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Intergroup contact, outgroup knowledge and advantaged group collective action: can who you know and what you know promote social change?

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Some groups in society unjustly hold greater social, economic, and political power over others, placing some groups in more advantaged and others in more disadvantaged positions. One way to challenge group-based inequality and promote social change is through collective action (e.g., protests, petitions, advocating). Most often, disadvantaged group members engage in collective action. However, when advantaged group members engage in solidarity-based collective action, it can heighten a movement's momentum. Four motivators of collective action among advantaged (and disadvantaged) group members have been identified: identification with the cause, anger about injustice, morality, and group efficacy. We examined what precedes these motivations regarding White Canadians' collective action benefitting Indigenous communities and White Americans' collective action benefitting Black communities. We examined two potential antecedents of advantaged group collective action motivation, intergroup contact and knowledge about the outgroup. In both samples, intergroup contact and knowledge of the outgroup were consistently indirectly associated with collective action through identification with the cause as well as through identification with the cause and anger about injustice. Of the multiple forms of intergroup contact and knowledge examined, the strongest associations were observed for higher quality contact and knowledge of systemic racism. These results have implications for both theory and intervention.

KEYWORDS

collective action motivations, intergroup contact, racism, knowledge, Indigenous, Black, anger, efficacy

1 Introduction

Relations between different racial groups continue to challenge the global conscience of North America. In Canada, relations between Indigenous people and White people have been strained since colonisation. Systemic racism, individual discrimination and individual prejudice towards Indigenous people in Canada are not resolved (Truth Reconciliation Commission of Canada, 2015). Systemic racism towards Indigenous people includes overrepresentation in prison populations, poorer health outcomes, and overrepresentation in foster care compared to White groups. In the United States, Black people are overrepresented in U.S. prison populations (Bureau of Justice Statistics, 2021), have poorer

health outcomes (Chae et al., 2018) and are overrepresented in foster care (Berkman et al., 2022) compared to White groups. In both examples, systemic racism is country-wide and continues to this day. Systemic discrimination that harms Indigenous people is not limited to those in Canada, nor is systemic discrimination that harms Black people limited to the U.S. However, these are arguably the two most salient examples of racial group disadvantage within these two respective contexts.

Widespread social change addressing these disadvantages is sorely needed in both countries. How to bring about such social change is a complex question. One possible response is collective action: behaviours taken on behalf of a group aimed to benefit that group. Collective action has been used as a tool to reduce group inequality and discrimination and increase awareness of social injustice (Agostini and van Zomeren, 2021). Collective action is most often undertaken by disadvantaged group members (e.g., in these contexts, Indigenous and Black people) (Kutlaca et al., 2022). However, when advantaged group members (e.g., in these contexts, White people) partake in collective action, it can help the movement gain traction (Thomas and Louis, 2014). In this research, we investigated the advantaged group motivations to participate in collective action aimed to benefit racialized groups. In particular, we examined White motivations to participate in collective action aimed to benefit Indigenous people in Canada in Sample 1, and White motivations to participate in collective action aimed to benefit Black people in Sample 2.

Collective action is a set of behaviours that are intended to benefit a group, whether your own or another group. Collective action can be status quo supporting causes like Brexit or Blue Lives Matter (Nassar, 2021), more commonly supported by those on the political right (Jost et al., 2008). Collective action can also challenge the status quo, which is more commonly supported by those on the political left. When collective action effectively challenges the status quo, social change may result in rewritten policy or attitude and belief change (Louis, 2009). The "I Have a Dream" speech by Martin Luther King Jr., was an example of collective action disrupting the status quo. King's speech inspired Black and White people alike to unite under a common cause (Louis, 2009). We chose to adopt the restricted definition of collective action: actions aimed at challenging the status quo and benefiting a socially disadvantaged group (Agostini and van Zomeren, 2021). Given our interest in actions that support the disadvantaged group, we examined collective action that challenges the status quo and aims to benefit groups enduring social inequality: Indigenous and Black people.

Status quo challenging collective action is often undertaken by disadvantaged group members (Kutlaca et al., 2022); however, advantaged group members may also join. When advantaged group members join in collective action, it is known as solidarity-based collective action. Solidarity-based collective action can help a movement gain traction (Thomas and Louis, 2014), potentially because advantaged group members are more easily convinced to change by other advantaged group members (Gulker et al.,

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Abbreviations: SDO, Social Dominance Orientation; RWA, Right-Wing Authoritarianism; CA, Collective action.

2013; Rasinski and Czopp, 2010). For example, when a White person confronts a White person about their prejudiced remark, the person receiving the feedback is more likely to feel guilt or self-disappointment, feelings that are conducive to prejudice reduction. However, if it was a non-White person doing the confronting, the same feelings may not occur, and the confronter may be viewed as relatively rude or hypersensitive (McCarthy and Zald, 1977; Smith and Tyler, 1996). We focused on advantaged group member or solidarity-based collective action, specifically, White peoples' collective action aimed at benefiting Indigenous or Black people.

We examined what motivates solidarity-based collective action in North America, specifically in Canada and the United States. A recent meta-analysis on the "dual chamber model of collective action" found advantaged group member collective action intentions associated with four main motivators: social identification with the cause, moral convictions and perceived violations of morality, perceptions of injustice and perceptions of the effectiveness of collective action to achieve social change (Agostini and van Zomeren, 2021). It was found that identity and morality (conceptualised as two chambers of a protester's beating heart) uniquely and moderately predict collective action. They suggest that people may develop their politicised identity based on their moral convictions and their moral convictions may become stronger with increased politicised identity. Injustice and efficacy appeared as downstream predictors of identity or morality, with the relationships between both identity and collective action as well as morality and collective action mediated by both injustice and efficacy (Agostini and van Zomeren, 2021). Of the motivators they examined, they found that for identity, politicised or opinion-based group identities were more strongly supported; for injustice, anger at injustice was most strongly supported; for efficacy, group-based effectiveness was most strongly supported; and for morality, moral conviction was the strongest motivator for collective action. We built on this work and investigated if these motivations are associated with collective action in two contexts. Additionally, we expanded on the literature, by examining a remaining question: what are the antecedents to these collective action motivations? We focused on two potential answers: intergroup contact and knowledge of the disadvantaged group.

Intergroup contact, that is, contact between different social groups, has been researched for decades, with many studies showing a reliable association between intergroup contact and prejudice reduction (Pettigrew et al., 2011; Pettigrew and Tropp, 2006). As contact with outgroup members increases, prejudice towards outgroup members decreases. This relationship has been widely tested under Allport's (1954) intergroup contact theory. Although promoting more positive intergroup attitudes and reducing prejudice is important, in many intergroup contexts, more is needed. Researchers are now asking whether intergroup contact also promotes behaviour and/or behavioural intentions, such as collective action (e.g., Hässler et al., 2021; MacInnis and Hodson, 2019). Tropp and Dehrone (2023) argued that understanding both prejudice reduction and promoting group equality ought to be done in tandem.

In addressing Tropp and Dehrone's call, there are limitations to be recognised whereby intergroup contact does not always promote less prejudice (e.g., see Lai et al., 2016; Paluck et al., 2017, 2021). In

their original contact hypothesis, Allport (1954) acknowledged that not all instances of intergroup contact lead to prosocial outcomes. Negative intergroup contact (e.g., that involving conflict) can lead to greater prejudice (Barlow et al., 2012; MacInnis and Page-Gould, 2015). Initial or "early" intergroup contact also does not reliably predict decreased prejudice. MacInnis and Page-Gould (2015) propose a model whereby the quantity and/or quality of intergroup contact needs to reach a certain threshold before contact may begin to reduce prejudice. Typically, when we see associations between heightened intergroup contact and reduced prejudice, we are looking at established (not new) intergroup contact (MacInnis and Page-Gould, 2015). Allport (1954) suggested if four "positive factors" were present during contact, prejudice would be reduced. These factors included: equal status of the groups; common goals; intergroup cooperation; and support of authorities, law or custom. Pettigrew and Tropp (2006) found that while the four factors were not necessary for intergroup contact to reduce prejudice, the reduction in prejudice was stronger when these factors were present. This suggested that higher quality contact, such as cross-group friendships (e.g., interracial friends), where many of these conditions are met, may be more strongly associated with prejudice reduction. Meta-analytic evidence indeed supports that cross-group friendship is more strongly associated with prejudice reduction than low-quality intergroup contact, or even positive but non-friendship contact (Pettigrew et al., 2011; Pettigrew and Tropp, 2006). This may account for some of the mixed findings in the literature on intergroup contact. That is, many studies may be examining new or superficial intergroup contact rather than ongoing close relationships. It may be the case that the association between intergroup contact and collective action will be stronger for higher-quality contact or contact in the form of cross-group friendship.

Higher-quality intergroup contact in the form of cross-group friendship may have several advantages in predicting increased collective action intentions. Cross-group friendship not only is more likely to reach the contact threshold, but it may also provide greater opportunities for recognising group disparities, fostering moral acceptance and social inclusivity (Hässler et al., 2021; MacInnis and Hodson, 2019). When advantaged group members interact with disadvantaged group members and view group disparities as illegitimate, they are more likely to be involved in collective action (Hässler et al., 2021). A cross-group friendship may increase the opportunity for discussion of group inequalities, as an advantaged group member is more likely to discuss group similarities, whereas a disadvantaged group member is more likely to discuss group discrepancies. That is, cross-group friendships can expose the advantaged group member to group inequalities. Advantaged group members adopting the perspective of the disadvantaged group members allows advantaged group members to feel more morally accepted. Lastly, cross-group friendship may create a sense of social inclusivity, where advantaged group members feel closer and could promote solidarity with disadvantaged groups. We therefore examined cross-group friendship to test for potential associations with solidarity-based collective action intentions. We also separately examined more general intergroup contact quantity and quality, given that very little research compares different

forms of intergroup contact as associated with collective action. To summarise, cross-group friendship is expected to be strongly associated with collective action, but similar associations could be observed with other forms of intergroup contact as well.

