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"They're Everywhere!": Symbolically Threatening Groups Seem More Pervasive Than Nonthreatening Groups

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Abstract

The meaning of places is socially constructed, often informed by the groups that seem pervasive there. For instance, the University of Pennsylvania is sometimes pejoratively called "Jew-niversity of Pennsylvania," and the city of Decatur, Georgia, is disparagingly nicknamed "Dyke-atur," connoting the respective pervasiveness of Jewish students and gay residents. Because these pervasiveness perceptions meaningfully impact how people navigate the social world, it is critical to understand the factors that influence their formation. Across surveys, experiments, and archival data, six studies (N = 3,039 American adults) revealed the role of symbolic threat (i.e., perceived differences in values and worldviews). Specifically, holding constant important features of the group and context, we demonstrated that groups higher in symbolic threat are perceived as more populous in a place and more associated with that place than groups lower in symbolic threat. Ultimately, this work reveals that symbolic threat can both distort how people understand their surroundings and shape the meaning of places.

Keywords

symbolic threat, social perception, intergroup processes, out-groups, impression formation, open data, open materials, preregistered

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Place is not just physical, but social—that is, people understand places on the basis of the groups that seem prevalent there. For example, the University of Pennsylvania is pejoratively known to some as "Jew-niversity of Pennsylvania," connoting the pervasiveness of Jewish students at the school, and the city of Decatur, Georgia, is sometimes disparagingly called "Dyke-atur," reflecting perceptions of gay residents as pervasive. These perceptions meaningfully impact how people interact with their surroundings and make important life decisions (Bonam et al., 2016, 2020; Sampson & Raudenbush, 2004). Given their consequential nature, it is critical to understand what factors influence perceptions of groups as pervasive.

In the present research, we explored the role of symbolic threat—the belief that a group violates one's values and worldviews (Stephan et al., 2015). Across surveys, experiments, and archival data, and holding constant important features of the group and context, six studies demonstrated that symbolically threatening groups seem more pervasive than nonsymbolically threatening groups. Altogether, our results reveal that people commonly exaggerate the presence of certain groups simply because they are perceived as ideologically different.

In this research, we aimed to make several theoretical contributions. First, we extended understanding of the relationship between threat and pervasiveness. Several articles have identified a cross-sectional relationship

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(e.g., Herda, 2010; Nadeau et al., 1993; Schlueter & Scheepers, 2010), whereas others have demonstrated a causal link from pervasiveness to threat (Craig & Richeson, 2014a, 2014b; Schlueter & Davidov, 2013). We identified a reversal of this previously studied relationship: Whereas other studies have shown that a larger threatening group is more threatening than a smaller threatening group, we found that a more threatening group seems larger than a less threatening group. Moreover, whereas a majority of this work has explored threat in a general sense, we revealed the causal impact of symbolic threat in particular.

We also extended work exploring how people manage threats by identifying a novel outcome of these processes. Specifically, we found that symbolic threat can increase perceptions of group pervasiveness, thereby distorting the social meaning of places. In so doing, we also contribute to the literature on space-focused stereotyping, or people's evaluations of places associated with negatively stereotyped groups (e.g., "Black neighborhoods"; Bonam et al., 2016, 2020). Whereas extant work has focused on the consequences of space-focused stereotyping, we offer one perspective on how these stereotypes may arise in the first place. Ultimately, by identifying that mere ideological difference can increase pervasiveness perceptions, this research has implications for intergroup relations, public policy, and social welfare.

Statement of Relevance

To help make sense of the world around them, people often estimate the pervasiveness of groups in their surroundings. For instance, to gain a better understanding of an unfamiliar sports bar, we might scan the room for team jerseys to determine the bar's predominant fan base. Despite how often we rely on these social judgments, however, estimates of a group's pervasiveness can be exaggerated if a group holds different values from ours, representing a symbolic threat to what we hold dear. In six studies, we found that people view symbolically threatening groups as more pervasive than statistically similar nonthreatening groups. Our findings shed light on one important factor that can bias how people understand their physical and social surroundings, leading them to misjudge the demographic makeup or identity of spaces. We also discuss how these biased perceptions may in turn sustain intergroup conflict and the disempowerment of marginalized groups.

Theoretical Framework

When we enter a new place, we scan the environment to see who is there. We may look for groups we recognize, or we may size up the groups present. While traveling, for instance, we might estimate what proportion of restaurant patrons are tourists; or in a sports bar, we might scan for team jerseys to determine the bar's predominant fan base.

These judgments are speedy and subjective (e.g., Khaw et al., 2021). Accordingly, regardless of their actual prevalence, groups vary in how pervasive they seem. Indeed, even from partial information, people judge groups as more or less pervasive, both through estimating population proportions (Nadeau et al., 1993; Schlueter & Scheepers, 2010) and through drawing group–place associations (e.g., "Jew-niversity," "Yankees bar"; Ashforth & Humphrey, 1997; Bonam et al., 2016).

Given their subjective nature, pervasiveness perceptions are malleable. For instance, prior work suggests that factors such as unexpectedness or salience may increase perceptions of a group's pervasiveness (e.g., Olson et al., 1996; Tversky & Kahneman, 1973). But beyond these cognitive factors, might social factors also drive pervasiveness perceptions? Specifically, might one's idiosyncratic feelings about a group impact how pervasive it seems? In the present research, we found that, indeed, feelings of symbolic threat increase how pervasive a group appears to be.

Groups can seem threatening for a variety of reasons (Brambilla et al., 2013; Branscombe et al., 1999; Craig & Richeson, 2014a, 2014b; Greenaway & Cruwys, 2019; Wohl et al., 2010). These reasons can be categorized into two main dimensions (Stephan et al., 2015). Groups can seem *realistically threatening* if they are perceived to jeopardize one's access to tangible resources or physical safety (Rios et al., 2018; Stephan & Stephan, 2000). They can also appear *symbolically threatening* if they are perceived to hold values and beliefs that differ from one's own or those of society, thereby jeopardizing the integrity of one's meaning system (Rios, 2013; Rios et al., 2018; Stephan & Stephan, 2000).[1] Both types of threat are aversive and can therefore elicit protective responses, including discrimination toward and villainization of the threatening group (Pereira et al., 2009, 2010; Renfro et al., 2006; Riek et al., 2006; Rios et al., 2018).

