perceive gay North African men more positively in the 'low group typicality' condition as compared to the 'high group typicality' and the control condition. Descriptive statistics and correlations are presented in Table S4.

A one-way ANOVA for each of the measures revealed a condition effect on symbolic threat, realistic threat, and negative attitudes, respectively,  $F(2, 209) = 6.79, p = .001, \eta_p^2 = .061, [.01, .13]$ ;  $F(2, 209) = 3.32, p = .038, \eta_p^2 = .031, [.01, .13]$ ;  $F(2, 209) = 3.84, p = .023, \eta_p^2 = .035, [.01, .08]$ . There was no significant main effect of condition on acceptance,  $F(2, 209) = 0.56, p = .570, \eta_p^2 = .005, [0.00, 0.03]$ , possibly due to a floor effect (44% of participants answering 7 on the acceptance scale).

Next, we analysed the differences between means using regression analysis. Because we were especially interested in whether participants would perceive gay North African men more positively in the low group typicality condition as compared to the two other conditions, we relied on multiple regression using contrast codes (Judd et al., 2017). We created two orthogonal contrasts (C1: Low group typicality = 2; High group typicality = -1; Control = -1; and C2: Low group typicality = 0; High group typicality = -1; Control = 1). Results indicated that participants perceived gay North African men as less symbolically threatening when they were depicted as not fitting the stereotypical attributes of the North African group ( $M = 3.47$ ;  $SD = 1.46$ ) as compared to the two other conditions,  $b = -0.78, [-1.21, -0.34]$ ,  $t(209) = -3.53, p < .001, \eta_p^2 = .056, [.01, .13]$ . We found no significant difference between the ‘high group typicality’ condition and the ‘control’ condition,  $M = 4.12$ ;  $SD = 1.53$  vs.  $M = 4.38$ ;  $SD = 1.42, b = 0.26, [-0.22, 0.74]$ ,  $t(209) = 1.08, p = .280, \eta_p^2 = .006, [.00, .04]$ . The results were similar for realistic threat and negative attitudes (see Table 4).

This pattern emphasizes that participants did not perceive gay North African men as *absolutely not* typical of the North African group. Instead, as shown in Study 1, this suggests they are perceived as *relatively less* typical of the North African group compared to straight North African individuals. In other words, it is not their *lack of* fit per se that leads gay North African men to be perceived as less threatening, but rather their *lower* fit compared to North African men in general.

These findings provide strong support for our predictions. They confirm that group typicality influences the various dependent measures in that viewing gay North African men as less typical of the North African group leads to seeing them as less threatening. Although by no means definitive, this result doves nicely with the mediated moderation model proposed above.

GENERAL DISCUSSION

The present research aimed to understand *when* and *how* an intersectional threat dilution effect occurs, focusing on the threat associated with immigrants. In Studies 1 and 2, North African immigrants described as gay came across as less symbolically threatening than North African immigrants

TABLE 4 Contrast analysis for each of the dependent variables – Study 3.

Variable	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
<i>Symbolic threat</i>					
Intercept	3.99	0.10	39.40	<.001	3.79, 4.19
C1	-0.78	0.22	-3.53	<.001	-1.21, -0.34
C2	0.26	0.24	1.08	.280	-0.22, 0.74
<i>Realistic threat</i>					
Intercept	3.77	0.11	34.73	<.001	3.56, 3.99
C1	-0.61	0.24	-2.58	.011	-1.07, -0.14
C2	-0.02	0.26	-0.07	.947	-0.53, 0.50
<i>Negative attitudes</i>					
Intercept	39.04	1.79	21.82	<.001	35.51, 42.57
C1	-9.94	3.87	-2.57	.011	-17.57, -2.30
C2	4.63	4.29	1.08	.282	-3.83, 13.08

whose sexual orientation was unspecified. Importantly, we found support for the moderating role of perceived value incongruence in that this effect emerged particularly *when* participants strongly opposed North African and gay values to each other. Studies 2 and 3 aimed to understand *how* incongruence leads gay North African immigrants to be perceived as less threatening, testing the mediating role of group typicality (i.e., the extent to which gay North African immigrant men are perceived as typical members of the category 'North African immigrant men'). We found some support for a mediated moderation model in which group typicality appears to be one plausible mediator. High perceived value incongruence had gay North African men seen as less fitting the attributes associated with their immigrant group, which in turn led them to be perceived as less threatening than North African immigrant men (Study 2). In Study 3, an experimental manipulation of gay North African men's group typicality provided further evidence of the impact of this variable, showing that participants evaluated gay North African men more positively when they were depicted as not fitting the stereotypical attributes of the North African group (vs. high group typicality and control conditions).

Our findings thus provide empirical evidence of the incongruence effect, corroborating previous theoretical assertions (e.g., Hall et al., 2019). Although earlier studies did not directly assess the role of perceived incongruence, the present research highlights that this effect depends on perceivers' beliefs concerning this incongruence. Consistent with previous work (Choubak & Safdar, 2023), specifying their minority sexual orientation leads immigrants to be perceived as less typical of their immigrant group (i.e., less possessing stereotypical traits, including those linked to religion). This suggests that being perceived as less typical also involves being seen as less associated with other potentially threatening identities (Muslim). Previous research at the intersection of sexual orientation and race showed that gay men are 'deracialized' (i.e., perceived as less typical of their ethnic group; Petsko & Bodenhausen, 2019). Although we did not directly assess religion, our results suggest this process could extend to perceptions of being 'unreligious'. The present findings add to the literature by showing that this lower perceived typicality reduces intergroup bias, by diluting perceived threat.