Intergroup contact is typically associated with increased collective action participation of advantaged group members, but the relationship between intergroup contact and collective action support is mixed for disadvantaged groups (Dixon and McKeown, 2021; MacInnis and Hodson, 2019). There is reason to expect, then, that in the context we are interested in, increased intergroup contact would be associated with greater collective action intentions for White people, but not necessarily for Indigenous or Black people. Intergroup contact often predicts lower collective action support for disadvantaged group members due to perceptions of group inequality—that would otherwise fuel collective action motivation—being muted by developing positive evaluations of the advantaged group (Cakal et al., 2011; Dixon and McKeown, 2021; Smith et al., 2012; Wright, 2001; Wright and Lubensky, 2009). The relationship between intergroup contact and collective action motivation or participation is more reliable for solidarity-based collective action (Becker et al., 2013).

We were interested in whether and how intergroup contact is associated with collective action through the established collective action motivators described above (i.e., identification with the cause, perceptions of injustice and group efficacy) (Agostini and van Zomeren, 2021). Given that these seem to be the more direct motivators of collective action, it may be that intergroup contact influences collective action by influencing these motivators. In this way, intergroup contact may be an antecedent of collective action motivators. We also considered the role of morality, but it was not expected that intergroup contact influences collective action through morality. Potential links between collective action motivations and intergroup contact have not been widely tested in diverse populations; thus, it is an opportune time to investigate them in two North American contexts.

Existing research indeed demonstrates ties between intergroup contact and identification with a disadvantaged group's cause, which in turn promotes greater collective action support. Reimer et al. (2017) found that if intergroup contact was positive between heterosexual (advantaged group) and sexual-minority students (disadvantaged group), collective action increased. In their sample, increased collective action intentions were achieved through increased perceived group identification and perceived discrimination. They found that with increased contact between groups, heterosexual individuals identified more strongly with sexual-minority causes and expressed more collective action intentions. Cakal et al. (2011) found similar results in their studies in South Africa. The advantaged group's collective action intentions increased with greater intergroup contact, through greater identification with the cause. Thus, there was reason to expect that intergroup contact in the current study would be associated with heightened identification with the cause, and in turn with heightened collective action intentions.

Intergroup contact could also influence collective action intentions by stimulating feelings of anger. Marinucci et al. (2022) conducted studies investigating collective action intentions to benefit disadvantaged migrants in Europe. They found that if

contact increased for advantaged group members, they were more likely to express collective action intentions via emotional feelings such as anger. However, importantly, their measure of anger was interpreted as a reduction of anger at migrants rather than anger at injustice towards a disadvantaged group.

Hässler et al. (2021) proposed an Integrated Contact Collective Action Model (ICCAM), which suggests when advantaged group members have intergroup contact and perceive group differences as illegitimate, their collective action engagement may increase. If advantaged group members view group disparities as unfair, they may experience a need to reduce the disparity between the two groups. Additionally, when advantaged group members adopt the inequality perspective of the disadvantaged group, advantaged group members feel more warm, trustworthy and moral when interacting with the disadvantaged group. Adopting the perceptions of illegitimate group disparities may relate to feelings of anger at injustice experienced by disadvantaged group members. Lastly, advantaged group members can develop negative attitudes towards ingroup members, as group inequality is recognised and condemned (MacInnis and Hodson, 2019). Harbouring a generally negative attitude towards one's group may be associated with feelings of anger at injustice, as group inequality is made more salient through intergroup contact. In line with ICCAM, we investigated whether higher intergroup contact is associated with greater levels of identification with the cause and anger at injustice.

Another established motivator of collective action is morality; we examined whether and how intergroup contact is associated with collective action and other motivators (identification, anger, efficacy). We simultaneously examined whether and how morality is associated with collective action and the other motivators. This allowed us to examine where intergroup contact is situated within the existing model of collective action motivation established by Agostini and van Zomeren (2021).

Collective action is often politicized, and our focus on status quo disrupting action means that being left-leaning is likely associated with greater support of collective action in the examined contexts. Thus, morality was represented by two ideological measures. The first, Right-Wing Authoritarianism (RWA), is a measure of relatively conservative ideology tapping into the endorsement of traditional values and submission to authorities (Altemeyer, 1981). The second measure, Social Dominance Orientation (SDO) represents a relatively conservative ideology that favours social hierarchies (Ho et al., 2015; Pratto et al., 1994). Both are positively correlated with prejudice and have a reliable negative relationship with collective action, as they are status quo supporting ideologies (Kearns et al., 2020; Mirisola et al., 2007; Weiner and Federico, 2017). Choma et al. (2020) tested relationships between RWA, SDO and collective action. They found that both RWA and SDO were negatively associated with collective action support regarding addressing inequitable race relations. This was mediated by fear-based threats and reduced empathy (Choma et al., 2020). Given that we were interested in morality as a motivator of increased collective action, we considered the inverse of this negative relationship; we interpreted RWA and SDO as reverse scores where lower RWA indicated increased morality and lower SDO indicated increased morality.

Lower RWA and SDO serve as proxies for morality in this work, in line with theoretical underpinnings of both as different "pieces" of authoritarianism [i.e., dominance (SDO) and submission (RWA)] (Hodson et al., 2017). The two parts of authoritarianism are considered by some as moral intuitions or orientations, and evidence ties both RWA (and SDO, but less strongly) to moral concerns about ingroup loyalty, authority, and purity, and ties SDO to moral concerns about (lower) fairness and harm avoidance (see Kugler et al., 2014).

As noted above, morality, as measured by RWA and SDO, would not typically be predicted by intergroup contact. That is, engaging in intergroup contact should not change one's responses to RWA or SDO scales. However, those lower (higher) in RWA or SDO would be more (less) likely to engage in intergroup contact in the first place (Duckitt and Sibley, 2007). Although we were interested in understanding the causal chain by which intergroup contact and collective action motivators influence collective action, our study was correlational. Thus, we did not hypothesise a relationship between intergroup contact and RWA or SDO (see Figure 1), but we recognise that these correlational associations may be observed, given that RWA and SDO are antecedents of intergroup contact. Overall, we were interested in how intergroup contact is associated with collective action in the context of two North American samples, but to fully understand these relations, we also tested if morality operationalized as RWA and SDO, was associated with collective action, either directly or through anger at injustice or group efficacy.

What about group efficacy? Although we are not aware of any research directly testing associations between intergroup contact and group efficacy, we included efficacy in the study, given that it is an important motivator of collective action. We anticipated that intergroup contact would predict increased efficacy indirectly through identification, given well-established associations between identification and efficacy (Agostini and van Zomeren, 2021).

Although there is strong support for associations between positive intergroup contact and collective action intention, less work identifies associations between outgroup knowledge and increased collective action intentions. Increasing knowledge of the disadvantaged outgroup is an alluring social justice tool, especially for the disadvantaged group. Sharing knowledge does not have to be done in person or by the disadvantaged group member directly. Disadvantaged group members can be labelled negatively by advantaged group listeners, as complainers or ungrateful when speaking out against injustice. Knowledge of injustice can be shared to a wide audience through social media and other public spaces. Critical historical knowledge of a harmed outgroup is associated with increased empathy and privity for the outgroup (Neufeld et al., 2022). Privity in this context was the extent to which historical harm is attributed to the current social disadvantage of the outgroup. Hässler et al. (2021) integrated intergroup contact model acknowledged the importance of increasing knowledge of the disadvantaged group. The authors suggested that advantaged group members who are more knowledgeable about disadvantaged group inequities, have lower system justification perceptions and may be more receptive to talking about power imbalances. This can further increase intentions to promote social justice and possibly collective action. Furthermore, the authors suggested advantaged
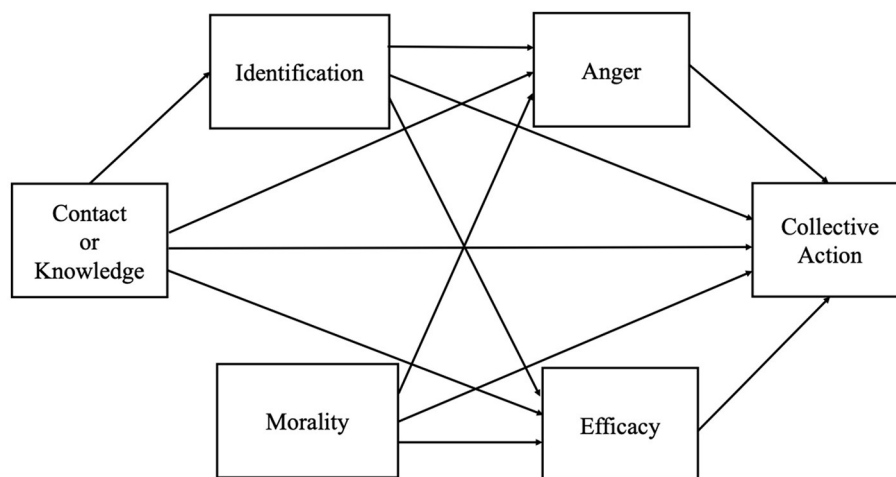
FIGURE 1
Proposed associations between antecedents, motivations and collective action. Multiple forms of contact (i.e., quantity, quality, cross-group friendship), knowledge (i.e., self-report, factual, isolated racism, systemic racism), morality (i.e., SDO, RWA), and collective action (i.e., normative and non-normative) were assessed.

group members' perceptions of systemic injustices as potential moderators of the relationship between contact and collective action. We, however, measured knowledge as a distinct association with collective action, not contingent on intergroup contact.