Error-management theory suggests that threat may also lead to heightened perceptions of group pervasiveness. When faced with a possible threat, people are highly averse to false negatives because they are far

more costly than false positives (Haselton & Buss, 2000; Haselton & Nettle, 2006). That is, it is less costly to have a smoke alarm that falsely detects smoke than it is to have a smoke alarm that fails to detect fire. Because of these cost asymmetries, people often overperceive threatening information (Galperin & Haselton, 2013) or view potential losses as "looming large" (Kahneman & Tversky, 1979, p. 279).

Given that error-management research has focused on physical or tangible threats, it seems reasonable that realistic threat would increase perceptions of a group's pervasiveness. Indeed, people often perceive power in numbers, suggesting a lay association between a group's size and its capacity for seizing resources or endangering safety. In the present work, however, we explored whether symbolic threat might elicit a similar protective response. Specifically, we tested whether groups higher in symbolic threat would be perceived as more populous in a place or more associated with a place than groups lower in symbolic threat. Providing initial evidence that symbolic threat can affect spatial perceptions, results showed that people tend to underestimate their physical distance from symbolically threatening groups, relative to nonthreatening groups (Xiao & Van Bavel, 2012).

In the current research, we proposed that error-management processes can also distort people's understanding of their social environments on the basis of the ideologies of the groups within them. Specifically, given the aversiveness of symbolic threats, it is less costly to assume that a symbolically threatening group is populous in a space than it is to fail to draw this conclusion and (unwittingly) enter a threatening environment. However, as this same potential cost does not exist for nonsymbolically threatening groups, we suggest that, if all else is held constant, people will view symbolically threatening groups as more pervasive than nonthreatening groups. To illustrate this point, imagine a neighborhood in the United States. On one street, one quarter of houses have a sign supporting a Republican politician, whereas on another street, one quarter of houses have a sign supporting a Democrat. Despite this parity, we suggest that a new resident may form markedly different impressions of the overall neighborhood based on their own beliefs. Specifically, because of their ideological differences, a Democrat may perceive Republicans as more pervasive than Democrats and may even be more likely to proclaim it a "Republican neighborhood," whereas a Republican may form the opposite impression.

Exploring the causal impact of symbolic threat on pervasiveness perceptions is of particular importance given increasing intergroup contact over recent decades. As intergroup contact increases, it is critical to understand the perceptual and social biases that arise from encountering people with different worldviews. Moreover, by expanding error-management processes to ideological threats—versus physical or material threats, as in prior work—we revealed a social phenomenon that is not only less intuitive but also potentially harmful to groups perceived to threaten societal values, who are often marginalized (e.g., immigrants, gay people). To the extent that the pervasiveness of these groups is chronically overperceived, our findings may provide insight into their continued disenfranchisement. We revisit these implications in the General Discussion.

Six studies tested the relationship between symbolic threat and perceptions of pervasiveness. First, we established a positive correlation between symbolic threat and perceived group pervasiveness using a large-scale archival data set and a more controlled online sample. Next, four preregistered experiments provided causal support using a novel paradigm: Participants received partial information about the presence of either a symbolically threatening or a nonthreatening group in a place and then were prompted to judge the group's presence in, or association with, the place overall. Studies 2 through 6 were approved by Duke University's Institutional Review Board.

Study 1

Study 1 used a nationally representative archival data set (the General Social Survey [GSS]) to test for a correlational relationship between symbolic threat and group pervasiveness perceptions. Specifically, we examined whether feelings of symbolic threat toward Black people related to expectations about their pervasiveness over the next 25 years.

Method

Participants. Data from this study were from the GSS, a personal-interview survey conducted by the National Opinion Research Center that provides high-quality nationally representative data (Smith et al., 2019). We utilized the data set from the year 2000 because our dependent variable of interest was collected only in this year. After we excluded Black participants from the sample (to ensure our analysis included only out-group members), the final sample size was 987 (age: M = 44.94 years, SD = 17.24; 46.1% male, 53.9% female; 93.1% White, 6.9% other).

Measures. To capture pervasiveness perceptions, we utilized a measure from the GSS that assessed participants' expectations about how "the share of the population" of Black people will change over the next 25 years

Table 1. Study 1: Results of the Regression Analysis Predicting Pervasiveness Projections

	Step 1 (R^2 = .030)			Step 2 (R^2 = .036)			Step 3 (R^2 = .062)		
Predictor	*b*	*SE*	*t*(985)	*b*	*SE*	*t*(984)	*b*	*SE*	*t*(978)
Symbolic threat (*z*-standardized)	0.21	0.04	5.54***	0.22	0.04	5.79***	0.15	0.04	3.90***
Percentage of community Black				0.36	0.15	2.32*	0.41	0.16	2.64**
Race (0 = White, 1 = other)							−0.09	0.10	−0.88
Gender (0 = male, 1 = female)							−0.04	0.05	−0.79
Age							0.01	0.00	3.66***
Income							0.00	0.00	−1.01
Years of education							−0.03	0.01	−2.48*
Political identification (1 = *strong Democrat*, 7 = *strong Republican*)							0.01	0.01	0.94
Constant	3.95	.03	154.04***	3.90	.04	111.39***	3.97	0.17	23.26***

*p < .05. **p < .01. ***p < .001.

(1 = *decrease by a lot*, 5 = *increase by a lot*); higher scores indicate greater perceived pervasiveness.

