

## RESEARCH ARTICLE

# Zero-sum beliefs shape advantaged allies' support for collective action

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## Funding information

Kosciuszko Foundation; Social Sciences and Humanities Research Council of Canada, Grant/Award Number: 435-2012-1135.

## Abstract

Three studies ( $N_1 = 1,019$ ;  $N_2 = 312$ ;  $N_3 = 494$ ) tested whether seeing intergroup relations as inherently antagonistic shaped advantaged social groups' allyship intentions. More specifically, we tested whether endorsing *zero-sum beliefs* related to their willingness to support system-challenging and system-supporting collective action. Zero-sum beliefs were negatively correlated with system-challenging and positively correlated with system-supporting collective action intentions. Zero-sum beliefs were more common among advantaged than disadvantaged groups and translated into lower allyship intentions. Advantaged group members with higher levels of zero-sum beliefs were also more likely to experience anger and fear when considering the demographic racial shift in the United States. Increased fear was associated with greater support for system-supporting and lower support for system-challenging collective action. We find consistent evidence that advantaged group members see intergroup relations as a zero-sum game and that these beliefs are negatively related to their intentions to become allies.

## KEYWORDS

allies, collective action, intergroup attitudes, racial demographic shift, zero-sum beliefs

## 1 | INTRODUCTION

The Black suffrage movement, the legalization of same-sex marriage, and the penalization of hate speech directed at disadvantaged minorities are some examples of how blatant discrimination has decreased around the world (Coleman, 2015; ILGA Europe, 2019; Kirchick, 2019; Moodley & Adam, 2000; OSCR/ODIHR, 2009). Yet inequality persists: Black Americans remain disadvantaged relative to White Americans in virtually all domains of wealth (Stanford Center on Poverty & Inequality, 2017), there exists a global gender gap in economic participation, educational attainment, health, and political empowerment (European Commission, 2018), and sexual minorities are disproportionately targeted with violent hate crimes (Armstrong, 2019; Świder & Winiewski, 2017). Although progress toward equality is largely due to the persistent efforts of disadvantaged group members who advocate for their rights, closing equality gaps sometimes requires members of advantaged social groups to engage in allyship by exercising their political voice on behalf of

outgroup members (Brown & Ostrove, 2013). However, an array of factors undermines such advocacy.

We argue that advantaged groups may fail to engage in allyship because they perceive intergroup relations to be a zero-sum game (Binmore, 2007; Owen, 2013) whereby any gains by the disadvantaged must necessarily come at the expense of their own advantaged group (Esses, Jackson, & Armstrong, 1998). Changing access to power and resources would disrupt the current social and political system, which members of both advantaged and disadvantaged groups tend to perceive as just (Jost, Banaji, & Nosek, 2004; Jost & van der Toorn, 2012). The more people justify the existing system, the more they support action that will maintain the status quo (Jost, Becker, Osborne, & Badaan, 2017; Osborne, Jost, Becker, Badaan, & Sibley, 2019). Any perceived threats to the existing system should further enhance this tendency. We test the heretofore unexplored role that zero-sum beliefs may play in predicting allyship across three studies conducted in two national contexts.

## 1.1 | When are advantaged group members allies and when are they not?

Collective action denotes activities undertaken to achieve a group's political goals (van Zomeren, 2016, p. 89). Jost et al. (2017) argued that when the goals of collective action vis-à-vis the existing social system are taken into account, two types of collective action emerge: *System-challenging collective action* (i.e., action aimed at changing the status quo) and *system-supporting collective action* (i.e., action aimed at preserving the status quo). Members of disadvantaged groups typically support system-challenging and oppose system-supporting collective action, whereas advantaged social groups show the opposite pattern of support (Jost et al., 2017; Osborne et al., 2019). To-date, most research has focused on system challenging efforts of disadvantaged group members (Van Zomeren, Postmes, & Spears, 2008). However, allyship—active support of disadvantaged social group's system challenging efforts—is provided by advantaged group members (Brown & Ostrove, 2013; Kelliher, 2014). For example, some White Americans respond to police shootings of unarmed Black men in the United States (U.S.) by supporting the Black Lives Matter movement (Luttrell, 2019). In fact, there have been many prominent examples of allyship throughout human history (e.g., gentiles helped Jews during the Holocaust; Oliner & Oliner, 1988; White Americans helped propel the civil rights movement; Chaney, 2000).

It is critical to understand when advantaged groups act as allies and support system-challenging collective action (Brown & Ostrove, 2013; Subašić, Reynolds, & Turner, 2008). That is because when advantaged group members engage in allyship, their political and economic power may contribute to the success of system-challenging collective action (Brown & Ostrove, 2013; Burstein, 2003; Iyer & Leach, 2010; Mallett, Huntsinger, Sinclair, & Swim, 2008; Russell, 2011). Additionally, advantaged allies can encourage disadvantaged groups' participation in system-challenging collective action by expressing support for their cause (Droogendyk, Louis, & Wright, 2016). Surprisingly few research studies have assessed when allyship is more or less likely to occur. A literature, however, is emerging (see Brown & Ostrove, 2013; Louis et al., 2019).

It is known that allyship is curbed to the extent that members of the advantaged group identify with their ingroup (Iyer & Ryan, 2009; Selvanathan, Techakesari, Tropp, & Barlow, 2018). In fact, identification with their advantaged group makes members more likely to engage in system-supporting collective action and more likely to oppose system-challenging collective action. For example, some White Americans opposed the Black Lives Matter movement by engaging in the All Lives Matter movement (Smith, 2017). This is because identifying with an advantaged ingroup motivates people to protect that ingroup from a perceived threat (Ellemers, Spears, & Doosje, 2002) by justifying inequality (Iyer & Ryan, 2009). The desire to protect one's advantage (Lipsitz, 1998; Osborne et al., 2019) may manifest in the belief that discrimination is no longer a problem (i.e., equality has been achieved; Jost et al., 2017; Piff, Kraus, & Keltner, 2018) or the belief that advantaged groups have become disadvantaged

(Kehn & Ruthig, 2013; National Public Radio, Robert Wood Johnson Foundation, & Harvard T.H. Chan School of Public Health, 2017; Norton & Sommers, 2011).

Allyship is more likely to manifest in the absence of perceived threat to an advantaged group member's social identity. When perceived threat posed by the disadvantaged experienced by the ingroup is low (vs. high), advantaged group members are more likely to feel collective guilt about their advantage (see Wohl, Branscombe, & Klar, 2006), which reduces negative attitudes toward the disadvantaged group (Powel, Branscombe, & Schmitt, 2005) and predicts allyship (Leach, Iyer, & Pedersen, 2006; Selvanathan et al., 2018). Indeed, advantaged group members are more likely to become allies when they recognize the illegitimacy of their group's privileged status (Iyer & Ryan, 2009; Saab, Tausch, Spears, & Cheung, 2015) or hold moral convictions against inequality (van Zomeren, Postmes, Spears, & Bettache, 2011). Likewise, holding positive attitudes toward those who are disadvantaged (Leach et al., 2006) and the ability to take the perspective of a disadvantaged group predict allyship (Mallett et al., 2008). In the presence of a perceived threat to one's advantaged group, members are more likely to experience negative group-based emotions (e.g., anger, angst; see Halperin, 2011; Wohl, Branscombe, & Reysen, 2010), which may reduce support for system-challenging and increase support for system-supporting collective action.

## 1.2 | Zero-sum beliefs as a moderator of allyship

In the current research, we assessed a heretofore unexamined determinant of advantaged group members' allyship: beliefs about the contingent nature of relations between groups in society. Some people view intergroup relations as a zero-sum game (Binmore, 2007; Colman, 1995; Esses, Dovidio, Jackson, & Armstrong, 2001; Esses et al., 1998). Such beliefs shape thoughts about how resources (broadly defined) should be distributed in society and may determine attitudes toward activities that allow disadvantaged groups more access to resources. Perceiving intergroup relations to be a zero-sum game is common (Różycka-Tran, Boski, & Wojciszke, 2015), even though objective economic indicators suggest that greater diversity is related to increased creativity and innovation (Forbes Insights, 2011) and better economic outcomes (e.g., Bellini, Ottaviano, Pinelli, & Prarolo, 2008; Bove & Elia, 2017; Momani & Stirk, 2017).

Other people may view intergroup relations as a positive-sum game (see Knack, 2005). Perceptions of a positive interdependence between groups in society (e.g., Deutsch, 2006) should lead people to believe that gains by one group do not come at the expense of others. The extant literature has not established whether positive-sum beliefs are at the opposite end of the continuum from zero-sum beliefs versus a separate type of beliefs. For example, Różycka-Tran et al. (2015) simply excluded reverse-scored zero-sum items from their analyses. One aim of the present research is to test whether zero-sum and positive-sum beliefs are distinct and have unique associations with intergroup outcomes.