Although there may be limited research testing associations between knowledge and collective action, there is a theoretical connexion between knowledge and social identification. When investigating the origins of prejudicial attitudes, researchers have found that knowledge can both enhance and diminish prejudice and do so by developing a social identity (Rutland and Killen, 2015). Children do not automatically show prejudice towards outgroups, rather, they appear to build up social knowledge and social-cognitive abilities by attending to ingroup norms. This social knowledge does not necessarily lead to prejudice, it seems that children's identification with their group or their social identity at least in part are responsible for prejudiced attitudes (Nesdale and Flesser, 2001; Rutland and Killen, 2015). Overall, general social knowledge informs social identities. We extend this idea, suggesting that knowledge about an outgroup that is disadvantaged may lead to social identification with the cause of pushing against that disadvantage.

Knowledge of the disadvantaged group may also relate to anger at injustice. Knowledge of intergroup harm is associated with affective reactions of the unharmed group. Imhoff et al. (2013) found that when advantaged group members were exposed to historical knowledge of genocide and its ongoing negative consequences, they felt collective guilt—a negative yet prosocial feeling of responsibility that acknowledges their ingroup's harm towards another group. However, collective guilt was undermined when advantaged group members did not perceive the present-day consequences of the harm. Knowledge of historical harms was also associated with support for reparations for the disadvantaged group. This work suggests that knowledge about the outgroup, especially knowledge that makes it clear that group injustice presently has an impact may promote anger at injustice.

As humans develop a sense of fairness in the early stages of life, equality emerges, and morality is formed. However, this sense of morality seems to appear around when children are forming social identities and potential prejudices. It is used alongside social knowledge to evaluate social events (Rutland and Killen, 2015) rather than social knowledge leading to changes in moral judgements. Although knowledge of the outgroup is an antecedent in our model, we did not expect it to be directly associated with morality, given that morality is quite entrenched in adulthood and influences social judgments not as a result of, but alongside, knowledge.

At this time, we are unaware of studies that have found knowledge of the disadvantaged group and its associations with group efficacy or feelings that a social movement will be effective at creating change. Knowledge of injustices endured by the disadvantaged group may increase perceptions of efficacy as an individual is more hopeful of change. Or it could be that efficacy is more of a dynamic process by which hearing others talk about injustice, can lead to feelings that a social movement is not a solitary venture.

Knowledge of the disadvantaged group and intergroup contact are associated with less prejudice, which may be associated with collective action as well. Knowledge of groups disadvantaged by religion or ethnicity is a reliable predictor of reduced negative attitudes (Allport, 1954; Mansouri and Vergani, 2018; Pettigrew and Tropp, 2008). There are several different forms of knowledge one can hold about an outgroup, however. Past research has examined factual knowledge (e.g., knowledge of legislation that forced segregation of Black people to mostly poor neighbourhoods in the United States) and self-report (e.g., self-described knowledge of another group culture) knowledge. Factual knowledge of Muslims was associated with more positive attitudes towards Islam, but self-report knowledge was associated with less positive attitudes. It may be that those who report high self-report knowledge are biased; these are dogmatic and prejudiced

individuals who believe they are experts, even in the absence of facts (Mansouri and Vergani, 2018). We included both self-report knowledge and factual knowledge of the disadvantaged group to explore possible antecedents of collective action.

Another form of knowledge about a disadvantaged racial group is knowledge about racism. Many in the U.S. and Canada choose to disregard, minimise or deny racism and the group disparities resulting from it (e.g., Dovidio et al., 2002; Nelson, 2010). It may be, however, that greater knowledge of racism may be a driver of social change. Nelson et al. (2013) (Bonam et al., 2019) found that if they increased knowledge of historical systemic racism, perceptions of racism increased in White participants. The implication of this is that learning critical history helps increase understanding of racism in the present. This may extend to identification, anger, and desire to take action. We examined both perceptions of isolated racism (i.e., perception of an interpersonal event of racism towards an individual) and systemic racism (i.e., racism enacted by an institution), expecting that these may be associated with collective action motivators and intentions.

Collective action can also be categorised based on the type of behaviour enacted. For example, collective action can be behaviours that fall within the realm of acceptable social norms; this is known as normative collective action (e.g., legal protest; Tausch et al., 2011). In contrast, collective action that violates social norms is non-normative collective action (e.g., hacking an election; Tausch et al., 2011). Either type of collective action can be violent or peaceful. Both normative and non-normative collective action have been documented in Canada and the United States. An example of normative collective action in the current context is the Every Child Matters protests in Canada or the Black Lives Matter protests throughout the U.S. (Allam et al., 2021; Deer, 2021). North America has also witnessed non-normative collective action, such as the unsanctioned removal of statues that symbolise colonialism in Canada and symbols of confederacy in the United States (2 Statues Of Queens Toppled at Manitoba Legislature, 2021; Benjamin et al., 2020; Kennedy, 2022). We investigated both normative and non-normative collective action intentions.

Motivations may be associated differently across collective action types. Recall that collective action can be organised into normative (societally accepted) and non-normative (societally violating) collective action. Tausch et al. (2011) found that motivations for collective action can differ by type. They found that feelings of anger and feeling that a movement is effective at evoking social change (i.e., efficacy) predicted normative collective action rather than non-normative. One might think, intuitively, that there ought to be a link between anger and non-normative or more violent forms of collective action. However, Tausch et al. suggest that if anger acknowledges injustice and aims to uphold moral standards, it can function as a constructive emotion. The connexion with efficacy may also not be intuitive. They suggest that efficacy is associated with normative collective action as individuals believe their actions are effective at encouraging social change. However non-normative collective action appears to be reserved for more desperate conditions when feelings of efficacy are low. In the current study, we measured both types of collective action.

Strained intergroup relations are unlikely to spontaneously mend. Collective action recognising and pushing back against social inequalities remains an optimistic option to improve social outcomes. Collective action can be an effective tool for reducing the normative nature of prejudice and improving attitudes towards disadvantaged people (Louis, 2009). In some instances, collective action has led to policy change, such as the renaming of Ryerson University to Toronto Metropolitan (Allam et al., 2021), or the Civil Rights Act of 1964 which prohibited discrimination based on race, colour, religion, sex or national origin Legal Highlight, effectively striking down Jim Crow laws, which both occurred in response to protests. Understanding solidarity-based collective action of advantaged White group members may prove a useful tool for social change.

In the current study, we expand on the dual chamber model of collective action motivation to examine antecedents of the motivations established in the model, for advantaged group members. Relationships between (a) intergroup contact and collective action, and (b) motivators of advantaged group member collective action have been established (e.g., Agostini and van Zomeren, 2021). We built on this work by examining associations of intergroup contact with collective action motivators, and also tested knowledge as another possible antecedent, in contexts where advantaged group members' collective action is sorely needed.

We expected the antecedents (intergroup contact or knowledge) to be associated with heightened identification with the cause, anger at injustice, group efficacy, and collective action. We hypothesised that identification with the cause would correlate with increased anger at injustice and increased group efficacy. We expected identification with the cause, anger at injustice and group efficacy would be linked with increased collective action intentions. We predicted morality operationalized as lower RWA or SDO to be associated with increased anger at injustice, group efficacy and collective action (Figure 1). We tested separate models representing intergroup contact as contact quantity, contact quality and cross-group friendship, and, we represented knowledge as self-report knowledge, factual knowledge, isolated racism knowledge and systemic racism knowledge. Finally, collective action was tested as normative and non-normative collective action separately for each association and model. For simplicity, we referred to collective action generally for most of the hypotheses and later specified normative and non-normative collective action associations. We hypothesised that the model appearing in Figure 1 would be supported. All hypotheses tested were pre-registered on As Predicted (https://aspredicted.org/638_LHS).

2 Materials and methods

2.1 Participants and procedure

An a priori power analysis (using G*Power, Faul et al., 2007) for a multiple regression fixed model with 12 predictors, α level of 0.05, and power of 0.80, determined that a sample size of 396 would be required to detect small-to-medium effects (Cohen's f^2 = 0.045). Recognising the possibility of missing/incomplete data or participants not meeting study inclusion criteria, we recruited 451 participants through Prolific Academic. Participants were paid £3 (equivalent to CAD4.65 for Sample 1 and USD3.86 for Sample

TABLE 1 Description of age, gender and ethnicity of sample 1 and sample 2.

Variables	Sample 1 (Canada)		Sample 2 (U.S.)	
	n	%	*n*	%
Overall	451	100	451	100
Age	*M* = 38.27	(*SD* = 13.04)	*M* = 43.65	(*SD* = 14.24)
Gender				
Male	174	38.58	213	47.23
Female	265	58.76	235	52.11
Non-binary	8	1.77	3	0.67
Not listed	4	0.89	0	0
Ethnicity				
Arab	3	0.67	2	0.44
Black	1	0.22	0	0
Chinese	0	0	1	0.22
Filipino	0	0	0	0
Indigenous	5	1.11	0	0
Japanese	0	0	1	0.22
Korean	0	0	1	0.22
Latin American	2	0.44	3	0.67
South Asian	0	0	0	0
Southeast Asian	0	0	0	0
West Asian	2	0.44	0	0
White/European	442	98.00	447	99.11
Other	2	0.44	4	0.89
Mixed Race	6	1.33	7	1.55

Although the study was only advertised to White participants, there were a few participants in each sample who did not identify as White. Of those who did identify as White (442 in Sample 1; 447 in Sample 2) most (but not all) identified as only White (436 in Sample 1, 441 in Sample 2). See text for results filtered by White identification.