To measure symbolic threat, we created a five-item composite that captured beliefs about the extent to which Black people jeopardize traditional societal values and participants' way of life (following prior work; Herda, 2010; Schlueter & Davidov, 2013). Two items assessed the extent to which participants would oppose "living in a neighborhood where half your neighbors were Black" and "having a close relative or family member marry a Black person" (1 = *strongly favor*, 5 = *strongly oppose*). Three items assessed participants' evaluations of Black people as lazy (1 = *hard-working*, 7 = *lazy*), unintelligent (1 = *intelligent*, 7 = *unintelligent*), and lacking family values (1 = *commitment to strong family values*, 7 = *lacks a commitment to strong family values*). We *z*-standardized the items before averaging them to form the symbolic-threat composite (α = .72). An exploratory factor analysis yielded a single factor (eigenvalue = 2.39).

The data set contained several additional demographic measures that we used as control variables in the analysis: reported percentage of Black residents in the participant's community and participant's sex, age, race, income, years of education, and political affiliation.

Results

After we controlled for participants' race, gender, age, income, years of education, political affiliation, and the reported percentage of Black residents in the participants' communities, participants who perceived Black people as more symbolically threatening projected that they would become more pervasive over the next 25 years, b = 0.15, SE = 0.04, $t(978) = 3.90$, $p < .001$, $f^2 = 0.02$ (see Table 1 and Fig. 1). Results remained substantively unchanged when we included Black participants in the analysis (see the Supplemental Material at https://osf.io/b57r9/).

Study 2

We expanded on this real-world evidence with a conceptual replication that used a previously validated measure of symbolic threat and addressed several alternative explanations. Participants assessed the pervasiveness of either Black or gay employees, because White and heterosexual participants tend to perceive Black and gay people as threatening to American culture (Kinder & Sears, 1981; Riek et al., 2006).

Method

Participants. In this and all subsequent studies, we determined an ex ante sample size, aiming to recruit about 100 participants per experimental condition (Gervais et al., 2015). We recruited 354 participants from Amazon's Mechanical Turk (MTurk). Three participants were excluded for having geolocations outside of the United States or duplicate Internet protocol (IP) addresses. We also excluded 27 participants from the gay condition who self-identified as gay and 30 participants from the Black condition who self-identified as Black, resulting in a final sample size of 294 (age: M = 35.48 years, SD = 10.49; 74.5% male, 25.5% female). A sensitivity power analysis ($1 - \beta$ = .80, α = .05, two-tailed) indicated that our sample size would allow us to detect a Cohen's f^2 effect size of .03 with a probability of .80 (Faul et al., 2007).

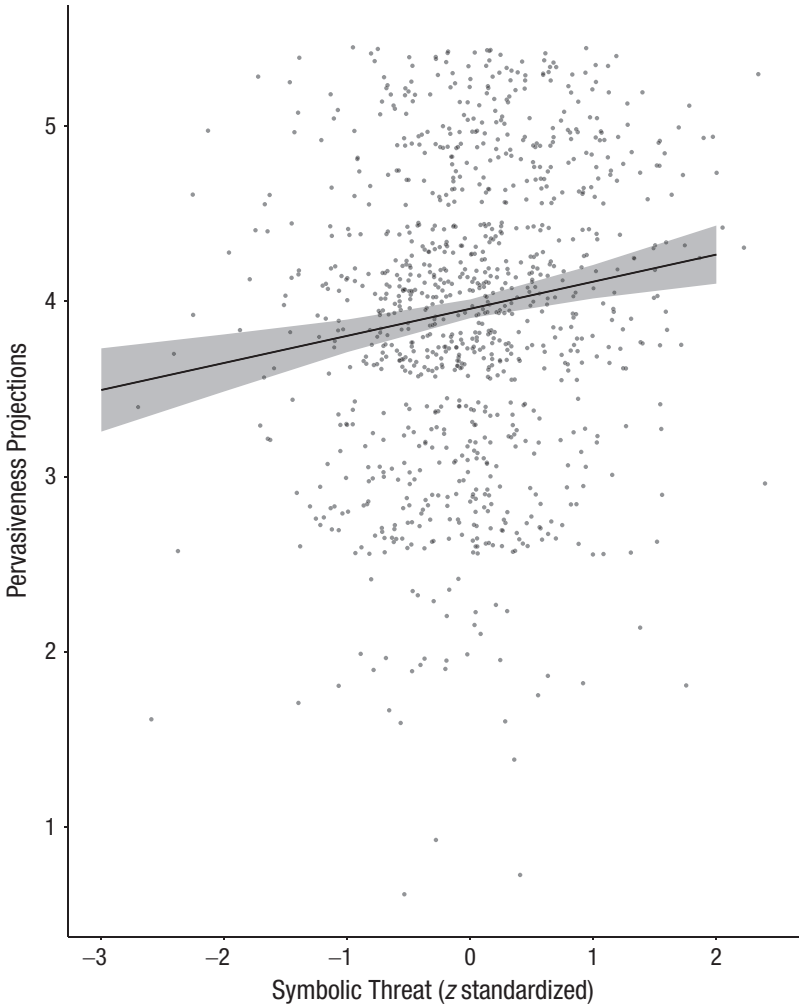

Fig. 1. Results from the linear regression in Study 1: scatterplot showing the relation between symbolic threat (controlling for additional measures) and pervasive projections. The diagonal line indicates the best-fitting regression, and the error band represent the 95% confidence interval. Data points are jittered for clarity.

Procedure. Each participant was randomly assigned to one of two between-subjects conditions (symbolically threatening group: Black/African American vs. gay). All participants were asked to imagine that they worked for a 500-employee company in the United States and that they were involved in distributing an anonymous survey to all the company's employees. The survey was designed to help the company understand more about employee demographics and needs.

Next, we provided participants with partial company demographic information. Specifically, they read that, so far, 100 of the 500 employees had responded to the survey, particularly to the question, "Are you ethnically Black/African American?" or "Do you identify as gay?" depending on condition. Participants also read that, from checking the responses to this question, 25 employees had indicated that they belonged to the focal group (i.e., Black/African American or gay, depending on condition), and 75 had indicated that they did not.

After responding to filler questions, participants were prompted to extrapolate beyond this partial information and characterize the demographic makeup of the entire 500-person company. Specifically, they indicated "the composition of all the employees at Company X" (0% of employees [belong to focal group], 100% of employees [belong to focal group]) as the dependent measure of pervasiveness.