We contend that zero-sum beliefs have potential predictive utility for allyship because of the host of known associated negative outcomes of such beliefs. For instance, Norton and Sommers (2011) found that perceptions of discrimination faced by Black and White Americans were negatively correlated among White participants (but not among Black participants). Similarly, men (but not women) tend to see discrimination against men and women as negatively correlated (Kehn & Ruthig, 2013). These results suggest that members of advantaged groups (e.g., White Americans, men) may see the amount of discrimination as finite and believe that advancement of disadvantaged groups must entail negative outcomes for their own group. Zero-sum beliefs also predict anti-immigration sentiments (Esses et al., 2001), interfere with negotiations (Pinkley, Griffith, & Northcraft, 1995; Thompson & Hrebec, 1996), and fuel intractable intergroup conflicts (Bar-Tal & Halperin, 2011; Maoz & McCauley, 2005).

Zero-sum beliefs should negatively relate to allyship because, as research on social identity theory has demonstrated, beliefs about the contingent nature of intergroup relations (negatively) affect intergroup attitudes and behavior (Jetten, Spears, & Postmes, 2004; Tajfel & Turner, 1986). For example, holding zero-sum beliefs about gender relations makes men less likely to support feminist collective action, and when support is given it manifests in action that does not aim to change the social system (e.g., collective action to help increase women's ability to protect themselves from violence; Radke, Hornsey, & Barlow, 2018). Similarly, when heterosexual participants perceived a threat from referring to legalized same-sex relationships as "marriages" compared to "civil unions", they reported greater opposition to such legalization (Schmitt, Lehmler, & Walsh, 2007).

We hypothesized that attitudes toward and engagement in system-challenging and system-supporting collective action are a function of the advantaged groups' zero-sum beliefs. The goal of collective action often is to increase (system-challenging) or limit (system-supporting) disadvantaged groups' access to resources (Jost et al., 2017; Van Zomeren et al., 2008). Accordingly, beliefs that one group has to lose resources for another to gain them (i.e., zero-sum beliefs) should shape allyship. In addition, people who endorse zero-sum beliefs should be particularly sensitive to events that threaten the status quo because to them changes in the position of one group in society necessitate changes in the position of others.

### 1.3 | Overview of the current studies

The main purpose of this research was to assess the possible role zero-sum beliefs play in shaping advantaged groups' attitudes toward system-challenging and system-supporting collective action. To this end, we tested five hypotheses:

**Hypothesis 1** *Advantaged group members will endorse zero-sum beliefs more than disadvantaged group members.*

**Hypothesis 2** *Zero-sum beliefs held by advantaged group members will be related to more negative attitudes toward disadvantaged*

*groups and to lower willingness to support system-challenging collective action as well as to greater willingness to support system-supporting collective action.*

**Hypothesis 3** *The negative relation between zero-sum beliefs and support for system-challenging collective action and the positive relation between zero-sum beliefs and system-supporting collective action will be particularly pronounced among highly identified advantaged group members.*

**Hypothesis 4** *Perceiving a threat to the status of the ingroup will cause advantaged group members to experience negative emotions (anger and fear), which will reduce support for system-challenging and increase support for system-supporting collective action.*

**Hypothesis 5** *Zero-sum beliefs will moderate the influence of a perceived threat to the status of the ingroup on negative emotions and, in turn, on support for the two types of collective action. Specifically, as the endorsement of zero-sum beliefs increases, so will anger and fear. These negative emotions will explain advantaged group members' support for system-challenging and system-supporting collective action.*

To test the aforementioned hypotheses, we conducted three studies in two national contexts. Study 1 was a correlational study conducted with a nationally representative sample of Polish citizens. It assessed the relations among zero-sum beliefs, intergroup attitudes, and willingness to support system-challenging (pro-gay) and system-supporting (anti-gay) collective action (Hypothesis 2). Study 2 was a correlational study conducted in the U.S. in which we compared the endorsement of zero-sum beliefs between White Americans and Black Americans (Hypothesis 1). Study 2 also examined the role of group status (advantaged vs. disadvantaged) and ingroup identification in shaping the relation between zero-sum beliefs and collective action intentions. We compared White American and Black American endorsement of system-challenging collective action as a function of their zero-sum beliefs and strength of ingroup identification (Hypothesis 3). Study 3 was conducted with a sample of White Americans to experimentally test whether a perceived threat to the status of the ingroup shapes intentions to support collective action (Hypothesis 4) and whether zero-sum beliefs moderate these relations (Hypothesis 5).

All materials and data (including items collected but not considered in the present research) as well as justification of sample sizes are publicly available via the Open Science Framework (OSF): <https://osf.io/dmr8y/>.

## 2 | STUDY 1

Study 1 provided an initial assessment of the relations among zero-sum beliefs, attitudes toward disadvantaged social groups, and willingness to support system-challenging and system-supporting collective action within Polish society. These measures were part of a larger representative-sample study of Polish attitudes toward diversity, the Polish Prejudice Survey 2017 (Stefaniak & Winiewski, 2018).

## 2.1 | Method

### 2.1.1 | Participants and design

One thousand and nineteen Poles completed a correlational study that was described as assessing people's attitudes toward different groups within Polish society. They were between 18 and 92 years of age ( $M_{\text{age}} = 47.54$ ;  $SD = 17.82$ ); 52.2% identified as women. The participants were recruited by Danae (a social and marketing research company) to be representative of the Polish population. The study used in-home Computer-Assisted Personal Interview methodology (Baker, 1992) whereby participants answered the study questions in their homes in the presence of an interviewer.

### 2.1.2 | Measures

Due to space constraints typical of nationally representative social surveys we used abbreviated measures.<sup>1</sup>

*Zero-sum beliefs* were measured with four items (1 *strongly disagree* to 7 *strongly agree*). Two items were from Różycka-Tran et al. (2015): "Life is like tennis game—a person wins only when others lose" and "Life is so devised that when somebody gains, others have to lose". Two items were selected from a pretest ( $n = 26$ ) of 10 self-generated items that measured a perception of zero-sum interdependence in intergroup relations: "Minorities gain special privileges at the expense of the majority" and "Granting special rights to minorities leads to limiting the rights of the majority". Two items measuring each of the zero-sum beliefs type were averaged to create indexes of general and intergroup-specific zero-sum beliefs,  $r(915) = .71$ ,  $p < .001$  and  $r(976) = .80$ ,  $p < .001$ , respectively.

*Intergroup attitudes* were measured with a modified social distance scale (modeled on Bogardus, 1925; see Bilewicz, Winiewski, Kořta, & Wójcik, 2013). Participants reported anticipated reactions to members of six disadvantaged social groups (refugees, Jews, Roma, Ukrainians, Muslims, gay people) moving into their neighborhood, working with them, or marrying into their family.<sup>2</sup> We used the following scale: 1 = *I would definitely accept*; 2 = *I would somewhat accept*; 3 = *I would be somewhat opposed*; 4 = *I would be strongly opposed*. All items measuring social distance toward a particular social group were averaged, with higher scores indicating greater social distance (all  $\alpha$ s  $> 0.84$ ). We also created a global index of social distance as an average of all social distance items ( $\alpha = 0.96$ ).

*Collective action support*: To measure intentions to support system-challenging collective action we asked the participants whether

they were willing to engage in "activities that aim to increase the rights of homosexual people in Poland". To measure intentions to support system-supporting collective action, we asked whether they were willing to engage in "activities that aim to limit the rights of homosexual people in Poland".<sup>3</sup> The two items were analyzed separately.

## 2.2 | Results

Table 1 presents means, standard deviations, and correlations among the variables. Participants generally endorsed zero-sum beliefs, both general ( $M = 4.73$ ,  $SD = 1.64$ ) and intergroup-specific ( $M = 4.40$ ,  $SD = 1.66$ ), as evidenced by average agreement above the mid-point of the scale,  $t(990) = 14.13$ ;  $p < .001$ ;  $d = 0.45$  and  $t(970) = 7.62$ ;  $p < .001$ ;  $d = 0.24$ . As expected, zero-sum beliefs were correlated with more negative intergroup attitudes. The more participants endorsed zero-sum beliefs, the less accepting they were of refugees, Roma, Jews, Ukrainians, Muslims, and gay people,  $r$ s  $> .08$ ,  $p$ s  $< .012$ .