2) for completing a 20-minute questionnaire. Using Prolific's pre-screening data, the studies were only advertised to White participants living in Canada (Sample 1) or the U.S. (Sample 2). See Table 1 for the age, gender and ethnicity of both samples. The study received ethics approval.

2.2 Materials

Participants completed the measures outlined below in the order they appear (see Supplementary material for measures).

2.2.1 Social dominance orientation

We used Ho et al.'s (2015) 16-item scale, with items measured on 1 (*strongly oppose*) to 7 (*strongly favour*) scales. After reverse scoring items as necessary, means were computed. Typically, items are reversed such that higher scores correspond to higher SDO, however, given our conceptualisation of SDO representing

morality, we coded it with higher scores indicating *lower* levels of SDO. A sample item is "An ideal society requires some groups to be on top and others to be on the bottom."

2.2.2 Right-wing authoritarianism

We used Zakrisson's (2005) 15-item scale, with items measured on 1 (*strongly disagree*) to 7 (*strongly agree*) scales. After reverse scoring as necessary, means were computed with higher scores indicating *lower* levels of RWA, as we did for SDO. A sample item is "Our forefathers ought to be honoured more for the way they have built our society, at the same time we ought to put an end to those forces destroying it."

2.2.3 Intergroup contact
2.2.3.1 Cross-group friendship

We assessed cross-group friendships using the Social Network Questionnaire (Smith, 2002). Participants were asked to name up to five of their closest friends. For each friend listed, participants were asked the friend's gender, ethnicity and questions about the friendship (e.g., length, closeness). We coded friendships as cross-group when participants listed their friend's ethnicity as different from their own. In Sample 1, given that our interest was in friendships with Indigenous people, we created a variable labelled "mere cross-group friendship" (based on Buliga et al., 2021), where participants with at least one Indigenous cross-group friendship were coded as "1" and those without any Indigenous cross-group friendships were coded as "0." In Sample 2, given that our interest was in friendships with Black people, mere cross-group friendship was coded "1" for those with at least one Black friend and those without any Black cross-group friendships were coded as "0."

Asking participants directly if they have an interracial friend has previously yielded inflated reports of cross-group friendships (Davies et al., 2011; Smith, 2002). Thus, we used an indirect method to measure cross-group friendships to address possible reporting bias.[1]

2.2.3.2 Contact quality

We used Islam and Hewstone's (1993) five-item scale, with items measured on scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). After reverse scoring as necessary, mean scores were computed with higher scores indicating higher contact quality. Participants rated their past interactions with Indigenous (Sample 1)/Black (Sample 2) people. A sample item is: "Our interaction was cooperative."

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1 We also measured "extended discrimination" (i.e., a participant witnessing or their friend disclosing an experience of discrimination) and tested whether this moderated the relationship between cross-group friendship and collective action. There was low variability on this item, and not surprisingly, the moderation pattern was not supported. Although we believe that witnessing or learning about discrimination plays a role in advantaged group collective action, we believe that further work is needed on the ideal means to measure this.

2.2.3.3 Contact quantity

We used Islam and Hewstone's (1993) five-item scale, with items measured on scales ranging from 1 (*none at all*) to 7 (*a great deal*). After reverse scoring as necessary, mean scores were computed with higher scores indicating higher contact quantity. A sample item is "How much contact have you had with Indigenous (Sample 1)/Black (Sample 2) people as neighbours?"

2.2.4 Identification with the cause

We created a four-item scale adapted from three existing measures (Cameron, 2004; Nassar, 2021; Thomas et al., 2019) with items measured on 1 (*strongly disagree*) to 7 (*strongly agree*) scales. After reverse scoring as necessary, mean scores were computed with higher scores indicating higher levels of identification with Indigenous (Sample 1) or Black (Sample 2) causes. A sample item is: "I see myself as a supporter of efforts to ensure that Indigenous (Sample 1)/Black (Sample 2) people are treated fairly and compensated for past actions."

2.2.5 Group efficacy

We used Nassar's (2021) three-item scale, with items measured on scales ranging from 1 (*strongly disagree*) and 7 (*strongly agree*). After reverse scoring as necessary, mean scores were computed with higher scores indicating higher levels of group efficacy. A sample item is: "I think together we are able to change the current situation for Indigenous (Sample 1)/Black (Sample 2) Peoples."

2.2.6 Anger at injustice

We used Selvanathan et al.'s (2018) 10-item scale, with items measured on scales ranging from 1 (*not at all*) to 9 (*extremely*). After reverse scoring as necessary, mean scores were computed with higher scores indicating higher levels of anger at injustice. A sample item is: "When thinking about the injustice Indigenous (Sample 1)/Black (Sample 2) peoples in Canada (Sample 1)/the United States (Sample 2) face/have faced what extent does it make you feel outraged?"

2.2.7 Knowledge measures
2.2.7.1 Self-report knowledge

We used a three-item scale to assess self-report knowledge of the outgroup adapted from Mansouri and Vergani (2018) and Zagefka et al. (2017). Participants reported how much they knew about Indigenous (Sample 1)/Black (Sample 2) people's history, language, and values on a seven-point scale from 1 (*very little knowledge*) to 7 (*a lot of knowledge*). Items were averaged with higher scores indicating more self-report knowledge.

2.2.7.2 Factual knowledge

We created a seven-item scale for this study to assess factual knowledge of oppression and enduring consequences of the disadvantaged social group. The scale was inspired by similar scales from previous work (Jiang et al., 2019; Nelson, 2010; Strickhouser et al., 2019). Six statements described a historical event or scientifically supported theory. A sample item is: "Indigenous

women who were "Status Indian" under their treaty rights, were not allowed full Canadian citizenship or allowed to vote until 1951." Participants reported how true they perceived each statement to be on a five-point scale from 1 (*definitely false*) to 5 (*definitely true*). Items were averaged after reverse scoring as needed with higher scores indicating greater factual knowledge.

2.2.7.3 Knowledge of isolated racism

We used Adams et al. (2006) and Nelson's (2010) five-item scale to assess perceptions of isolated racism. Items were vignettes of isolated racism such as, "Several people walk into a restaurant at the same time. The server attends to all the White customers first. The last customer served happens to be the only Indigenous (Sample 1)/Black (Sample 2) person." Participants reported how much they believed racism was involved in each vignette on a seven-point scale from 1 (*not at all*) to 7 (*certainly*). Mean scores were computed with higher scores indicating greater knowledge of isolated racism. We used the terms "Black person" in Sample 2 and "Indigenous person" in Sample 1, rather than "person of colour" as was described in the original scale.

2.2.7.4 Knowledge of systemic racism

We used Adams et al. (2006) and Nelson's (2010) nine-item scale for Sample 2. Items on the scale describe a state of affairs of systemic racism towards Black people in the United States such as, "The high rate of poverty of Black people in the United States." For Sample 1, we created a similar nine-item scale adapted from the Sample 2 scale but tailored to reflect the state of systemic racism towards Indigenous people in Canada (Government of Canada, 2022a; Government of Canada, Statistics Canada, 2022b; Paradies and Cunningham, 2008; Public Health Agency of Canada, 2018). A sample item is: "The high rate of poverty of Indigenous people in Canada." Participants reported how much they believed racism was involved in each description on a seven-point scale from 1 (*not at all*) to 7 (*certainly*). Mean scores were computed with higher scores indicating greater knowledge of systemic racism.

2.2.8 Collective action intentions

Collective action intentions were adapted from a political engagement scale (Imhoff et al., 2021). Participants responded to 14 items measuring normative collective action intentions on scales ranging from 1 (*not at all willing*) to 7 (*strongly willing*). While Imhoff et al. (2021) used anchors of 1 (*under no circumstances*) to 5 (*certainly*), we expanded the collective action scale to seven points and used anchors suggested by Nassar (2021). We adjusted the items to reflect the specific intergroup context relevant to each sample [i.e., Indigenous (Sample 1)/Black (Sample 2) people]. A sample item is: "I would attend peaceful demonstrations in support of the 'Every Child Matters' movement." Mean scores were computed, with higher scores indicating greater normative collective action intentions.

Participants also responded to 13 items measuring non-normative collective action intentions using the same response scales. A sample item is "I would refuse to pay taxes, fees or rents to weaken the system." Mean scores were computed, with higher scores indicating greater non-normative collective action intentions.

2.2.9 Attention checks

To reduce careless responses, three instructed response items were distributed through the survey, for example, "Please select strongly agree for this item." Past research suggests use of such items does not threaten scale validity (Kam and Chan, 2018; Kung et al., 2018). Participants were informed of the presence of attention cheques in the consent form.

3 Results

All participants passed all attention cheques and therefore were retained for analyses. Descriptive statistics are shown in Table 2 and bivariate correlations are shown in Table 3. Given that non-normative collective action was not normally distributed, with very few participants indicating non-normative collective action intentions, we focused our analyses on normative collective action (however, also see "Non-normative Collective Action" below).