Participants then rated their perceptions of the focal group along a variety of dimensions, including symbolic threat, which were counterbalanced in order of presentation (see Table 2). Last, participants completed final questions and demographic information, including their race and sexual orientation, which we used to exclude in-group participants (e.g., participants assigned to the

Table 2. Study 2: Measures Administered

Measure and item	*M* (*SD*)	Reliability	Source
Symbolic threat (1 = *strongly disagree*, 7 = *strongly agree*)	2.50 (1.76)	α = .96	Velasco González et al. (2008)
Society is being threatened because of people who [are Black/African American or identify as gay]			
Societal norms and values are being threatened because of people who [are Black/African American or identify as gay]			
People who [are Black/African American or identify as gay] are a threat to the larger culture			
Perceived neediness (1 = *not at all*, 7 = *very much*)	3.96 (1.70)	*r* = .75	Adapted from Cuddy et al. (2007)
In your opinion, people who [are Black/African American or identify as gay] need support from others			
In your opinion, people who [are Black/African American or identify as gay] need help from others			
Frequency of interaction (1 = *never*, 5 = *all the time*)	2.94 (0.96)	—	
How often do you interact with people who [are Black/African American or identify as gay]?			
Perceived difference (1 = *very similar*; 7 = *very different*)	3.84 (1.68)	—	Pereira et al. (2009)
In your opinion, to what extent are people who [are Black/African American or identify as gay] similar or different from you?			
Danger (1 = *strongly disagree*, 7 = *strongly agree*)	2.67 (1.72)	α = .95	Adapted from Lee et al. (2004)
Based on your opinion [people who are Black/African American or identify as gay] are prone to violence			
Based on your opinion [people who are Black/African American or identify as gay] threaten the safety of others			
Based on your opinion [people who are Black/African American or identify as gay] are dangerous			
Entitativity	5.51 (1.17)	α = .72	Adapted from Clark & Wegener (2009)
Consider people who [are Black/African American or identify as gay]. In your opinion, how much of a group do you feel they are? (1 = *not very much a group*, 7 = *very much a group*)			
For people who [are Black/African American or identify as gay], how important do you think this identity or label is to them? (1 = *not at all*, 7 = *very much*)			
How often do you think people who [are Black/African American or identify as gay] interact with others who [are Black/African American or identify as gay]? (1 = *not at all*, 7 = *very much*)			
In your opinion, how similar are people who [are Black/African American or identify as gay] to others who [are Black/African American or identify as gay]? (1 = *not at all*, 7 = *very much*)			
Unexpected (1 = *not at all*, 7 = *a great deal*)	3.21 (1.92)	*r* = .82	Adapted from Karmarkar & Tormala (2010)
In your opinion, to what extent did you find the number of employees who [are Black/African American or identify as gay] working at Company X unexpected			
In your opinion, to what extent did you find the number of employees who [are Black/African American or identify as gay] working at Company X surprising			
Pervasiveness (0% of employees [belong to focal group], 100% of employees [belong to focal group])	28.16 (16.58)	—	
How would you describe the composition of all the employees at Company X?			

Note: All means are reported prior to centering.

Table 3. Study 2: Results of the Regression Analysis Predicting Perceived Group Pervasiveness

	Step 1 (R^2 = .137)			Step 2 (R^2 = .267)			Step 3 (R^2 = .268)		
Predictor	*b*	*SE*	*t*(292)	*b*	*SE*	*t*(285)	*b*	*SE*	*t*(284)
Symbolic threat	3.49	0.51	6.81***	2.05	0.84	2.45*	2.24	0.91	2.47*
Condition				1.21	1.99	0.61	1.14	2.00	0.57
Entitativity				−1.46	0.75	−1.95	−1.48	0.75	−1.97*
Danger				1.81	0.89	2.04*	1.91	0.91	2.11*
Neediness				0.94	0.53	1.78	0.93	0.53	1.76
Unexpectedness				1.29	0.47	2.72**	1.29	0.47	2.73**
Difference				−0.47	0.62	−0.75	−0.43	0.63	−0.68
Interaction frequency				4.13	0.91	4.52***	4.21	0.93	4.55***
Symbolic Threat × Condition							−0.55	1.00	−0.55
Constant	28.16	.90	31.30***	12.65	6.11	2.07*	12.19	6.17	1.98*

Note: Symbolic threat was mean centered. Condition was dummy-coded (0 = gay, 1 = Black/African American).
*p < .05. **p < .01. ***p < .001.

gay condition who self-identified as gay) to ensure that our analysis included only out-group members. Including these participants did not substantively change the results (see the Supplemental Material at https://osf.io/b57r9/).

Results

As in Study 1, symbolic threat was positively associated with perceived group pervasiveness in the organization (b = 3.49, p < .001, f^2 = 0.16; see Table 3 for a summary of the regression results), regardless of the focal group (interaction *n*s). That is, when the focal group was described as constituting 25% of the partial survey sample, participants who viewed the group as more symbolically threatening also saw them as more pervasive in the organization overall (see Table 4). Moreover, although some of the alternative measures were positively associated with pervasiveness perceptions, the predicted effect of symbolic threat persisted after we controlled for all additional alternatives (see Table 3, Step 2).

Interestingly, symbolic threat was not only associated with greater pervasiveness perceptions but also with more inaccurate perceptions, relative to the rationally correct response. A supplementary multinomial logistic regression recoding the dependent variable into three categories (−1 = below 25%, 0 = 25% [correct], 1 = above 25%) revealed that symbolic threat was associated with overestimating the group's size (vs. offering the correct response of 25%; b = 0.40, SE = 0.08, Wald = 23.96, odds ratio = 1.50, p < .001) but not with underestimating the group's size (vs. offering the correct response; n.s.). For example, although only 12.6% of participants in the bottom third of symbolic-threat scores overestimated the group's size, 43.2% of those in the top third of symbolic-threat scores made this inflation (see Table 4).