Also as predicted, intergroup-specific zero-sum beliefs were negatively associated with willingness to engage in system-challenging collective action that would increase the rights of gay people and positively related to willingness to engage in system-supporting collective action that would hinder the rights of gay people in Poland. The general measure of zero-sum beliefs was negatively correlated with system-challenging collective action support intentions, but not with system-supporting collective action intentions. Notably, support for all collective action was significantly below the scale mid-point. In fact, only 20% of participants declared that they would "at all be willing" to support system-challenging collective action. Similarly, only 21.5% endorsed any system-supporting collective action.

## 2.3 | Discussion

Study 1 supported Hypothesis 2: Intergroup-specific and general zero-sum beliefs held by advantaged group members were *negatively* related to attitudes toward disadvantaged groups and to intentions to support system-challenging collective action that would improve the situation of a disadvantaged group (gay Poles). Conversely, intergroup-specific zero-sum beliefs (but not the general measure) held by advantaged group members were *positively* related to system-supporting collective action intentions that limit the disadvantaged group's rights.

Although a strength of Study 1 was the use of a large and representative sample of Poles interviewed in their homes, the methodology has some limitations. First, the number of items used to assess each construct was necessarily truncated; in a large survey the number of items used to test a construct competes against

<sup>1</sup>The larger study included measures which are not included in this analysis (e.g., social dominance orientation; right-wing authoritarianism, support for collective violence); for a full list see: <https://osf.io/dmr8y/>.

<sup>2</sup>This last question was not asked about gay people because it would be impossible to disentangle social distance effects from attitudes toward having a gay family member and attitudes toward same-sex marriage in general.

<sup>3</sup>Please note that while we recognize that the preferred term is "lesbian and gay male", in the Polish context this vocabulary is not well established, therefore in the materials presented to the participants we used the word "homosexual".

**TABLE 1** Means, standard deviations, and correlations between variables in Study 1

	<i>M</i> ( <i>SD</i> )	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Zero-sum (group)	4.40 (1.66)										
2. Zero-sum (gen.)	4.73 (1.64)	.49***									
3. Dist. Refugees	2.68 (0.89)	.18***	.16***								
4. Dist. Jews	2.34 (0.84)	.12***	.17***	.69***							
5. Dist. Roma	2.63 (0.84)	.16***	.20***	.76***	.72***						
6. Dist. Ukrainians	2.20 (0.81)	.08*	.15***	.64***	.82***	.65***					
7. Dist. Muslims	2.82 (0.89)	.23***	.17***	.83***	.66***	.78***	.57***				
8. Dist. gay people	2.44 (0.88)	.20***	.20***	.61***	.68***	.65***	.67***	.62***			
9. Dist. Global	2.50 (0.75)	.17***	.18***	.85***	.90***	.86***	.87***	.83***	.82***		
10. Pro-gay CA	2.86 (1.84)	-.09*	-.08*	-.23***	-.18***	-.21***	-.12***	-.24***	-.31***	-.23***	
11. Anti-gay CA	2.97 (1.92)	.17***	.05	.02	.13***	.05	.14***	.06	.16***	.11**	.39***

Note: Zero-sum = zero-sum beliefs; Dist. = social distance; Pro-gay CA = system-challenging collective action; Anti-gay CA = system-supporting collective action.

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

the number of constructs assessed. Second, although we observed variability, the willingness to engage in collective action was low. This is typical of Polish society (European Commission, 2005, 2007), especially because we asked about willingness to advocate for gay rights in a predominantly Roman Catholic country with high levels of discrimination against LGBTQ + individuals (ILGA Europe, 2019; Świder & Winiewski, 2017). Third, given how sensitive the topic of sexual orientation is in Poland, we did not ask about participants' sexual orientation. The likely presence of the target disadvantaged group in the sample may mask the true strength of the effects.

### 3 | STUDY 2

Study 2 replicated and extended the results of Study 1 with a sample of advantaged (White Americans) and disadvantaged (Black Americans) group members. We assessed both groups' zero-sum beliefs and willingness to engage in system-challenging collective action. We also made several changes to the methodology. First, to facilitate generalizability we used a different intergroup context—Black–White relations in the U.S.—and examined willingness to support the Black Lives Matter (BLM) movement as an example of system-challenging collective action. Second, we used established multi-item measures of most constructs of interest—an adjustment

that typically yields superior psychometric properties compared to single-item measures (Judd, Smith, & Kidder, 1991). Third, because there is no established multi-item measure of zero-sum beliefs in an intergroup context, we created a scale that focused explicitly on the intergroup relations of interest (i.e., Black–White relations in the U.S.). This measure was composed of previously used and self-generated items. Fourth, we tested whether ingroup identification moderated advantaged group members' allyship intentions.

We expected to find that White Americans would endorse zero-sum beliefs more than Black Americans. Replicating Study 1, we anticipated that as zero-sum beliefs increased, support for system-challenging collective action would decrease. We also expected that the negative relation between zero-sum beliefs and support for system-challenging collective action would be particularly pronounced among highly identified advantaged group members.

### 3.1 | Method

#### 3.1.1 | Participants and design

We recruited 365 participants ( $M_{\text{age}} = 39.71$ ,  $SD = 13.26$ ; 156 men); 159 (43.6%) identified as Black Americans while 206 (56.4%) identified as White Americans. Over half of the participants (52.6%) identified as liberal, 33.7% as conservative, and 13.7% as “something

**TABLE 2** Means, standard deviations, and correlations between variables in Study 2

	Blacks M (SD)	Whites M (SD)	t(363)	d	1.	2.	3.	4.
1. Identification	5.20 (1.38)	4.26 (1.44)	5.81***	0.67	—	-.05	.13	.43***
2. Zero-sum	1.60 (0.92)	2.27 (1.51)	-4.50***	0.54	.36***	—	-.19**	-.22*
3. Positive-sum	6.11 (1.11)	5.42 (1.45)	4.54***	0.53	-.40***	-.61***	—	.18*
4. CA support (future)	2.66 (1.44)	1.88 (1.22)	5.15***	0.58	-.30***	-.36***	.47***	—

Note: The correlations for White Americans are presented below and the correlations for Black Americans are presented above the diagonal.

CA support (future) = willingness to support system-challenging collective action in the future.

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

else". The study was conducted on Amazon's Mechanical Turk (MTurk). Participants were paid \$0.50 for completing the study and earned a bonus of \$0.25 for correctly answering two of three attention check items; only those who did were included in the analyses ( $n = 312$ ; 130 identified as Black Americans and 182 as White Americans).<sup>4</sup>

### 3.1.2 | Measures

Participants responded to the following items in order of presentation.<sup>5</sup> We randomized the order of items in each scale. Unless otherwise indicated the scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Identification with one's racial ingroup* was measured with Leach et al.'s (2008) 14-item scale. Individual items were adjusted to participants' self-declared racial group (e.g., "I feel a bond with Blacks [Whites]", "I am similar to the average Black [White] person"). A composite score was calculated as a mean of all 14 items ( $\alpha = 0.96$ ).

*Zero-sum beliefs* were measured with 32 items adapted from Bobo and Hutchings (1996), Esses et al. (1998), as well as items that we created (e.g., "Improving the situation of Black Americans will be beneficial to the American society as a whole" [reverse scored], and "More Black people in positions of power means fewer opportunities for White people").

We employed the procedure of cross validation to select a short list of items that reliably measure zero-sum beliefs in an intergroup context (Boateng et al., 2018; Tabachnick & Fidell, 2012). We randomly split the sample in half, performed an exploratory factor analysis (EFA) on one of the subsamples, and validated the selection of

items using a confirmatory factor analysis (CFA) with the other subsample. A detailed description of all analyses is presented in Appendix S1. Two factors emerged. One factor pertained to *zero-sum beliefs*, the other to *positive-sum beliefs* (Knack, 2005)—a belief that intergroup relations do not constitute a zero-sum game and that gains by one group do not entail losses by other groups.<sup>6</sup> The four highest-loading items were selected for each factor and averaged to create composite scores of zero-sum ( $\alpha = 0.90$ ) and positive-sum beliefs ( $\alpha = 0.78$ ).

To measure intentions to support *system-challenging collective action*, we asked participants to report their future intentions to support BLM: "Would you be willing to participate in or support the following activities by or on behalf of the Black Lives Matter movement?" Following this question, the participants reported their intentions to support 12 activities (e.g., "Taking part in a protest against police brutality toward people of color", "Donating money to BLM", "Adding your email address to a BLM newsletter";  $\alpha = 0.96$ ; 1 *not at all* to 6 *very much*).<sup>7</sup>

### 3.2 | Results

Table 2 presents means, standard deviations, and correlations between variables in Study 2. As predicted, Black participants and White participants differed on all measures. Compared to Black participants, White participants were less identified with their racial group, displayed more zero-sum and less positive-sum beliefs, and were less likely to declare willingness to support the BLM movement in the future.