3.1 Separate mediation models

3.1.1 Intergroup contact models
3.1.1.1 Cross-group friendship

In both samples, cross-group friendship was associated with greater identification with the cause [$\beta = 0.44$, $p = 0.018$ (S1); $\beta = 0.73$, $p < 0.001$ (S2)]. Greater identification with the cause was then associated with greater anger, efficacy, and collective action. Greater anger was associated with greater collective action. Morality was associated with greater anger and greater efficacy when represented by SDO. When represented by right-wing authoritarianism, morality was associated with more efficacy in both samples but only with more anger in Sample 1 and was also associated with greater collective action in Sample 1. See column 1 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, significant indirect effects of cross-group friendship on collective action were observed through two pathways: (1) identification with the cause alone, and (2) identification with the cause operating through anger. In Sample 1 only, there was a significant indirect effect of cross-group friendship on collective action through identification, operating through efficacy. These findings remained consistent irrespective of how morality was represented. See column 1 of Supplementary Tables 5, 7 for these results.

3.1.1.2 Contact quality

In both samples, contact quality was associated with greater identification with the cause [$\beta = 0.59$, $p < 0.001$ (S1); $\beta = 0.65$, $p < 0.001$ (S2)], morality [$\beta = 0.26$, $p < 0.001$ (S1; SDO); $\beta = 0.52$, $p < 0.001$ (S2; SDO); $\beta = 0.10$, $p < 0.001$ (S1; RWA); $\beta = 0.22$, $p < 0.001$ (S2; RWA)] and greater anger [$\beta = 0.20$, $p = 0.010$ (S1; SDO); $\beta = 0.26$, $p = 0.007$ (S2; SDO); $\beta = 0.23$, $p = 0.004$ (S1; RWA); $\beta = 0.34$, $p < 0.001$ (S2; RWA)]. Greater identification with the cause was then linked to higher levels of anger, efficacy, and collective action. Greater anger was associated with greater collective action. Morality was associated with greater anger (except Sample 2 with morality represented as right-wing authoritarianism) and greater efficacy. In Sample 1, morality was associated with greater collective action (regardless of how morality was represented).[2] In Sample 1, efficacy was associated with greater collective action. See column 3 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of contact quality on collective action through (1) identification with the cause alone, and (2) identification with the cause operating through anger, (3) anger alone, and (4) morality represented as SDO operating through anger. In Sample 1 only, there was a significant indirect effect of contact quality on collective action through (1) morality represented as SDO only, (2) identification with the cause operating through efficacy regardless of how morality was represented, and (3) morality operating through efficacy regardless of how morality was represented. See column 3 of Supplementary Tables 5, 7 for these results.

3.1.1.3 Contact quantity

In both samples, contact quantity was associated with greater identification with the cause [$\beta = 0.22$, $p < 0.001$ (S1); $\beta = 0.31$, $p < 0.001$ (S2)], morality represented as SDO only [$\beta = 0.08$, $p = 0.020$ (S1); $\beta = 0.11$, $p = 0.006$ (S2)] and collective action [$\beta = 0.15$, $p < 0.001$ (S1; SDO); $\beta = 0.12$, $p = 0.002$ (S2; SDO); $\beta = 0.15$, $p < 0.001$ (S1; RWA); $\beta = 0.13$, $p < 0.001$ (S2; RWA)]. Greater identification with the cause was then associated with greater anger, greater efficacy, and greater collective action. Greater anger was associated with greater collective action. Morality was associated with greater efficacy and collective action. When represented by right-wing authoritarianism, morality was not associated with more anger in Sample 2, but morality was associated with greater anger in the remaining models. Efficacy was associated with greater collective action except when morality was represented by RWA in Sample 2. See column 2 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of contact quantity on collective action through (1) identification with the cause alone, (2) identification with the cause operating through anger, and (3) morality represented as SDO operating through anger. In Sample 1 only, there was a significant indirect effect of contact quantity on collective action through (1) morality represented as SDO operating through efficacy, and (2) identification operating through efficacy, with morality as SDO and RWA. See column 2 of Supplementary Tables 5, 7 for these results.

3.1.2 Knowledge models
3.1.2.1 Self-report knowledge

In both samples, self-report knowledge was associated with greater identification with the cause [$\beta = 0.36$, $p < 0.001$ (S1); $\beta = 0.19$, $p = 0.004$ (S2)] and greater collective action [$\beta = 0.19$, $p < 0.001$ (S1; SDO); $\beta = 0.16$, $p < 0.001$ (S2; SDO); β

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2   The outlier filter removed any participants with responses that exceeded |3| standard deviations from the mean on any given variable. When the outlier filter was applied to Sample 1 (Canada) the contact quality and normative collective action model with morality represented as RWA, morality (RWA) lost statistical significance and is not directly associated with normative collective action, $p = 0.10$. When the outlier filter was applied to Sample 2 (the U.S.) the self-report knowledge and normative collective action model with morality represented by SDO, self-report knowledge lost statistical significance and is not directly associated with efficacy, $p = 0.65$.

TABLE 2 Descriptive statistics and comparison of means of sample 1 (Canada) and 2 (U.S.).

Variable	Sample	N	M	SD	Skewness	Kurtosis	df	t	p	d
Cross-group friendships	Canada	446	0.17	0.38	1.72	0.95	858.5	5.07[a]	0.001	0.14
	U.S.	448	0.32	0.47	0.78	−1.40				
Contact quantity	Canada	451	2.79	1.51	0.86	0.05	900	12.18	0.001	1.23
	U.S.	451	4.01	1.52	0.09	−0.81				
Contact quality	Canada	404	5.65	1.01	−1.17	1.80	848	3.72	0.001	0.25
	U.S.	446	5.90	0.95	−1.43	2.73				
Self-report knowledge	Canada	451	3.32	1.15	0.03	−0.41	886.9	13.21[a]	0.001	1.08
	U.S.	451	4.40	1.30	−0.21	−0.29				
Factual knowledge	Canada	451	5.43	0.83	−0.31	−0.28	900	0.60	0.55	0.03
	U.S.	451	5.47	0.82	−0.46	0.16				
Isol. racism knowledge	Canada	451	5.34	1.29	−1.09	1.17	900	−2.89	0.004	−0.26
	U.S.	451	5.08	1.38	−0.86	0.44				
Syst. racism knowledge	Canada	451	5.43	1.36	−0.82	0.10	868.8	−6.83[a]	0.001	−0.68
	U.S.	451	4.75	1.64	−0.45	−0.82				
Identification with the cause	Canada	451	5.44	1.48	−0.96	0.32	863.2	−3.91[a]	0.001	−0.43
	U.S.	451	5.01	1.83	−0.69	−0.63				
SDO	Canada	451	5.97	1.04	−1.13	0.67	860.9	−3.09[a]	0.002	−0.24
	U.S.	451	5.73	1.29	−1.07	0.61				
RWA	Canada	451	5.18	0.84	−0.51	0.29	776.6	−4.67[a]	0.001	−0.34
	U.S.	451	4.84	1.28	−0.30	−0.79				
Anger	Canada	451	6.43	1.93	−0.89	0.25	854.6	−4.87[a]	0.001	−0.71
	U.S.	451	5.71	2.44	−0.56	−0.79				
Efficacy	Canada	451	5.82	1.18	−1.29	1.89	802.0	−7.23[a]	0.001	−0.70
	U.S.	451	5.12	1.69	−0.85	−0.15				
Normative CA	Canada	451	4.28	1.51	−0.37	−0.69	883.2	−2.38[a]	0.018	−0.26
	U.S.	451	4.03	1.74	−0.09	−1.09				
Non-normative CA	Canada	451	1.29	0.66	3.79	19.50	790.8	2.23[a]	0.026	0.12
	U.S.	451	1.42	0.97	3.16	10.72				

SDO, Social Dominance Orientation; RWA, Right-Wing Authoritarianism; CA, collective action.

Note that of the 446 participants responding to the cross-group friendship question, 78 participants reported having at least one Indigenous cross-group friend; the remaining 368 had none.

Subscripts "a" indicate unequal variances, and t-values are reported based on adjusted degrees of freedom.

$= 0.18$, $p < 0.001$ (S1; RWA); $\beta = 0.17$, $p < 0.001$ (S2; RWA)]. In Sample 1, self-report knowledge was associated with greater morality when represented by RWA ($\beta = 0.09$, $p = 0.007$) and less efficacy [$\beta = -0.07$, $p = 0.031$ (SDO); $\beta = -0.10$, $p = 0.005$ (RWA)]. In both samples, greater identification with the cause was then associated with greater anger, greater efficacy, and greater collective action. Greater anger was associated with greater collective action. Morality (except in Sample 2 represented by right-wing authoritarianism), was associated with greater anger and greater efficacy. When morality was represented as right-wing authoritarianism, in both samples, greater morality was associated with greater collective action. In both samples, greater efficacy was associated with greater collective action. See column 4 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of self-report knowledge on collective action through (1) identification with the cause alone, and (2) identification with the cause operating through anger. In Sample 1 only, there was a significant indirect effect of self-report knowledge on collective action through identification with the cause operating through efficacy, regardless of how morality was represented. In Sample 1, when morality was represented as RWA, we found a significant indirect effect of self-report knowledge on collective action through (1) morality alone, (2) efficacy alone, (3) identification with the cause operating through efficacy, (4) morality operating through anger, and (5) morality operating through efficacy. See column 4 of Supplementary Tables 5, 7 for these results.