Together, Studies 1 and 2 offer initial support for the relationship between symbolic threat and perceived group pervasiveness when we controlled for a variety of alternatives. We further address key alternative explanations in Studies 4, 5, and 6.

Table 4. Study 2: Population-Proportion Estimates by Symbolic-Threat Tertiles

Symbolic-Threat Tertile	Underestimates (estimations < 25%)	Accurate estimates (estimations = 25%)	Overestimates (estimations > 25%)
Bottom third of symbolic threat (n = 119)	$24.4\%_a$	$63.0\%_a$	$12.6\%_a$
Middle third of symbolic threat (n = 101)	$22.8\%_a$	$60.4\%_a$	$16.8\%_a$
Top third of symbolic threat (n = 74)	$13.5\%_a$	$43.2\%_b$	$43.2\%_b$

Note: Within columns, estimates with different subscripts are significantly different (p < .05).

Study 3

Next, we used experiments to isolate the causal role of symbolic threat. Participants assessed the pervasiveness of either gay or green-eyed employees, as these groups are matched on perceived U.S. base rate but should differ on symbolic threat: Sexuality is value laden, whereas eye color is not (Haidt & Hersh, 2001).

Method

Participants. We recruited 450 participants from MTurk. Eighty-two participants were excluded for either having duplicate IP addresses, failing a memory or attention check, or identifying as having green eyes, resulting in a final sample size of 368 (age: $M = 38.71$ years, $SD = 11.81$; 59.0% male, 41.0% female). We did not need to exclude participants for identifying as gay, as we used MTurk's sexuality filter to include only heterosexual participants. A sensitivity power analysis ($1 - \beta = .80$, $\alpha = .05$, two-tailed) indicated that our sample size would allow us to detect a Cohen's d effect size of 0.26 with a probability of .80 (Faul et al., 2007).

Procedure. Each participant was randomly assigned to one of two between-subjects conditions (group: gay vs. green-eyed). We selected green-eyed people as the control group and gay people as the symbolically threatening group because a separate pretest ($N = 353$; age: $M = 36.11$ years, $SD = 11.34$; 52.4% male) indicated that these groups did not significantly differ on perceived base rate (gay: $M = 18.26\%$, 95% confidence interval [CI] = [15.16, 21.62]; green-eyed: $M = 18.00\%$, 95% CI = [15.25, 21.00]) but did significantly differ on symbolic threat (gay: $M = 2.64$, 95% CI = [2.30, 2.98]; green-eyed: $M = 1.40$, 95% CI = [1.20, 1.64]).

As in Study 2, all participants were asked to imagine that they worked for a 500-employee company in the United States and that they were involved in distributing an anonymous demographics survey to all the company's employees. Next, they read that, so far, 100 of the 500 employees had responded to the survey, particularly to the question, "Do you identify as gay?" or "Do you have green eyes?" depending on condition. Participants also read that, from checking the responses to this question, 30 employees had indicated that they belonged to the focal group (i.e., gay or green-eyed, depending on condition), and 70 had indicated that they did not. Note that a conceptual replication revealed that this phenomenon generalized beyond the 30% versus 70% distribution (see the Supplemental Material at https://osf.io/b57r9/).

After responding to filler questions, participants were prompted to extrapolate beyond this initial demographic information and characterize the entire 500-person company, indicating "the composition of all the employees at Company X" (1 = *Vast majority does not [belong to focal group]*, 7 = *Vast majority [belong to focal group]*) as the dependent measure of pervasiveness. Participants then responded to final questions, including demographic questions.

Results

The focal-group manipulation significantly inflated pervasiveness perceptions, $t(366) = 2.57$, $p = .011$, $d = 0.27$. When the focal group was described as constituting 30% of the partial sample, the gay employees ($M = 2.65$, $SD = 1.23$) were perceived as more pervasive in the organization than the green-eyed employees ($M = 2.34$, $SD = 1.07$).[2] Importantly, given that both groups are seen as equivalently unexpected in the population (per the pretest), this study demonstrated that symbolic threat heightens perceptions of group pervasiveness in a given organization above and beyond expectancy violations.

Study 4

Thus far, we have demonstrated that symbolic threat increases group pervasiveness perceptions. Importantly, though, in addition to symbolic threats, groups can also pose realistic threats if they seem to challenge one's access to power, resources, or safety (Riek et al., 2006; Stephan & Stephan, 2000). To gain further precision into the role of symbolic threat, we directly varied the focal group's worldviews and beliefs in the next three studies (following prior work; see Rios et al., 2018).

We also explored a second measure of pervasiveness. In addition to inflating estimates of population proportion (Studies 1–3), symbolic threat should also increase perceptions of places as associated with groups (e.g., "Dyke-atur"). Our last three studies examined pervasiveness in terms of these group–place associations.

Method

Participants. To ensure that our sample did not include any participants who had immigrated to the United States (our focal group), we recruited 404 participants from Prolific using the American-nationality filter. After excluding participants who had duplicate IP addresses, failed a memory check, or had responses indicative of low data quality,[3] our final sample size consisted of 320 participants (age: $M = 33.58$ years, $SD = 11.86$; 43.4% male, 54.7% female, 1.9% nonbinary). A sensitivity power analysis ($1 - \beta = .80$, $\alpha = .05$, two-tailed) indicated that our