<sup>4</sup>We included three attention checks to verify participants' engagement in the study. The first was embedded in one of the scales measuring attitudes and asked the participants to choose a particular answer ("strongly agree"). The other one consisted of two elements (scored separately): it asked the participants to answer "orange" in a question about the color of the sky. If a participant answered "blue" they were treated as passing a half of this attention check and if they answered "orange" they were treated as having correctly passed the whole check.

<sup>5</sup>The study contained measures that are not a part of this analysis (e.g., social dominance orientation, empathy toward White people and Black people).

<sup>6</sup>We did not expect the reversed items to form an independent factor but following both the EFA and CFA results we contend that, while correlated, zero-sum and positive-sum beliefs constitute independent dimensions. They are treated as such in the analyses of Study 2 and Study 3.

<sup>7</sup>In Study 2 we also asked about participants' past engagement in and support for system-challenging collective action. The results for this measure closely parallel those reported for the intentions to engage in collective action in the future and are presented in Appendix S2.



### 3.2.1 | Moderation by ingroup identification

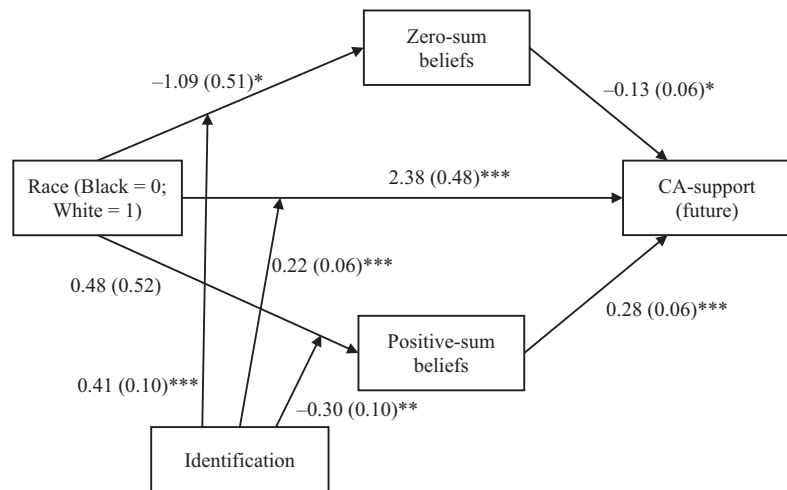
To analyze the role of zero-sum and positive-sum beliefs in shaping White American and Black American support for system-challenging collective action, we conducted an analysis of moderated mediation in which the influence of participants' racial identity on intentions to support BLM was mediated by zero-sum and positive-sum beliefs, and moderated by the strength of participants' racial identification (Process 3.0, custom model; Hayes, 2018; see Figure 1).

As predicted, the relation between racial group membership and intentions to engage in system-challenging collective action ( $B = -0.57$ ,  $SE = 0.10$ , 95% CI  $[-0.76, -0.38]$ ) and the relation between racial group membership and endorsement of zero-sum ( $B = 0.41$ ,  $SE = 0.10$ , 95% CI  $[0.21, 0.61]$ ) and positive-sum beliefs ( $B = -0.30$ ,  $SE = 0.10$ , 95% CI  $[-0.50, -0.10]$ ) were moderated by strength of racial identification. Highly identified White Americans ( $B = -1.12$ ,  $SE = 0.20$ , 95% CI  $[-1.53, -0.72]$ ) were less likely to declare willingness to support system-challenging collective action. The effect was not significant for moderate-identifiers ( $B = -0.28$ ,  $SE = 0.15$ , 95% CI  $[-0.57, 0.02]$ ), but White Americans with a low level of identification with their racial group actually showed a reversal of the effect and were more likely to declare willingness to support system-challenging collective action ( $B = 0.57$ ,  $SE = 0.21$ , 95% CI  $[0.16, 0.99]$ ).

White Americans who strongly ( $B = 1.41$ ,  $SE = 0.20$ , 95% CI  $[1.01, 1.80]$ ) and moderately ( $B = 0.80$ ,  $SE = 0.15$ , 95% CI  $[0.51,$

$1.10]$ ) identified with their racial group were more likely than Black Americans to endorse zero-sum beliefs, while there was no difference between the two groups for low-identifiers ( $B = 0.20$ ,  $SE = 0.23$ , 95% CI  $[-0.25, 0.64]$ ). White Americans were also less likely than Black Americans to endorse positive-sum beliefs. This relation was moderated by their level of identification: the stronger their group identification, the less likely were they to endorse positive-sum beliefs ( $B = -1.34$ ,  $SE = 0.20$ , 95% CI  $[-1.74, -0.95]$  for high-identifiers;  $B = -0.90$ ,  $SE = 0.15$ , 95% CI  $[-1.20, -0.60]$  for moderate identifiers; and  $B = -0.46$ ,  $SE = 0.23$ , 95% CI  $[-0.91, -0.01]$  for low-identifiers).

Zero-sum beliefs mediated the relation between racial group membership and willingness to engage in system-challenging collective action (index of moderated mediation:  $B = -0.05$ ,  $SE = 0.02$ , 95% CI  $[-0.10, -0.01]$ ). Moderately and highly identified White Americans tended to declare lower willingness to support system-challenging collective action partly due to their zero-sum beliefs ( $B = -0.10$ ,  $SE = 0.04$ , 95% CI  $[-0.18, -0.03]$  and  $B = -0.18$ ,  $SE = 0.07$ , 95% CI  $[-0.32, -0.05]$ , respectively). Positive-sum beliefs also mediated this relation (index of moderated mediation:  $B = -0.08$ ,  $SE = 0.03$ , 95% CI  $[-0.15, -0.03]$ ). Weakly ( $B = -0.13$ ,  $SE = 0.06$ , 95% CI  $[-0.25, -0.03]$ ), moderately ( $B = -0.25$ ,  $SE = 0.06$ , 95% CI  $[-0.37, -0.15]$ ) and highly identified White Americans ( $B = -0.37$ ,  $SE = 0.09$ , 95% CI  $[-0.56, -0.22]$ ) were less likely to declare willingness to support system-challenging collective action partly because they did not see intergroup relations as a positive-sum game.



**FIGURE 1** Mediation model of the influence of participants' racial group membership on intentions to support system-challenging collective action in the future (CA-support [future]) via zero-sum and positive-sum beliefs, moderated by ingroup identification. Unstandardized coefficients are presented with standard errors in parentheses. \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

Bootstrap estimates (95%CI) of conditional direct effects:

Low identification:  $B = 0.57$ ,  $SE = 0.21$  (0.16, 0.98)

Moderate identification:  $B = -0.28$ ,  $SE = 0.15$  (-0.57, 0.02)

High identification:  $B = -1.12$ ,  $SE = 0.20$  (-1.52, -0.72)

Bootstrap estimates (95%CI) of indirect effects:

Low identification: Race → Zero-sum → CA-past:  $B = -0.03$ ,  $SE = 0.03$ , (-0.08, 0.03)

Race → Positive-sum → CA-past:  $B = -0.13$ ,  $SE = 0.06$ , (-0.25, -0.03)

Moderate identification: Race → Zero-sum → CA-past:  $B = -0.10$ ,  $SE = 0.04$ , (-0.18, -0.03)

Race → Positive-sum → CA-past:  $B = -0.25$ ,  $SE = 0.06$ , (-0.37, -0.15)

High identification: Race → Zero-sum → CA-past:  $B = -0.18$ ,  $SE = 0.07$ , (-0.32, -0.05)

Race → Positive-sum → CA-past:  $B = -0.37$ ,  $SE = 0.09$ , (-0.55, -0.22)

### 3.3 | Discussion

Study 2 replicated and extended the results of Study 1. As predicted, advantaged and disadvantaged group members differed in their endorsement of zero-sum beliefs. White Americans were more likely than Black Americans to perceive intergroup relations antagonistically (i.e., they endorsed zero-sum beliefs). Predictably, highly identified White Americans were also less likely to declare that they would support system-challenging collective action in the future. Thus, in line with our predictions, racial group membership determined the level of intentions to support system-challenging collective action as well as endorsement of zero-sum beliefs. We also found that the relations between zero-sum beliefs and collective action support are weaker for disadvantaged group members than for advantaged group members. This result increased our confidence in the results of Study 1—a study in which we could not separate the answers of advantaged and disadvantaged group members.