TABLE 3 Pearson's r correlations amongst variables included in all models sample 1 (Canada) unshaded and sample 2 (the United States) shaded.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Cross-group friendship	–	0.52**	27**	0.28**	0.06	0.11*	0.09	0.19**	0.07	0.03	0.16**	0.18**	0.23**	0.11*
	–													
2. Contact quantity	0.57**	(0.88)	0.44**	0.53**	0.14**	0.18**	0.13**	0.26**	0.13**	0.01	0.22**	0.21**	0.28**	0.13**
		(0.90)												
3. Contact quality	0.23**	0.40**	(0.78)	0.29**	0.28**	0.25**	0.27**	0.34**	0.39**	0.17**	0.34**	0.33**	0.31**	−0.05
			(0.77)											
4. Self-report knowledge	0.29**	0.54**	0.24**	(0.86)	0.16**	0.09	0.04	0.14**	0.02	−0.07	0.08	0.09	0.20**	0.16**
				(0.79)										
5. Factual knowledge	0.11*	0.15**	0.16**	0.32**	(0.62)	0.42**	0.46**	0.38**	0.44**	0.43**	0.38**	0.40**	0.37**	0.01
					(0.64)									
6. Isolated racism knowledge	0.03	0.12*	0.25**	0.10*	0.45**	(0.85)	0.66**	0.57**	0.47**	0.37**	0.51**	0.56**	0.47**	0.12**
						(0.83)								
7. Systemic racism knowledge	−0.01	0.09	0.24**	0.16**	0.48**	0.68**	(0.94)	0.76**	0.61**	0.66**	0.61**	0.78**	0.61**	0.20**
							(0.93)							
8. Identification	0.11*	0.22**	0.41**	0.28**	0.42**	0.46**	0.66*	(0.95)	0.59**	0.53**	0.67**	0.85**	0.69**	0.16**
								(0.94)						
9. SDO	0.03	0.11*	0.26**	0.09	0.36**	0.51**	0.61**	0.54**	(0.95)	0.60**	0.51**	0.65**	0.50**	0.01
									(0.93)					
10. RWA	−0.02	0.07	0.13*	0.13**	0.40**	0.38**	0.51**	0.34**	0.54**	(0.93)	0.40**	0.61**	0.44**	0.10*
										(0.85)				
11. Anger	0.02	0.14**	0.35**	0.14**	0.39**	0.52**	0.59**	0.63**	0.52**	0.36**	(0.97)	0.63**	0.61**	0.07
											(0.95)			
12. Efficacy	0.03	0.12**	0.30**	0.12**	0.38**	0.49**	70**	0.72**	0.56**	0.41**	0.58**	(0.87)	0.65**	0.12*
												(0.79)		
13. Normative CA	0.10*	0.28**	0.32**	0.29**	0.43**	0.48**	0.63**	0.67**	0.48**	0.38**	0.60**	0.60**	(0.96)	0.33**
													(0.95)	
14. Non-normative CA	0.06	0.16**	0.12*	0.17**	0.16**	0.16**	0.26**	0.24**	0.19**	0.17**	0.21**	0.17**	0.41**	(0.97)
														(0.92)

SDO, Social Dominance Orientation; RWA, Right-Wing Authoritarianism; CA, collective action.
N = 451–404. Cronbach's alphas appear on the diagonal where applicable. *$p \leq 0.05$ and **$p \leq 0.01$.

3.1.2.2 Factual knowledge

In both samples, factual knowledge was associated with greater identification [$\beta = 0.75$, $p < 0.001$ (S1); $\beta = 0.84$, $p < 0.001$ (S2)], greater morality [$\beta = 0.45$, $p < 0.001$ (S1; SDO); $\beta = 0.69$, $p < 0.001$ (S2; SDO); $\beta = 0.41$, $p < 0.001$ (S1; RWA); $\beta = 0.67$, $p < 0.001$ (S2; RWA)] and greater anger [$\beta = 0.27$, $p = 0.003$ (S1; SDO); $\beta = 0.33$, $p = 0.004$ (S2; SDO); $\beta = 0.26$, $p = 0.007$ (S1; RWA); $\beta = 0.42$, $p < 0.001$ (S2; RWA)]. In Sample 1, factual knowledge was associated with greater collective action regardless of how morality was represented [$\beta = 0.22$, $p = 0.001$ (SDO); $\beta = 0.20$, $p = 0.005$ (RWA)]. In Sample 2, factual knowledge was only associated with greater collective action with morality represented as SDO ($\beta = 0.15$, $p = 0.049$). In both samples, increased identification with the cause was associated with greater anger, greater efficacy and collective action regardless of how morality was represented. In

both samples, anger was associated with greater collective action. In both samples, greater morality is associated with greater anger (when represented as SDO) and greater efficacy (regardless of how morality was represented). In Sample 1, greater morality, when represented as RWA, is associated with greater collective action. In Sample 1, increased efficacy is associated with greater collective action regardless of how morality is represented. See column 5 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of factual knowledge on collective action through (1) identification with the cause alone, and (2) identification with the cause operating through anger, (3) anger alone, and (4) morality when represented as SDO operating through anger. In Sample 1, there were significant indirect effects of factual knowledge on collective action through (regardless of how morality was

represented) (1) identification with the cause operating through efficacy, and (2) morality operating through efficacy. In Sample 1, when morality was represented by RWA, factual knowledge had indirect effects on collective action through morality operating through anger. See column 5 of Supplementary Tables 5, 7 for these results.

3.1.2.3 Isolated racism knowledge

In both samples, isolated racism knowledge was associated with greater identification with the cause [$\beta = 0.53$, $p < 0.001$ (S1); $\beta = 0.76$, $p < 0.001$ (S2)], morality [$\beta = 0.41$, $p < 0.001$ (S1, SDO); $\beta = 0.44$, $p < 0.001$ (S2; SDO); $\beta = 0.25$, $p < 0.001$ (S1; RWA); $\beta = 0.34$, $p < 0.001$ (S2; RWA)], anger [$\beta = 0.35$, $p < 0.001$ (S1; SDO); $\beta = 0.29$, $p < 0.001$ (S2; SDO); $\beta = 0.38$, $p < 0.001$ (S1; RWA); $\beta = 0.33$, $p < 0.001$ (S2; RWA)], and efficacy [$\beta = 0.12$, $p < 0.001$ (S1; SDO); $\beta = 0.09$, $p = 0.016$ (S2; SDO); $\beta = 0.14$, $p < 0.001$ (S1; RWA); $\beta = 0.11$, $p = 0.001$ (S2; RWA)]. In Sample 1, isolated racism knowledge was associated with greater collective action [$\beta = 0.14$, $p = 0.003$ (SDO); $\beta = 0.13$, $p = 0.006$ (RWA)]. Greater identification with the cause was then associated with greater anger, greater efficacy, and greater collective action. Greater anger was associated with greater collective action. Morality was associated with greater anger (when represented by SDO) and greater efficacy (regardless of how morality was represented). In Sample 1, greater efficacy was associated with greater collective action, regardless of how morality was represented. See column 6 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of isolated racism knowledge on collective action through (1) identification with the cause alone, (2) identification with the cause operating through anger, (3) anger alone, and (4) morality (when represented by SDO) operating through anger. In Sample 1 only, there was a significant indirect effect of isolated racism knowledge on collective action through (1) identification operating through efficacy, (2) efficacy alone, (3) morality (regardless of how morality was represented) operating through efficacy, and (4) morality alone when represented as RWA. See column 6 of Supplementary Tables 5, 7 for these results.

3.1.2.4 Systemic racism knowledge

In both samples, systemic racism knowledge was associated with increased identification with the cause [$\beta = 0.72$, $p < 0.001$ (S1); $\beta = 0.85$, $p < 0.001$ (S2)], greater morality [$\beta = 0.47$, $p < 0.001$ (S1; SDO); $\beta = 0.48$, $p < 0.001$ (S2; SDO); $\beta = 0.31$, $p < 0.001$ (S1; RWA); $\beta = 0.52$, $p < 0.001$ (S2; RWA)], greater anger [$\beta = 0.38$, $p < 0.001$ (S1; SDO); $\beta = 0.33$, $p = 0.001$ (S2; SDO); $\beta = 0.39$, $p < 0.001$ (S1; RWA); $\beta = 0.36$, $p < 0.001$ (S2; RWA)] and greater efficacy [$\beta = 0.26$, $p < 0.001$ (S1; SDO); $\beta = 0.26$, $p < 0.001$ (S2; SDO); $\beta = 0.27$, $p < 0.001$ (S1; RWA); $\beta = 0.24$, $p < 0.001$ (S2; RWA)]. In Sample 1, systemic racism knowledge was associated with greater collective action [$\beta = 0.24$, $p < 0.001$ (SDO); $\beta = 0.22$, $p < 0.001$ (RWA)]. Greater identification with the cause was then associated with increased anger, increased efficacy, and increased collective action. Greater anger was associated with greater collective action. Morality was associated with greater efficacy. When morality was represented by SDO, morality was associated with greater anger. See column 7 of Supplementary Tables 4, 6 for these results.

In both Sample 1 and Sample 2, there were significant indirect effects of systemic racism knowledge on collective action through (1) identification with the cause alone, (2) identification with the cause operating through anger, (3) anger alone, and (4) morality (when represented by SDO) operating through anger. See column 7 of Supplementary Tables 5, 7 for these results.

3.2 Non-normative collective action model testing

When examining non-normative collective action, associations between variables were similar to those outlined above with exceptions noted here. See Supplementary Tables 8–11 for full results.

In Sample 2 with morality represented by RWA, contact quality was associated with greater efficacy and cross-group friendship was not associated with non-normative collective action. In Sample 2, contact quality was associated with less non-normative collective action with RWA as morality. In Sample 1, with morality as RWA, factual knowledge was not associated with non-normative collective action. In Sample 1 when morality was represented as RWA, morality was associated with greater non-normative collective action for only the cross-group friendship and contact quantity models.