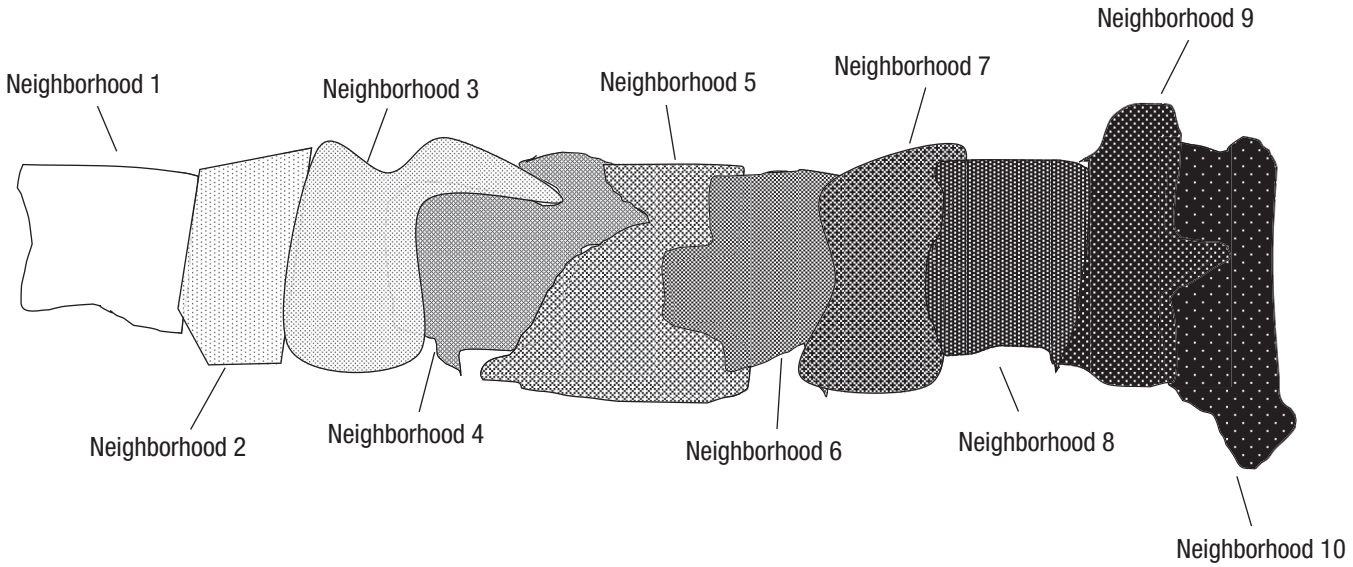

Fig. 2. Study 4: map showing the neighborhoods in the fictional Deleon County. Density of the immigrant population is indicated by the number of dots (more dots = greater immigrant population).

sample size would allow us to detect a Cohen's *d* effect size of 0.31 with a probability of .80 (Faul et al., 2007).

Procedure. Each participant was randomly assigned to one of two between-subjects conditions (group: symbolically threatening vs. control). All participants viewed a map of a fictitious county in the United States called Deleon County, which contained 10 distinct and labeled neighborhoods (see Fig. 2). Each neighborhood was filled with black dots ranging from a density of 0% (Neighborhood 1) to 90% (Neighborhood 10). Participants read that the county was home to an immigrant population. To hold constant the entitativity of the immigrant group, we had all participants read that the immigrant group "has a distinct culture and well-defined set of customs, values, and beliefs." To manipulate symbolic threat, we had all participants read that the immigrants' values and worldviews were either "highly alarming and extremely threatening to American culture and way of life" (symbolically threatening condition) or "completely harmless and not at all threatening to American culture and way of life" (control condition).

They then read that each black dot on the map of Deleon County represents one immigrant and that "the darker the image of the neighborhood, the more of these immigrants live in the neighborhood." For the dependent measure of pervasiveness, participants then indicated whether they perceived each of the 10 neighborhoods to be an "immigrant neighborhood" or not (0 = *not an immigrant neighborhood*, 1 = *an immigrant neighborhood*), which we summed to create an overall measure of immigrant pervasiveness in the county. Higher scores indicate that participants reported Deleon County as containing more immigrant neighborhoods.

Next, as a manipulation check, participants indicated group symbolic threat using three items (e.g., "The immigrant group is a threat to society's norms and values"; $\alpha = .99$). Last, they completed a memory check about the map and entered demographic information.

Results

Manipulation check. The manipulation of symbolic threat was successful (symbolic threat: $M = 4.40$, $SD = 1.86$; control: $M = 1.47$, $SD = 0.98$), $t(318) = 18.32$, $p < .001$, $d = 1.97$.

Pervasiveness. As predicted, symbolic threat increased group–place associations. Participants indicated that Deleon County comprised more immigrant neighborhoods when the immigrant group was framed as threatening (symbolic threat: $M = 6.40$, $SD = 1.84$) relative to nonthreatening (control: $M = 5.88$, $SD = 1.97$), $t(318) = 2.43$, $p = .016$, $d = 0.27$.[4] Thus, although all participants viewed the same population-density map, symbolic threat led participants to draw different conclusions about the pervasiveness of immigrants in Deleon County.

Study 5

In Study 5, we leveraged naturally occurring differences on a prevalent ideological debate—abortion rights. Specifically, we manipulated the ideological misalignment between participants and a focal group, yielding a factorial design that crossed participants' beliefs (pro-life vs.

Table 5. Study 5: Effect of Group and Participant Beliefs on Pervasiveness Perceptions

	Group			
Participant belief	Pro-choice *M* (*SD*)	Pro-life *M* (*SD*)	*F*(1, 460)	*d*
Pro-choice	3.11 (1.38)	3.75 (1.49)	12.98***	0.45
Pro-life	3.81 (1.54)	3.36 (1.49)	4.13*	0.30

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

pro-choice) with the focal group's beliefs (pro-life vs. pro-choice). We expected that the ideologically misaligned group would seem more pervasive than the ideologically aligned group.

Method

Participants. We recruited 250 self-identified pro-life and 250 self-identified pro-choice participants from Prolific. After excluding 36 participants for having geolocations outside of the United States, having duplicate IP addresses, or failing a memory check, our final sample comprised 464 participants (age: $M = 35.46$ years, $SD = 11.64$; 50.0% male, 49.3% female, 0.9% other). A sensitivity power analysis ($1 - \beta = .80$, $\alpha = .05$, two-tailed) indicated that our sample size would allow us to detect an interaction with a Cohen's f effect size of 0.13 with a probability of .80 (Faul et al., 2007).

Procedure. Each participant was randomly assigned to one of two between-subjects conditions (group: pro-choice vs. pro-life). Participants' self-identification as either pro-choice or pro-life (participant beliefs) was treated as a between-subjects factor, yielding a 2 (group) × 2 (participant beliefs) between-subjects design.