Interestingly, exploratory and confirmatory factor analyses of the 32 items used to measure zero-sum beliefs showed that all of the reverse-scored items loaded separately from the zero-sum items. Różycka-Tran et al. (2015) also found that reverse-scored items in their zero-sum beliefs scale loaded on a separate factor. Whereas they decided to exclude those items from analysis, we chose to follow our data and acknowledge that there may be another view about the nature of intergroup competition. We analyzed the reverse-scored items as a separate variable that we termed *positive-sum game beliefs* (Knack, 2005). The existence and inclusion of a positive-sum orientation recognizes that it is possible to advance the interests of both parties simultaneously (Burgess & Burgess, 1997). In the context of intergroup relations, a positive-sum orientation constitutes a belief that advancement of one group is not contingent on taking resources away from another, thereby recognizing positive goal interdependence among groups (Deutsch, 2006; Knack, 2005; Kriesberg, 2007). Positive- and zero-sum game beliefs were weakly negatively correlated for Black Americans and moderately negatively correlated for White Americans; in addition, the two racial groups differed in their level of endorsement of positive-sum beliefs.

We found that White Americans' identification with their racial group explained variability in the endorsement of zero-sum and positive-sum beliefs. Moderately and strongly identified White Americans were more likely than Black Americans to see race relations as a zero-sum game. Additionally, the more strongly White Americans identified with their group, the less likely they were to endorse a positive-sum view of race relations. Lending support to our prediction that highly identified advantaged group members will endorse zero-sum beliefs and thus be particularly unlikely to be allies, the results of Study 2 also showed that zero-sum beliefs among moderately and highly identified White Americans mediated the effect of racial group membership on intentions to support system-challenging collective action. Positive-sum beliefs also mediated the effect of racial group membership on future willingness to support system-challenging collective action (these effects were the strongest among highly identified White Americans).

These results support the necessity of understanding how variations in beliefs about the nature of competition between groups in society shape intergroup relations. In particular, perceiving intergroup relations to be antagonistic (vs. synergistic) translates into advantaged group members' support for activities that benefit the disadvantaged, and this support depends on the strength of their investment in their ingroup as well.

Although deliberate actions of the advantaged and disadvantaged groups do impact the intergroup status quo, processes beyond their control also shape intergroup relations. Globalization, increasing immigration, and the resulting diversity of western societies are expected to contribute to a *demographic racial shift* which will make the current majority ethnic group (e.g., Whites in the U.S.) numerical minorities (United Nations, 2017; Vespa, Armstrong, & Medina, 2018). This impending demographic shift may be construed as a serious problem facing the currently advantaged social groups, especially if they believe that the shift will be associated with their group becoming disadvantaged in the future (Kteily, Kachanoff, Ho, Sheehy-Skeffington, & Richeson, 2019). One way to defend the status quo in the face of change might be to refrain from becoming allies of the disadvantaged groups. We expected this process to be particularly pronounced among advantaged group members who believe that gains by minorities must necessarily come at the expense of their group. We assessed the possible role that demographic racial shift plays in allyship in Study 3.

## 4 | STUDY 3

Having found that zero-sum and positive-sum beliefs shape willingness to engage in system-challenging collective action, in Study 3 we investigated whether endorsing such beliefs influenced reactions to situational variables that affect the intergroup status quo. We tested whether zero-sum and positive-sum beliefs moderated Whites Americans' reactions to the impending demographic racial shift (Craig & Richeson, 2014a, 2014b). We manipulated awareness of the demographic racial shift and investigated its effect on negative emotions (e.g., Outten, Schmitt, Miller, & Garcia, 2012) and subsequent support for system-challenging and system-supporting collective action (Jost et al., 2017).

Because negative emotions constitute a proximal predictor of collective action and allyship (Iyer, Schmader, & Lickel, 2007; Leach et al., 2006; Saab et al., 2015; Selvanathan et al., 2018; Tausch et al., 2011; Walker & Smith, 2002; van Zomeren et al., 2008) and they have been tested as outcomes of demographic racial shift manipulations (Outten et al., 2012), we focused on anger and fear. Both emotions are crucial in intergroup contexts (Mackie, Devos, & Smith, 2000), particularly those characterized by competition (Leach, Snider, & Iyer, 2002; Smith, Cronin, & Kessler, 2008), and are a likely result of the currently dominant group facing uncertainty about their own demographic status in the future (Outten et al., 2012). Additionally, we tested endorsement of zero-sum and positive-sum beliefs as moderators of these associations. Including



both types of collective action allowed us to investigate the possibility that, in the face of demographic racial shift, White Americans may attempt to preserve the status quo not only through a lack of support for system-challenging collective action but also by supporting activities aimed at strengthening their dominance in society.

We hypothesized that reminders of the demographic racial shift would induce anger and fear among White Americans and that experiencing these emotions would, in turn, relate to less willingness to support system-challenging collective action and more willingness to support system-supporting collective action. We also hypothesized that White Americans who perceive intergroup relations as antagonistic (i.e., who endorse zero-sum beliefs and do not endorse positive-sum beliefs) will be particularly likely to experience anger and fear and that this would affect their collective action support intentions. Specifically, we expected zero-sum beliefs and positive-sum beliefs to moderate the relation between the demographic racial shift manipulation and collective action support via experience of negative emotions.

## 4.1 | Method

### 4.1.1 | Participants and design

We recruited  $N = 603$  White American MTurk workers. We analyzed responses from participants who correctly answered both manipulation check questions and declared that they provided quality data ( $N = 494$ ). They were between 19 and 78 years of age ( $M = 40.86$ ;  $SD = 13.26$ ), 59.3% identified as female, 39.5% identified as male, 0.8% as non-binary, while 0.4% did not indicate gender. All participants who completed the survey received \$0.50 and those who correctly answered the manipulation checks received additional \$0.25.

After participants consented to take part in the study, they reported demographic information and both zero-sum and positive-sum beliefs. Next, they were randomly assigned to the experimental (racial shift) or control (current ethnic make-up) condition of the demographic racial shift variable. Following Craig and Richeson (2014a), all participants read an ostensibly real online magazine article that described the racial make-up of the U.S. either in 2042 (racial shift condition) or today (control condition).

In the experimental condition, participants read that by 2042 White Americans will become a numerical minority in the U.S. In the control condition, participants read about the current racial breakdown estimates in which White Americans constitute a numerical majority. Both articles cited real U.S. Census data and projections and contained a pie chart that showed White Americans to be either a numerical majority now (65%) or a minority in 2042 (45%). Following the manipulation, participants were presented with the dependent measures: support for system-challenging and system-supporting collective action and emotional reactions to the text (fear and anger). Participants were then thanked, debriefed, and received compensation.

### 4.1.2 | Measures

The order of presentation of the measures reflects their order in the study.

**Zero-sum and positive-sum beliefs** Zero-sum and positive-sum beliefs were measured with the same items as in Study 2. As in Study 2, a CFA indicated that a two-factor solution, where all zero-sum items loaded onto one latent factor and all positive-sum items loaded onto another, fit the data well,  $\chi^2(19) = 68.25$ ,  $p < .001$ , CFI = 0.978, RMSEA = 0.073, SRMR = 0.028. The items comprising the zero-sum beliefs factor and the positive-sum factor were averaged to create composite scores ( $\alpha = 0.89$ ,  $\alpha = 0.84$ , respectively).

**Collective action support** Based on the items used in Study 2 and on Osborne et al. (2019), we generated seven items that assessed participants' willingness to support system-challenging collective action (e.g., "Donate money to an organization that supports Hispanic students", "Take part in a protest against police brutality toward people of color";  $\alpha = 0.91$ ) and seven items assessing willingness to support system-supporting collective action (e.g., "Participate in an All Lives Matter demonstration", "Sign a petition in support of merit-based, rather than race-based, considerations in college admissions"). The response scale was anchored at 1 (*definitely not*) and 7 (*very much*). We removed one item from the system-supporting collective action scale ("Participate in a march against removal of Confederate statues in the South") because it had low ( $rs < .22$ ) and negative correlations with the other items, resulting in an average of six items ( $\alpha = 0.80$ ).

**Emotional reactions** Emotional reactions were measured with two items. We asked about the extent to which reading the report on demographics made the participants feel angry, scared, and happy ("happy" was used as a filler item). The two negative emotional reactions, although highly correlated,  $r(492) = .72$ ,  $p < .001$ , were treated as separate predictors.

## 4.2 | Results

Means and standard deviations (for the experimental and control groups) and correlations between variables are presented in Table 3.