In samples 1 and 2 with SDO as morality, self-report knowledge was not associated with non-normative collective action. In Sample 2 when morality was represented as SDO, morality was associated with less non-normative collective action only in the contact quantity, isolated racism knowledge and systemic racism knowledge models. In Sample 1 when morality was represented as RWA, morality was associated with greater non-normative collective action for only the cross-group friendship and contact quantity models.

In Sample 1, isolated racism knowledge was not associated with non-normative collective action, regardless of how morality was represented. In Sample 2, greater systemic racism knowledge was associated with greater non-normative collective action regardless of how morality was represented. In Sample 1, with the self-report knowledge model, identification with the cause was not associated with non-normative collective action, regardless of how morality was represented. In Sample 2, with the systemic racism knowledge model, identification with the cause was not associated with non-normative collective action, regardless of how morality was represented.

In all samples and with all antecedents, anger was not associated with non-normative collective action, except in Sample 1's systemic racism knowledge model with morality represented as SDO. In both samples and with all antecedents, efficacy was not associated with non-normative collective action, regardless of how morality was represented.

3.3 Testing antecedents together

As exploratory analyses, the pattern depicted in Figure 2 was tested with all seven antecedents included simultaneously for
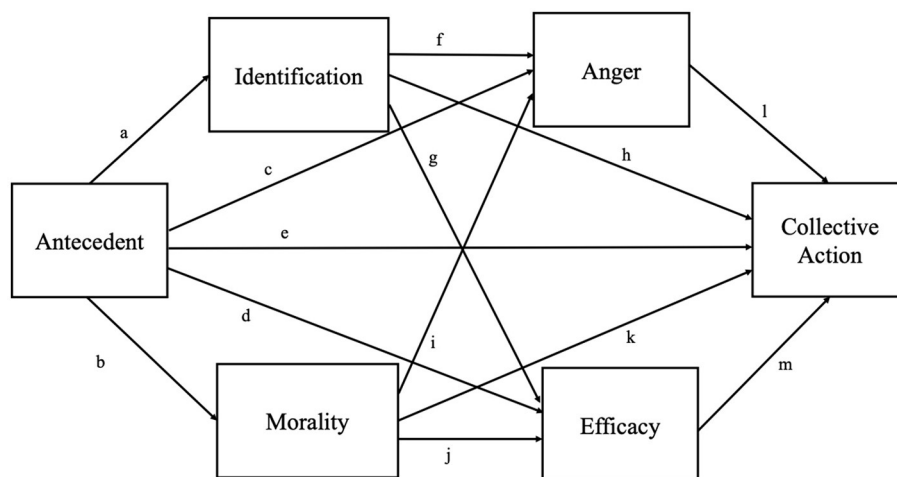
FIGURE 2
All relationships tested between antecedents and collective action, through motivations. Letter labels correspond to the paths tested in multiple regression models and unstandardized coefficients are detailed in Supplementary Tables 4–11. Each model tested one antecedent, morality and collective action type for each sample.

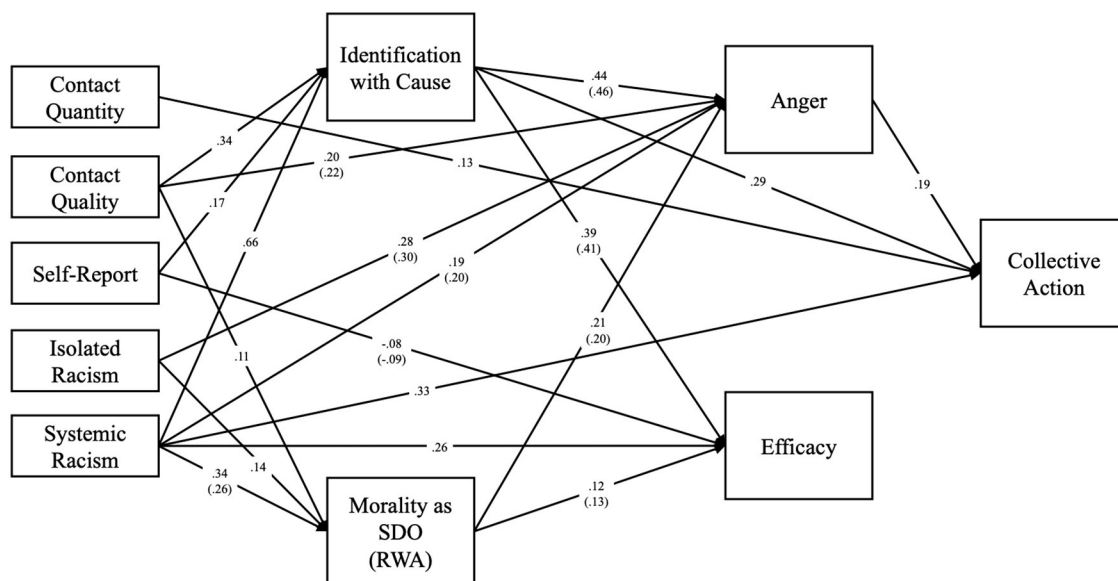**FIGURE 3**
Significant relationships between antecedents, motivations and collective action were tested with all antecedents together for sample 1 (Canada) and morality represented by social dominance orientation. SDO, Social Dominance Orientation; RWA, Right-Wing Authoritarianism. Values on paths are unstandardized regression β coefficients. Values in parentheses are regression β coefficients and variances with morality represented as RWA are only presented if they differ from morality represented as SDO. Additionally, there was a significant path from factual knowledge to RWA of $b = 0.21$. Significant ($p < 0.05$) covariances in this model were: contact quality and quantity = 0.59, self-report knowledge and contact quantity = 0.81, isolated racism and contact quantity = 0.20, contact quality and self-report knowledge = 0.26, contact quality and isolated racism knowledge = 0.31, contact quality and systemic racism knowledge = 0.32, self-report knowledge and systemic racism knowledge = 0.23, systemic racism knowledge and isolated racism knowledge = 1.14, identification and SDO = 0.12.

normative collective action with SDO represented as morality (and repeated for RWA with minor differences, see Figures 3, 4). After trimming non-significant paths, contact quantity, contact quality, self-report knowledge, isolated racism knowledge and systemic racism knowledge were directly or indirectly associated with collective action in Sample 1. Direct effects are reported in Figure 3 (only those significant at $p \leq 0.05$ presented) and indirect

effects are as follows: contact quality to collective action through identification, $\beta = 0.10$, 95% CI 0.05, 0.15, contact quality to collective action through identification then anger, $\beta = 0.03$, 95% CI 0.01, 0.05, self-report knowledge to collective action through identification, $\beta = 0.05$, 95% CI 0.02, 0.09, self-report knowledge to collective action through identification then anger, $\beta = 0.01$, 95% CI 0.01, 0.03, systemic racism knowledge to collective action
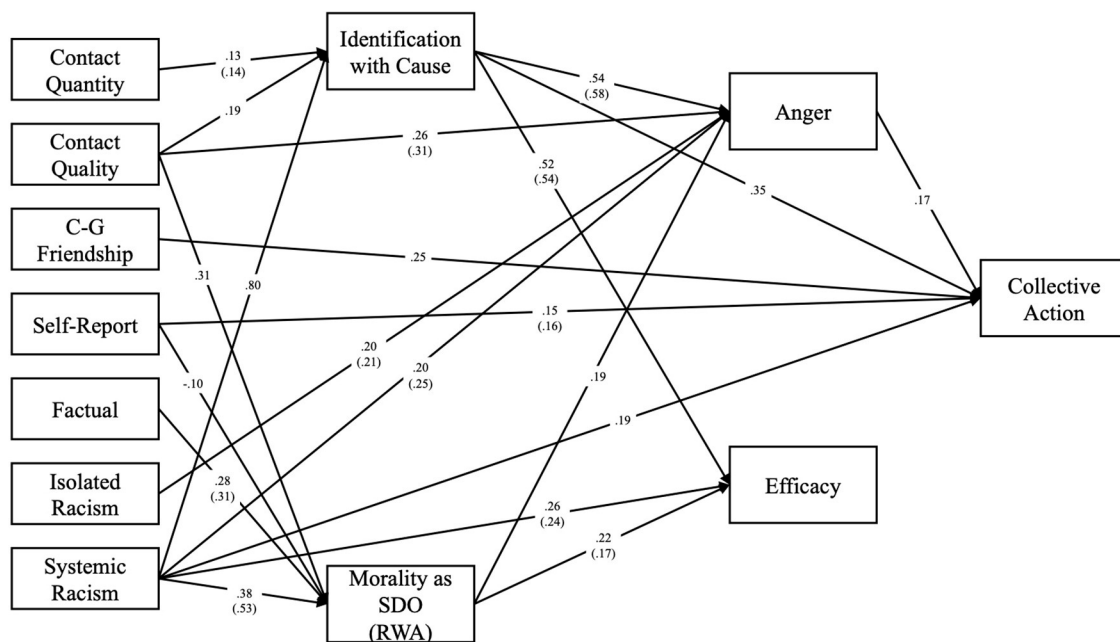
FIGURE 4
Significant relationships between antecedents, motivations and collective action tested with all antecedents together for sample 2 (America) and morality represented by social dominance orientation. SDO, Social Dominance Orientation; RWA, Right-Wing Authoritarianism. Values on paths are unstandardized regression *b* coefficients. Values in parentheses are regression *b* coefficients and variances with morality represented as RWA, only presented if they differed from morality represented as SDO. Additionally, there was a significant path from isolated racism to RWA $b = -0.14$, from contact quality to efficacy $b = 0.09$. Significant ($p < 0.05$) covariances in the model were: contact quantity and quality = 0.60, contact quantity and cross-group friendship and = 0.33, contact quantity and self-report knowledge = 0.82, contact quantity and factual knowledge = 0.14, contact quantity and isolated racism knowledge = 0.20, contact quality and cross-group friendship = 0.09, contact quality and self-report knowledge = 0.26, contact quality and factual knowledge = 0.13, contact quality and isolated racism knowledge = 0.31, contact quality and systemic racism knowledge = 0.32, self-report knowledge and isolated racism knowledge = 0.11, self-report knowledge and systemic racism knowledge = 0.32, self-report knowledge and cross-group friendship = 0.12, self-report knowledge and factual knowledge = 0.28, systemic racism knowledge and factual knowledge = 0.55, systemic racism knowledge and isolated racism knowledge = 1.15, identification and SDO = 0.11.

through identification, $\beta = 0.19$, 95% CI 0.12, 0.27, systemic racism knowledge to collective action through identification then anger, $\beta = 0.06$, 95% CI 0.03, 0.09, identification to collective action through anger, $\beta = 0.08$, 95% CI 0.04, 0.13, contact quality to collective action through anger, $\beta = 0.04$, 95% CI 0.01, 0.08, and isolated racism to collective action through anger, $\beta = 0.05$, 95% CI 0.02, 0.10.