## Limitations and futures directions

This research also comes with some theoretical and methodological limitations. To begin, the intersectional threat dilution effect may not be generalizable and could depend on the comparison group, threat type and immigrants' other intersecting identities. We studied symbolic and realistic threats linked to gay North African immigrants compared to North African immigrants supposed to be straight, finding an intersectional threat dilution effect. However, comparing them to gay men in general (Study 1) suggested intersectional threat enhancement. Additionally, focusing on immigration-related threats did not allow comparisons with majority groups (e.g., straight 'native' French men).

Findings must be interpreted considering the type of threat measured. In our studies, we focused on threats related to North African immigrants (i.e., symbolic and realistic threats). Gay men may pose distinct threats, such as challenging traditional gender norms (Meuleman et al., 2019). A similar threat dilution effect could occur when comparing gay North African men to gay men on this specific threat. If gay men are seen as more threatening to gender norms than North African men, gay North African immigrant men might be perceived as less fitting the gay category and less threatening concerning gender norms. Threat perception may also depend on participants' own values (e.g., traditional vs. modern values; Mollaret et al., 2023) or shared identities (Albayrak-Aydemir & Gleibs, 2024). For 'conservative' participants, attached to their national identity and at the same time to traditional values related to the family model, both identities (North African and gay) may be threatening, thus preventing the emergence of an intersectional dilution effect.

The intersectional threat dilution effect may also depend on immigrants' other intersecting identities, such as their ethnicity. Indeed, the relationship between ethnicity and sexual orientation varies across groups (Carnaghi et al., 2020; Preddie & Biernat, 2021). For instance, Black identity is associated with



masculine stereotypes that conflict with the feminine stereotypes ascribed to gay identity, whereas Asian identity is linked to feminine stereotypes that align more closely with gay stereotypes (Carnaghi et al., 2020). As a result, the threat dilution effect observed here may not generalize to immigrants whose identities are perceived as less incongruent with gay identity (e.g., Asian immigrants).

In our studies, both identities (North African and gay) were salient. However, in real life, these identities may not be equally salient. While ethnic identities are a visible, obvious stigma, sexual orientation can be considered a less visible, ambiguous stigma (Goffman, 1963; Rule & Sutherland, 2017). Although multiple studies indicate that perceivers can accurately detect perceptually ambiguous categories, such as sexual orientation (Lick et al., 2019; see Tskhay & Rule, 2013, for a meta-analysis), this unbalance in stigmas' visibility could lead gay North African immigrants to be more likely perceived through the lens of their immigrant identity, i.e., only as North African, rather than through an intersectional lens, i.e., as gay North African immigrants. Thus, the extent to which this threat dilution effect would occur in real life also depends on the extent to which both identities are simultaneously detected and salient to perceivers. Future research could examine societal representations, such as media portrayals, by analysing news narratives about immigrants where sexuality is (vs. not) explicitly mentioned.

Finally, we did not consider alternative mediators. Other mediators than group typicality may also account for the observed effect. For instance, the subjective numerical representation of the target immigrant group has been shown to be positively related to perceived threat (Tougas et al., 2003). Participants might perceive gay North African men as less numerous and therefore less threatening than North African men. Similarly, in Study 2, we assessed group typicality only regarding the North African immigrant category, finding that being perceived as *less* typical of the immigrant group was associated with lower perceived threat. Conversely, it is possible that being perceived as *more* typical of the gay group (e.g., being perceived as more communal) could also reduce the perceived threat.

The models we tested considered both prejudice and perceived threat as same-level outcomes. However, previous literature highlights potential causal relations between these variables, sometimes suggesting that perceived threat predicts prejudice (Stephan et al., 2005), while others demonstrate the reverse (Bahns, 2017). Future research could further investigate the causal dynamics and mechanisms underlying the reduction of both prejudice and threat, for instance, using serial mediation analyses and experimental manipulations of these variables.

## CONCLUSION

Overall, the present research contributes to a growing body of evidence showing that intersecting identities can dilute the threat associated with one constituent identity. Specifically, in the context of immigrant-related threat perceptions, these studies suggest that perceivers felt less threatened by North African immigrants when the latter were also depicted as gay. This was particularly the case when perceivers believed North African and gay identities to be incongruent with each other. One possible explanation for this pattern is the finding that incongruent intersectional targets come across as less fitting the stereotypical attributes of their constituent groups, with the outcome that they are perceived as less threatening. Admittedly, this 'advantage' is only relative, and future research needs to delineate better the various contexts in which it occurs, and the spectrum of the psychological mechanisms involved.

Our approach primarily emphasizes individual-level differences in threat perception, rather than adopting a structural perspective on intergroup threat. However, these findings offer valuable insights for social interventions to diminish prejudice and discrimination. By highlighting immigrants' multiple identities – particularly those perceived as stereotypically incongruent – prejudice may be reduced by weakening their association with negative stereotypes typically attributed to more prototypical group members. Future initiatives could build on this research, and other studies on multiple categorization (e.g., Prati et al., 2018), to design strategies to reduce prejudice towards immigrants.

## AUTHOR CONTRIBUTIONS

**Béatrice Sternberg:** Conceptualization; data curation; formal analysis; investigation; methodology; visualization; writing – original draft; validation; project administration. **Vincent Yzerbyt:** Conceptualization; formal analysis; methodology; writing – review and editing; validation. **Constantina Badea:** Conceptualization; formal analysis; methodology; supervision; writing – review and editing; validation.

## CONFLICT OF INTEREST STATEMENT

None of the authors have a conflict of interest to disclose.

## DATA AVAILABILITY STATEMENT

Materials, databases, and statistical analysis are available at: [https://osf.io/8gnjp/?view\\_only=a27c22231bd74454a6f150e1d256ce29](https://osf.io/8gnjp/?view_only=a27c22231bd74454a6f150e1d256ce29).

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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