The experimental and control groups did not differ in their endorsement of zero-sum and positive-sum beliefs. The experimental manipulation did not affect participants' willingness to engage in system-challenging or system-supporting collective action ( $ps > .23$ ). However, it affected the experience of fear and anger—White American participants reminded of the changing demographics in the U.S. experienced more fear and more anger than those reading about the current racial make-up of their country.

As expected, zero-sum beliefs were negatively correlated with White Americans' willingness to support system-challenging collective action and positively correlated with their willingness to support system-supporting collective action. They were also positively related to reporting negative emotional reactions. By contrast, positive-sum beliefs were positively related to intentions to support system-challenging collective action and negatively related

**TABLE 3** Means, standard deviations, comparisons between experimental and control groups, and correlations between variables in Study 3

	Control M (SD)	Experimental M (SD)	t(492)	d	1.	2.	3.	4.	5.	6.
1. Zero-sum beliefs	2.51 (1.41)	2.72 (1.52)	-1.59	0.14	—	-.69***	-.60***	.48***	.54***	.55***
2. Positive-sum beliefs	5.55 (1.29)	5.49 (1.36)	0.51	0.05	-.72***	—	.65***	-.41***	-.38***	-.39***
3. System-challenging CA	3.72 (1.65)	3.56 (1.75)	1.20	0.11	-.45***	.51***	—	-.27***	-.30***	-.27***
4. System-supporting CA	3.32 (1.38)	3.29 (1.54)	0.18	0.02	.46***	-.39***	-.24***	—	.40***	.42***
5. Anger	1.54 (1.12)	1.96 (1.60)	-3.40**	0.30	.29***	-.35***	.02	.16**	—	.76***
6. Fear	1.53 (1.12)	2.24 (1.76)	-5.35***	0.48	.37***	-.39***	-.13*	.20***	.63***	—

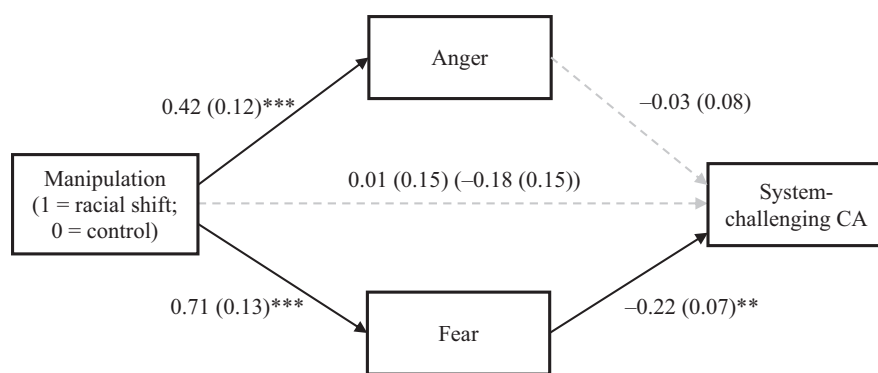
Note: Correlations in the experimental group are presented above and in the control group below the diagonal.

Abbreviation: CA = collective action.

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

**FIGURE 2** Mediation of the impact of the experimental manipulation (demographic racial shift vs. control) on support for system-challenging collective action via anger and fear. CA, collective action. \*\*\* $p < .001$ ; \*\* $p < .01$ 

Bootstrap estimates (95%CI) of indirect effects:

Manipulation → Anger → System-challenging CA:  $B = 0.01$ ,  $SE = 0.04$  (-0.10, 0.05)

Manipulation → Fear → System-challenging CA:  $B = 0.01$ ,  $SE = 0.04$  (-0.29, -0.06)

to support for system-supporting collective action as well as anger and fear.

#### 4.2.1 | Mediation models for system-challenging and system-supporting collective action

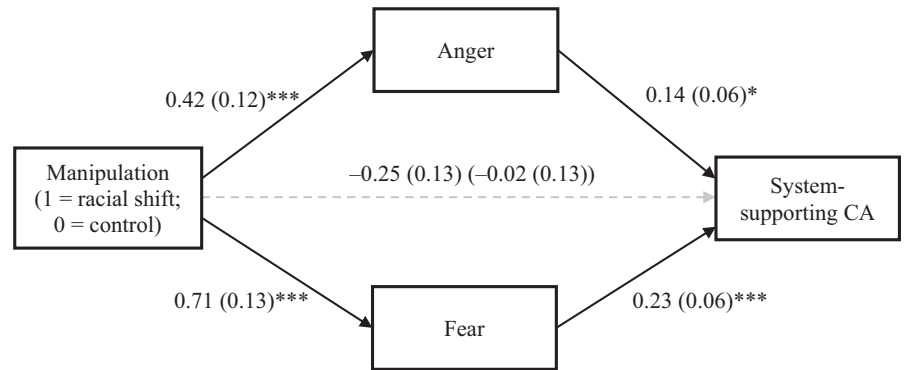
We conducted two mediation analyses separately for each type of collective action (Process 3.0, Model 4; Hayes, 2018) to test the hypothesis that the demographic racial shift leads White Americans to experience negative emotional reactions (fear and anger) and that negative emotions relate to more negative attitudes toward activities that may change the intergroup status quo (Hypothesis 4). The experimental condition was entered as an independent variable; anger and fear served as mediators while system-challenging

and system-supporting collective action served as dependent variables.

In the model for system-challenging collective action (see Figure 2) the experimental manipulation caused participants to experience more anger ( $B = 0.42$ ,  $SE = 0.12$ , 95% CI [0.18, 0.66]) and more fear ( $B = 0.71$ ,  $SE = 0.13$ , 95% CI [0.45, 0.97]). However, only fear mediated the association between the demographic racial shift manipulation and willingness to support system-challenging collective action,  $B = -0.16$ ,  $SE = 0.06$  (-0.29, -0.05). Specifically, reading about the demographic racial shift increased participants' fear and, in turn, decreased their intentions to support system-challenging collective action.

In the mediational model for system-supporting collective action, the effects of the experimental manipulation on the two mediators were identical to the previous model. Both mediators explained

**FIGURE 3** Mediation of the impact of the experimental manipulation (demographic racial shift vs. control) on support for system-supporting collective action via anger and fear. CA, collective action. \*\*\* $p < .001$ ; \* $p < .05$



Bootstrap estimates (95%CI) of indirect effects:

Manipulation → Anger → System-supporting CA:  $B = 0.06$ ,  $SE = 0.04$  (0.003, 0.15)

Manipulation → Fear → System-supporting CA:  $B = 0.15$ ,  $SE = 0.05$  (0.07, 0.30)

the influence of the experimental manipulation on intentions to support system-supporting collective action: Increased anger ( $B = 0.06$ ,  $SE = 0.04$ , 95% CI [0.0002, 0.14]) and increased fear ( $B = 0.16$ ,  $SE = 0.06$ , 95% CI [0.06, 0.28]) caused by reading about the demographic racial shift increased willingness to engage in system-supporting collective action (see Figure 3).

#### 4.2.2 | Moderated mediation models for system-challenging and system-supporting collective action

We conducted four analyses of moderated mediation (Process 3.0, Model 7; Hayes, 2018) to test Hypothesis 5, that zero-sum and positive-sum beliefs moderate the effects of the demographic racial shift manipulation on intentions to support system-challenging and system-supporting collective action via the experience of negative emotions. As there was no moderation of the influence of the experimental manipulation on anger ( $B = 0.14$ ,  $SE = 0.09$ , 95% CI [-0.31, 0.03]) or fear ( $B = -0.17$ ,  $SE = 0.09$ , 95% CI [-0.35, 0.13]) by positive-sum beliefs, we only report the analyses for zero-sum beliefs (see Figures 4 and 5).<sup>8</sup>