This study was described as having two parts. In Part 1, participants were asked to indicate their views on abortion (39.4% pro-life, 60.6% pro-choice) and to describe in a few sentences why they are proud to have these values. We included this to ensure that we accurately measured participants' beliefs and to temporarily heighten their salience.

In Part 2, participants imagined that they were traveling with a friend to a new city and had stopped in an unfamiliar restaurant called "RJ's Place." When entering the restaurant, they noticed that approximately 30% of restaurant patrons were wearing clothing with the same logo: the letters "PDL" over red and white stripes. They then read that PDL is a "local pro-choice (i.e., supportive of abortion rights) advocacy group" or a "local pro-life (i.e., against abortion) advocacy group," depending on their randomly assigned condition.

Participants then indicated the symbolic threat of the PDL group as a manipulation check (using the same three items as Study 3; $\alpha = .97$) and the perceived pervasiveness of PDL in the restaurant; the order of presentation was counterbalanced (we did not find any interactions with order and collapsed across this factor).

Perceived group pervasiveness was assessed using two separate measures of group–place association. First, we asked participants to characterize "the people who typically go to RJ's Place." Then participants responded to a four-item index assessing "the extent to which RJ's Place" was "affiliated with PDL," "associated with PDL," "connected to PDL," and "a 'PDL bar'" (1 = *not at all*, 7 = *a great deal*; $\alpha = .94$). The first measure did not yield significant effects (see the Supplemental Material at https://osf.io/b57r9/).

We then collected several measures of potential downstream consequences, including a sense of belonging in the restaurant (see the Supplemental Material at https://osf.io/b57r9/). Finally, participants responded to a memory check about PDL and entered demographic information.

Results

Manipulation check. A significant 2 (group) × 2 (participant beliefs) interaction indicated the manipulation of symbolic threat was successful, $F(1, 460) = 507.10$, $p < .001$, $f = 1.05$, contrast ps $< .001$.

Pervasiveness. Symbolic threat increased group–place associations: Participants rated the restaurant as more associated with the group when the group was ideologically misaligned (and thus more symbolically threatening) than when it was aligned. Moreover, underscoring generalizability across the ideological spectrum, the effect of symbolic threat emerged for both pro-life and pro-choice participants—Group × Participant Beliefs interaction: $F(1, 460) = 14.75$, $p < .001$, $f = 0.18$ (see Table 5 for contrasts).

Study 6

Although ecologically valid, using real or recognizable groups introduces unavoidable confounds (e.g., familiarity, salience). To maximize experimental control, we used fictitious groups in our final study. We also addressed the alternative explanation of general difference from oneself by comparing a symbolically threatening group with two control groups: one that differed from the participant (but not on a values-based dimension) and one that was similar to the participant. We predicted that the symbolically threatening group would seem more pervasive than both control groups.

Method

Participants. We recruited 651 participants from Prolific. Our final sample size contained 606 participants, after we excluded those who failed either a memory or attention check (age: $M = 37.14$ years, $SD = 14.15$; 49.50% male, 48.8% female, 1.7% other). A sensitivity power analysis ($1 - \beta = .80$, $\alpha = .05$, two-tailed) indicated that our sample size would allow us to detect an omnibus effect with a Cohen's f effect size of 0.13 with a probability of .80 (Faul et al., 2007).

Procedure. This three-cell between-subjects study (group: symbolically threatening vs. different control vs. similar control) was described as having two parts. Similar to the writing prompt in Study 5, Part 1 asked all participants to identify two factors important in defining their values and beliefs and two aspects unimportant in defining their values and beliefs.

In Part 2 participants read the same travel scenario used in Study 5, in which they imagined noticing that about 30% of patrons in a restaurant belonged to an unfamiliar group called PDL. Through speaking with the waiter, participants then learned specific information about the group, depending on their random assignment to three conditions. They learned that the group was "different from you in certain ways . . . their beliefs, world views, and general way of life are very threatening to you" (symbolically threatening condition); was "different from you in certain ways . . . [however,] their beliefs, world views, and general way of life are not at all threatening to you" (*different* control condition); or was "similar to you in certain ways . . . their beliefs, world views, and general way of life are not at all threatening to you" (*similar* control condition).

Next, they completed the same four-item index of pervasiveness perceptions from Study 5 (e.g., "To what extent do you think RJ's Place is associated with PDL?"; 1 = *not at all*, 9 = *a great deal*; $\alpha = .93$). After indicating the group's pervasiveness, participants completed a symbolic-threat manipulation check (e.g., "My beliefs are threatened by members of PDL"; 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .98$) and an exploratory measure of realistic threat (e.g., "Members of PDL make it harder for people like me to gain positions of power"; 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .97$), which were counterbalanced in order. Last, they completed an exploratory measure of their perceptions of group entitativity (e.g., "To what extent does it seem like PDL has a well-defined set of traits, values, and goals?"; 1 = *not at all*, 7 = *a great deal*; $\alpha = .84$). We had no formal predictions about the exploratory measures but found that our manipulation of symbolic threat impacted realistic threat and entitativity (see the Supplemental Material at https://osf.io/b57r9/).

Results

Manipulation check. The three groups differed on symbolic threat, $F(2, 603) = 495.03$, $p < .001$, $f = 1.28$. As expected, the symbolically threatening group was rated higher ($M = 5.38$, $SD = 1.25$) than the two control conditions (*different* control: $M = 2.06$, $SD = 1.23$, $t(603) = 27.24$, $p < .001$, $d = 2.68$; *similar* control: $M = 1.99$, $SD = 1.11$), $t(603) = 28.14$, $p < .001$, $d = 2.87$, which did not differ significantly from each other, $t(603) = 0.64$, $p = .521$, $d = 0.06$.