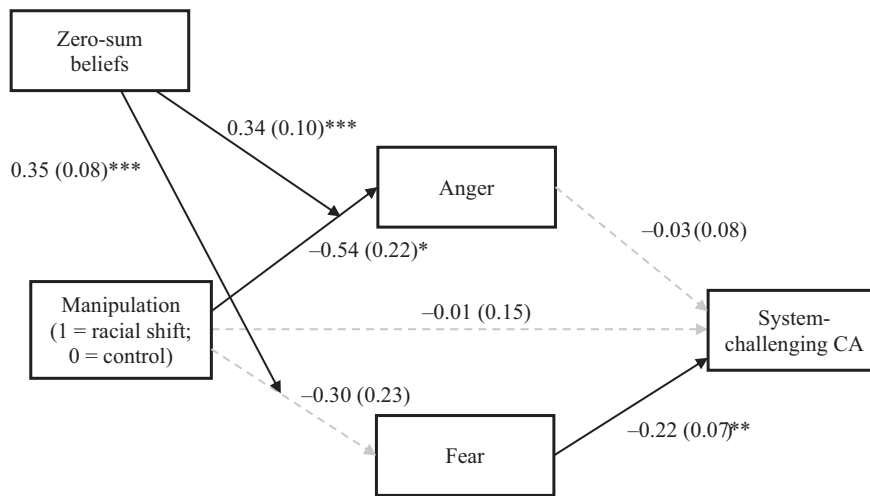
Zero-sum beliefs moderated the effect of the experimental manipulation on anger ( $B = 0.34$ ,  $SE = 0.08$ , 95% CI [0.19, 0.48]) and fear ( $B = 0.35$ ,  $SE = 0.08$ , 95% CI [0.19, 0.50]). Specifically, reading about the racial demographic shift increased anger among people who moderately ( $B = 0.33$ ,  $SE = 0.10$ , 95% CI [0.12, 0.55]) and highly ( $B = 0.83$ ,  $SE = 0.16$ , 95% CI [0.52, 1.31]) endorsed zero-sum beliefs, but not among those with low levels of such beliefs ( $B = -0.16$ ,  $SE = 0.16$ , 95% CI [-0.46, 0.15]). Similarly, participants who were moderate ( $B = 0.61$ ,  $SE = 0.12$ , 95% CI [0.38, 0.83]) or high ( $B = 1.12$ ,

$SE = 0.16$ , 95% CI [0.80, 1.44]), but not low ( $B = 0.10$ ,  $SE = 0.16$ , 95% CI [-0.22, 0.42]), in zero-sum beliefs experienced greater fear when made aware of the shifting racial demographics. Anger did not mediate the effect of the experimental manipulation on system-challenging (index of moderated mediation  $B = -0.01$ ,  $SE = 0.03$ , 95% CI [-0.08, 0.04]) or system-supporting ( $B = 0.05$ ,  $SE = 0.03$ , 95% CI [-0.002, 0.11]) collective action; fear was a significant mediator for both dependent variables (indices of moderated mediation:  $B = -0.08$ ,  $SE = 0.04$ , 95% CI [-0.16, -0.02] and  $B = 0.08$ ,  $SE = 0.03$ , 95% CI [0.03, 0.46], respectively). In particular, it was White Americans with moderate ( $B = -0.13$ ,  $SE = 0.05$ , 95% CI [-0.25, -0.04]) and high levels ( $B = -0.25$ ,  $SE = 0.10$ , 95% CI [-0.47, -0.07]) of zero-sum beliefs, but not those with low levels of such beliefs ( $B = -0.02$ ,  $SE = 0.03$ , 95% CI [-0.08, 0.04]) whose fear decreased their willingness to support system-challenging collective action. Similarly, system-supporting collective action was more likely to be endorsed by participants with moderate ( $B = 0.14$ ,  $SE = 0.05$ , 95% CI [0.06, 0.25]) and high ( $B = 0.26$ ,  $SE = 0.09$ , 95% CI [0.11, 0.46]) levels of zero-sum beliefs but not those who disagreed with these beliefs ( $B = 0.02$ ,  $SE = 0.03$ , 95% CI [-0.04, 0.09]) due to higher levels of fear that they experienced.

#### 4.3 | Discussion

Study 3 manipulated White Americans' awareness of the racial demographic shift and measured their experience of negative emotions as well as their support for system-challenging and system-supporting collective action. Although support for system-supporting and system-challenging collective action was unaffected by the experimental manipulation, when confronted with the possibility of losing their numerically dominant status, our participants reported greater anger and fear. Providing partial support for Hypothesis 4, the experimental manipulation exerted a positive indirect effect on system-supporting and a negative indirect effect on system-challenging collective action via increased levels of fear.

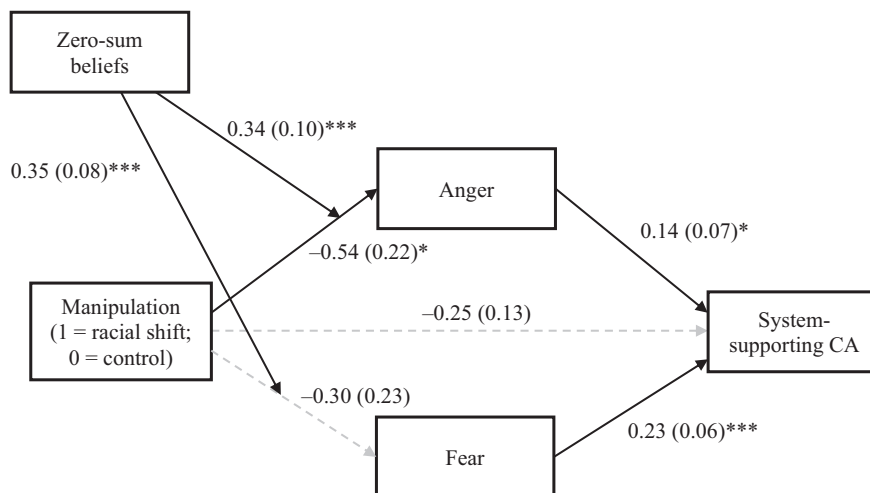
<sup>8</sup>Appendices S3 and S4 report the effects of the experimental manipulation on anger and fear when simultaneously moderated by zero-sum and positive-sum beliefs (Appendix S3, Tables D and E). We also tested moderated mediation in which both moderators were included simultaneously (Process 3.0, Model 9; Hayes, 2018). The effects resemble the reported analyses (see Appendix S4, Figures A and B). Specifically, while the manipulation and positive-sum beliefs had an interactive effect on anger ( $B = 0.23$ ,  $SE = 0.12$ , 95% CI [0.01, 0.46]), the index of moderated mediation via anger was not significant ( $B = -0.01$ ,  $SE = 0.02$ , 95% CI [-0.06, 0.04]).



**FIGURE 4** Moderated mediation of the impact of the experimental manipulation (demographic racial shift vs. control) on support for system-challenging collective action via anger and fear at levels of zero-sum beliefs. CA, collective action. \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

Bootstrap estimates of conditional indirect effects via anger and fear:

Zero-sum beliefs	Mediator	<i>B</i>	<i>SE</i>	95%LLCI	95%ULCI
Low	Anger	0.01	0.02	-0.03	0.05
Medium	Anger	-0.01	0.03	-0.09	0.04
High	Anger	-0.03	0.08	-0.20	0.10
Low	Fear	-0.02	0.03	-0.08	0.04
Medium	Fear	-0.13	0.05	-0.25	-0.04
High	Fear	-0.25	0.10	-0.47	-0.07



**FIGURE 5** Moderated mediation of the impact of the experimental manipulation (demographic racial shift vs. control) on support for system-supporting collective action via anger and fear at levels of zero-sum beliefs. CA, collective action. \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

Bootstrap estimates of conditional indirect effects via anger and fear:

Zero-sum beliefs	Mediator	<i>B</i>	<i>SE</i>	95%LLCI	95%ULCI
Low	Anger	-0.02	0.02	-0.07	0.02
Medium	Anger	0.01	0.03	-0.002	0.12
High	Anger	0.03	0.08	-0.004	0.27
Low	Fear	0.02	0.03	-0.04	0.09
Medium	Fear	0.14	0.05	0.05	0.24
High	Fear	0.26	0.09	0.10	0.46

Following the results of Study 2, Study 3 treated measures of zero-sum and positive-sum beliefs as separate variables. Analyses of moderated mediation indicated that the indirect effects of the experimental manipulation on intentions to support both types of collective action via increased fear were only significant among White

Americans with medium or high levels of zero-sum beliefs (and not among those with low levels of zero-sum beliefs). Positive-sum beliefs did not moderate these effects.

Support for collective action has not been previously tested as an outcome variable in studies of the demographic racial shift.

Study 3 showed that in the face of such change, groups that benefit from the current system may be particularly unlikely to become allies. As expected, this strategy was especially pronounced among advantaged group members who moderately or strongly believed that any gains by disadvantaged groups must necessarily happen at the expense of their ingroup (i.e., those who endorsed zero-sum beliefs).

## 5 | GENERAL DISCUSSION

Across three studies, we examined the role zero-sum beliefs play in shaping advantaged group members' willingness to become allies of disadvantaged groups. Supporting Hypothesis 2, advantaged group members who endorsed zero-sum beliefs were more likely to oppose system-challenging and more willing to support system-supporting collective action. This effect emerged in three studies, conducted in two national and intergroup contexts.

Supporting Hypothesis 1, advantaged group members were more likely than disadvantaged group members to harbor zero-sum beliefs. However, this difference was moderated by ingroup identification. Highly identified advantaged group members were more likely than disadvantaged group members to perceive intergroup relations to be a zero-sum game. At the same time, disadvantaged and low-identified advantaged group members reported equal endorsement of these beliefs. Stronger zero-sum beliefs among the moderately and highly identified advantaged group members, in turn, were related to reduced intentions to engage in system-challenging collective action (Hypothesis 3).

Besides demonstrating that zero-sum beliefs are a function of ingroup identification, we also showed that advantaged group members who moderately or strongly endorsed zero-sum beliefs reacted with increased anger and fear when the racial demographic shift was made salient. Increased fear (but not anger) was related to lower willingness to support system-challenging and greater willingness to support system-supporting collective action. In other words, advantaged group members who perceived intergroup relations to be a zero-sum game and were reminded that they may become a numerical minority in their country felt scared, and this fear lowered their intentions to become allies (Hypotheses 4 and 5).

### 5.1 | Implications

The current research contributes to the literature in several ways. First, we show that perceived competition between groups in society (zero-sum beliefs) relates to advantaged group members' support for system-supporting and system-challenging collective action. Beliefs about the nature of competition between social groups seem like a natural predictor of attitudes toward activities that change or preserve the status quo. Yet, zero-sum beliefs have rarely been examined (see Bobo & Hutchings, 1996; Esses et al., 2001; Esses et al., 1998; Różycka-Tran et al., 2015; Ruthig, Kehn, Gamblin, Vanderzanden, &

Jones, 2017) and to our knowledge have only been used to understand willingness to engage in collective action in one previous study (Radke et al., 2018). We show that members of advantaged groups (ethnic Poles, White Americans) perceive intergroup relations to be a zero-sum game, particularly when they strongly identify with their ingroup. These beliefs are consistently and negatively related to intentions to become allies. Advantaged group members who endorse zero-sum beliefs also report negative emotional reactions when they perceive their advantage slipping away due to a change in the demographic make-up of their country.

Second, inspired by recent developments in collective action research (Jost et al., 2017; Osborne et al., 2019), we investigated willingness to support both system-challenging and system-supporting collective action (Studies 1 and 3). We found that, to the extent that people view intergroup relations as inherently antagonistic, advantaged group members are not only more likely to withhold assistance to the disadvantaged (i.e., not be allies) but also more likely to support activities that directly harm disadvantaged groups' interests by solidifying the status quo. Investigating both types of collective action allows for a more nuanced understanding of the dynamics of backlash against system-challenging collective action (e.g., the All Lives Matter movement) as well as advantaged group members' propensity to see themselves as victims of discrimination (Norton & Sommers, 2011; Payne, 2019).

Third, we tested whether fear and anger mediated the association between the racial demographic shift and system-challenging or system-supporting collective action. We found that zero-sum beliefs exacerbated negative emotional reactions to the racial demographic shift and that the resulting fear (but not anger) decreased advantaged group members' readiness to become allies. In this way, we demonstrated an additional, so far unexamined, outcome of the demographic racial shift (Craig & Richeson, 2014a, 2014b, 2017): a decrease in allyship intentions among the currently advantaged. We also provided evidence that fear undermines support for collective action (Miller, Cronin, Garcia, & Branscombe, 2009; Smith et al., 2008) and may, in fact, drive *opposition* to social change among the advantaged. This supposition is in line with research that demonstrates a link between fear and both avoidance of outgroups (Mackie et al., 2000) and uncertainty about the ingroup's future well-being (Cottrell & Neuberg, 2005).

Fourth, like Różycka-Tran et al. (2015), we found that positive-sum beliefs (Knack, 2005; Kriesberg, 2007) are not simply a reversal of zero-sum beliefs. Whereas those authors excluded positive-sum beliefs from their analyses, we discovered that they provided useful information. Specifically, advantaged group members were less likely to endorse positive-sum beliefs than disadvantaged group members. This discrepancy was the largest among highly identified advantaged group members and the smallest (but still significant) among low-identifiers. In addition, positive-sum beliefs mediated the effect of racial group membership on intentions to support system-challenging collective action. In the context of the racial democratic shift, however, positive-sum beliefs did not affect willingness to engage in either type of collective action.



## 5.2 | Limitations and future directions

Some limitation of the presented studies should be noted. First, we assessed intentions to support collective action rather than measuring actual engagement. This necessarily limits our conclusions to behavioral intentions rather than actual behavior. However, intentions to engage in a behavior are a reliable predictor of that behavior (Ajzen, 1991; Gollwitzer, 1999). Second, in Study 1 there were likely sexual minority participants (e.g., gay and lesbian people) in our sample who were asked about their attitudes toward their own group. Although this constitutes a limitation of the study, it should be noted that only 5% of the Polish population is estimated to be homosexual (Polish Sexological Association, 2016). Given the large sample size in Study 1, it is unlikely that the overall pattern of results would be significantly influenced by a handful of sexual minority participants. Moreover, the fact that Study 2 showed that the relations between zero-sum beliefs and collective action support are weaker for disadvantaged group members suggests that if we were able to only analyze data from heterosexual participants in Study 1, the associations that we found may have actually become stronger.

Third, anger did not predict collective action even though it is an established determinant of collective action (Jost et al., 2017; Tausch et al., 2011; Van Zomeren et al., 2008). One explanation is that we measured emotions in the specific context of the experimental manipulation ("How did the text make you feel?") rather than group-based or even system-based emotions, which are typically associated with collective action (see Jost et al., 2017; Osborne et al., 2019).

Fourth, we treated zero-sum beliefs as stable preferences rather than manipulating them. As a result, we do not provide causal evidence for the role of zero-sum beliefs in shaping willingness to become an ally. Różycka-Tran et al. (2015) argue that zero-sum beliefs are a social axiom—a generalized and abstract belief or expectation about the nature of the social or physical world (Bond, Leung, Au, Tong, & Chemonges-Nielson, 2004)—and not easily manipulated. Supporting this assertion, Esses et al. (2001) reported mixed results when attempting to change attitudes toward immigration via manipulating zero-sum beliefs.

These limitations point to avenues for future investigation. First, future research on these issues should be conducted in a variety of intergroup and cultural contexts and ideally measure collective action engagement rather than intentions to engage in collective action. Second, it would be beneficial to test whether zero-sum beliefs moderate group- and system-based emotions relevant for collective action. We measured anger and fear, but it would be interesting to investigate collective angst (Wohl, Squires, & Caouette, 2012), especially in the context of the racial demographic shift. Advantaged group members who feel that the very existence of their group is in danger (i.e., those experiencing collective angst) and who believe that intergroup relations are a zero-sum game may be particularly unlikely to become allies in order to protect their ingroup's vitality (Wohl, King, & Taylor, 2014). Third, because losses "weigh" more heavily than gains (Kahneman & Tversky, 1979) situations where a

disadvantaged group gains a lot (e.g., marriage equality, civil rights) and an advantaged group loses just a little may fuel the advantaged group's sense that "we are losing as much as they are gaining" and solidify zero-sum beliefs.

## 5.3 | Conclusion

Three studies provided strong empirical evidence for the role of perceived competition between groups in society (i.e., zero-sum beliefs) in shaping advantaged group members' attitudes toward collective action. The more the advantaged groups endorsed zero-sum beliefs, the less willing they were to become allies (i.e., declare support for system-challenging collective action and lack of support for system-supporting collective action). Zero-sum beliefs were particularly pronounced among highly identified advantaged group members and made them more sensitive to the racial demographic shift—a change in the intergroup status quo that may endanger their group's advantage. Taken together, the results suggest that there is predictive utility in assessing zero-sum and positive-sum beliefs alongside more objective characteristics of competitive intergroup situations to better understand the advantaged groups' allyship intentions.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

## ETHICS STATEMENT

This manuscript adheres to ethical guidelines specified in the APA Code of Conduct as well as respective national ethics guidelines. The research reported herein has been approved by the Institutional Review Boards at Loyola University Chicago and Carleton University.

## TRANSPARENCY STATEMENT

All materials and data (including items and scales collected, but not considered in the present research) as well as justification of sample sizes are publicly available via the Open Science Framework (OSF): <https://osf.io/dmr8y/>.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

**How to cite this article:** Stefaniak A, Mallett RK, Wohl MJA. Zero-sum beliefs shape advantaged allies' support for collective action. *Eur J Soc Psychol*. 2020;00:1–17. <https://doi.org/10.1002/ejsp.2674>