Pervasiveness. The symbolic-threat manipulation significantly affected pervasiveness perceptions, $F(2, 603) = 5.33$, $p = .005$, $f = 0.13$. Consistent with the theorized role of symbolic threat, results showed that the symbolically threatening group ($M = 5.86$, $SD = 1.81$) was seen as more pervasive than either the *different* control ($M = 5.23$, $SD = 1.93$), $t(603) = 3.25$, $p = .001$, $d = 0.34$, or *similar* control ($M = 5.47$, $SD = 1.97$), $t(603) = 2.04$, $p = .042$, $d = 0.21$, condition. That the two control conditions—similar and nonthreatening, and different and nonthreatening—did not differ from each other, $t(603) = -1.31$, $p = .192$, $d = 0.12$—suggests that being different on a dimension unrelated to values is insufficient to impact pervasiveness perceptions.

By exploring the role of symbolic threat using a single group (Study 4), groups with which participants vary in their ideological misalignment (Study 5), and entirely fictitious groups (Study 6), our final three studies further underscored that symbolic threat increases pervasiveness perceptions above and beyond a variety of group-relevant dimensions, such as ideological distinctiveness, entitativity, or simply difference from oneself.

General Discussion

Using multiple groups, contexts, and operationalizations of pervasiveness, six studies revealed that symbolically threatening groups seem more pervasive than comparable nonthreatening groups. Put simply, the mere presence of ideological differences can change how people understand their surroundings and the people within them.

Implications

This research offers one perspective on how error-management processes can perpetuate the marginalization of certain groups. Because symbolic threat increases pervasiveness perceptions, people may judge groups that differ from the dominant culture as more pervasive than they actually are (Study 2) or as growing in number (Study 1). In turn, people may believe that these groups are disrupting the status quo, motivating support for policies that further disempower them (e.g., redlining, gerrymandering). Said differently, although groups that differ from the mainstream often suffer poorer qualities of life than dominant groups, they may be perceived as just the opposite—an ever-encroaching threat that must be suppressed.

Exacerbating this issue, inflated pervasiveness perceptions may constitute a particularly insidious response to symbolic threat. Unlike prior work revealing explicitly negative implications of symbolic threat (e.g., discrimination), our studies uncovered a novel outcome that may not readily appear prejudicial, which may obscure its potential to cause harm. Moreover, preliminary findings suggest that symbolic threat distorts perceptions not only relative to nonthreatening groups but also relative to a rationally correct response (Study 2). This possibility is particularly concerning given the ubiquity of fake news and misinformation (Pennycook & Rand, 2019).

Limitations and future directions

One limitation of the current work is that our samples comprised primarily majority-group members (e.g., White, straight) who were recruited from online convenience samples, which may limit the generalizability of the current work. Relatedly, given our focus on outgroup perceptions, we did not explore whether people exaggerate the pervasiveness of their in-group and, if so, why. Future research could therefore investigate pervasiveness perceptions across more diverse populations as well as moderating factors, such as level of in-group identification.

Secondly, despite directly manipulating symbolic threat in Studies 4 through 6, we nevertheless observed an extremely high correlation between measures of realistic and symbolic threat in Study 6 (consistent with prior work; Rios et al., 2018). One possibility is that pervasiveness perceptions mediate a causal effect of symbolic threat on realistic threat: Symbolically threatening groups seem more pervasive and, in turn, may appear more threatening to one's power and resources. Ancillary analyses provide preliminary support for this possibility (see the Supplemental Material at https://osf.io/b57r9/), but continued research should further investigate this relationship.

In studying two manifestations of pervasiveness perceptions (i.e., population proportion estimates, group–place associations), we did not test other manifestations (e.g., perceptions of a group's clustering in a space) or whether they might causally relate to one another. Future work could address this as well as other features of pervasiveness. For instance, might symbolic threat also impact the point at which people feel that there is "too much" of a certain group (see also Chang et al., 2019; Danbold & Unzueta, 2020)? Through this lens, our examination of pervasiveness perceptions may offer insight into the processes underlying consequential societal phenomena, including "White flight" or space-focused stereotyping (e.g., "Black neighborhoods"; see Bonam et al., 2016, 2020).

Conclusion

This research reveals that symbolic threat can distort how people understand their surroundings and the groups within them. Ultimately, this work sheds light on how people's values and worldviews can shape social perceptions and the meaning of places.

Transparency

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Author Contributions

R. Ponce de Leon and J. R. Rifkin contributed equally to this work; author order was determined by a coin flip. R. Ponce de Leon and J. R. Rifkin developed the study concept, designed and conducted the studies, analyzed the data, and wrote the manuscript. R. P. Larrick provided critical revisions. All authors approved the final manuscript for submission.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Open Practices

All data have been made publicly available via OSF and can be accessed at https://osf.io/wk345/. All materials have been included in the main text of this article. The design and analysis plans for the following studies were preregistered: Study 3 (https://osf.io/gy6ed/), Study 4

(https://osf.io/rxz3k/), Study 5 (https://osf.io/jpgy8/), Study 6 (https://osf.io/xz9w2/), Study S1 (https://osf.io/hzu2f/). This article has received the badges for Open Data, Open Materials, and Preregistration. More information about the Open Practices badges can be found at http://www.psychologicalscience.org/publications/badges.

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Supplemental Material

Additional supporting information can be found at http://journals.sagepub.com/doi/suppl/10.1177/09567976211060009

Notes

1. Prior work on intergroup threat has often measured symbolic threat as perceived ideological difference from society at large, rather than from oneself. Following this prior work (e.g., Rios, 2013; Velasco González et al., 2008), and to reduce social-desirability concerns, we also measured symbolic threat in reference to society in Studies 2 through 5.
2. Results were robust to including green-eyed participants in the gay condition.
3. Although this exclusion was not preregistered, responses in which participants selected "Not an immigrant neighborhood" after "An immigrant neighborhood" may indicate low-quality data. Results were consistent when such responses were included in the analyses (see the Supplemental Material at https://osf.io/b57r9/).
4. Although this result was consistent with our predictions and reached statistical significance, the observed effect size was slightly below the bound of what this study was set to detect with 80% power, based on a sensitivity analysis. A post hoc power analysis indicated that we achieved 68% power.

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