After trimming non-significant paths, contact quantity, contact quality, cross-group friendship, self-report knowledge, factual knowledge, isolated racism knowledge and systemic racism knowledge were directly or indirectly associated with collective action in Sample 2. Direct effects are reported in Figure 4 (only those significant at $p \leq 0.05$ presented) and indirect effects are as follows: contact quantity to collective action through identification, $\beta = 0.05$, 95% CI 0.01, 0.09, contact quantity to collective action through identification then anger, $\beta = 0.01$, 95% CI 0.00, 0.03, contact quality to collective action through identification, $\beta = 0.07$, 95% CI 0.02, 0.12, contact quality to collective action through identification then anger, $\beta = 0.07$, 95% CI 0.04, 0.12, systemic racism knowledge to collective action through identification, $\beta = 0.28$, 95% CI 0.18, 0.40, systemic racism knowledge to collective action through identification then anger, $\beta = 0.07$, 95% CI 0.04, 0.12, identification to collective

action through anger, $\beta = 0.09$, 95% CI 0.05, 0.15, contact quality to collective action through anger, $\beta = 0.04$, 95% CI 0.01, 0.09.

3.4 Mean differences between samples

To test for differences between samples, we conducted an independent samples t-test on all variables comparing Sample 1 with Sample 2. Sample 1 had significantly lower mean contact scores (cross-group friendship, contact quantity and contact quality) compared to Sample 2. Sample 1 mean self-report, isolated racism and systemic knowledge scores were significantly higher compared to Sample 2. Mean factual knowledge scores were not significantly different between samples. Sample 1 mean scores for motivators: identification with the cause, morality, anger, and efficacy were significantly higher compared to Sample 2. Sample 1 had significantly higher mean scores of normative collective action, but Sample 2 had significantly higher mean scores of non-normative collective action compared to their respective alternative sample. See Table 2 for full results.

3.5 Results summary

In both samples, intergroup contact and knowledge of the outgroup were consistently indirectly associated with collective action through identification with the cause as well as through identification with the cause and anger at injustice. In some models, there were also other indirect associations or direct associations between antecedents and collective action, but these were less consistent. In both samples, having higher quality contact was more strongly associated with collective action intentions than having higher contact quantity or cross-group friendship. Additionally, knowledge of systemic racism was more strongly associated with collective action intentions than self-report, factual and isolated racism knowledge. In the model including all antecedents together, every antecedent, with the exception of cross-group friendship, was associated with collective action motivators. Additionally, higher contact quality and knowledge of systemic racism were associated with collective action intentions through identification and anger.

These results are for normative collective action. We also considered non-normative collective action (which had a notably low mean and low variability). Contact quantity, self-report knowledge and systemic racism were associated with non-normative collective action through identification with the cause.

There were mean differences in many of the variables between the two contexts. Most notably, White Americans reported more intergroup contact on all measures compared to White Canadians, and White Canadians reported greater knowledge of isolated and systemic racism.

4 Discussion

In contexts of severe racial injustice, such as Indigenous-White relations in Canada and Black-White relations in the U.S., White solidarity-based collective action is imperative. We demonstrated that, in both of these contexts, intergroup contact and knowledge of the outgroup were associated with collective action motivators and, in turn, collective action intentions. In our view, there are three major contributions of this work. First, we identified the forms of intergroup contact or knowledge that serve as antecedents to collective action motivations most strongly and consistently: intergroup contact quality and knowledge of systemic racism. Second, we demonstrated that the relationships between contact or knowledge and collective action primarily operate through two strong and consistent motivators: identification with the cause and anger at injustice. Third, we built on previous work (Agostini and van Zomeren, 2021) by demonstrating identification with the cause and anger at injustice as key proximal contributors to collective action intentions.

4.1 Intergroup contact: quality matters

Of the intergroup contact types, intergroup contact quality had the strongest and most consistent associations with collective action motivations. This is consistent with robust evidence that increasingly positive forms of intergroup contact, especially intimate forms are positively correlated with support for social change (Hässler et al., 2021; MacInnis and Hodson, 2019; Reimer et al., 2017; Selvanathan et al., 2018). Surprisingly, cross-group friendship did not emerge as the form of contact with the strongest and/or most consistent relationship with collective action motivations and intentions. Cross-group friendship was associated with collective action motivations and intentions, just not as strongly or consistently as intergroup contact quality, and when considered together with all forms of contact and knowledge examined, cross-group friendship did not add to the model. Thus, in the examined contexts, when comparing forms of intergroup contact, higher contact quality more generally seemed to matter most. This suggests that the higher the quality of intergroup contact people are having, the stronger their intentions for collective action (operating through identification with the cause and anger at injustice) will be. Importantly, such contact does not necessarily have to manifest in the form of friendship. This is not to suggest that intimate cross-group relationships do not matter. Indeed, cross-group friendship was associated with collective action motivations and intentions in both contexts. Further, we only assessed cross-group friendships, and may not have captured some other forms of intimate cross-group relationships that participants may have been considering for the contact quality items. For example, people may have romantic partners or family members that they would not consider friends. Overall, our work demonstrates that intergroup contact, especially higher quality intergroup contact, is a driver of collective action motivations.

4.2 Knowledge is power: especially knowledge of systemic racism

In general, more knowledge about an outgroup is associated with more positive attitudes about the group (e.g., Pettigrew and Tropp, 2008). Overall, our results suggest that this association exists for outcomes tied to social change such as collective action as well. We expected this, but our question about whether any form of knowledge "matters" more was quite exploratory. When considering the most consistent collective action motivations that the associations between antecedents and intentions operated through—identification and anger—in hindsight, it makes sense that associations would be strongest for knowledge of systemic racism. The more one knows about systemic racism (i.e., group-based injustice), the more likely they are to identify with social movements challenging this injustice and feel anger about the injustice, in turn promoting collective action motivation. Self-report knowledge of the group, knowledge about the group's history or culture more generally, and knowledge of individual racism are less closely tied to injustice which may explain why the associations for these forms of knowledge were not as strong. Overall, knowledge was demonstrated as an antecedent of collective action motivations, and remained supported as an antecedent even when considered alongside intergroup contact. Knowledge of systemic racism was more strongly supported with many of the collective action motivations and intentions than intergroup contact quality both at the zero-order level in the explored models.

This highlights the importance of interventions involving education about systemic racism and supports arguments for

teaching about systemic racism in educational institutions (e.g., Bowman et al., 2016). This may be easier said than done, of course, given that people may reject that the types of racist incidents we asked about are indeed racism. This may be contested on ideological grounds. Indeed, in the current work, knowledge of racism (especially systemic) was associated with RWA and SDO (ideological variables) and it could be that left- (right-) leaning ideology is more of an antecedent of status quo disrupting (maintaining) collective action than these knowledge variables. All the same, these patterns existed in the presence of RWA and SDO (that is, ideological variables did not override these patterns), but examinations of political ideology more generally may be worthwhile. We believe that our results nonetheless support non-ideological antecedents of advantaged group collective action in these domains, including intergroup contact and other forms of knowledge.

Of course, one source of knowledge about the outgroup is intergroup contact (Pettigrew and Tropp, 2008) and indeed, in this study, contact (most consistently, contact quality) and knowledge were found to be associated (see Table 2). We have opted to consider them separately and at the same "step" in our examination given our interest in comparing the examined antecedents with one another, as well as recognising that knowledge of the outgroup can come from many sources, not solely intergroup contact. When examining all antecedents together (see Figures 3, 4), most (Sample 1) or all (Study 2) forms of contact and knowledge still demonstrated indirect effects on collective action intentions. This suggests that the role of knowledge in collective action is not simply "through" intergroup contact but rather both have at least some explanatory power as antecedents.

4.3 Collective action motivators

When examining the existing literature (e.g., Marinucci et al., 2022; Reimer et al., 2017), there was evidence to suggest that intergroup contact may be associated with collective action through identification with the cause and anger about injustice. Indeed, these results were found and similarly observed for the other antecedent we examined, (various forms of) knowledge about the outgroup. Although we included efficacy and morality for the sake of conducting a complete examination of the model of collective action motivators put forth by Agostini and van Zomeren (2021), these were less consistently supported as the intermediaries between antecedents and collective action intentions. It was largely expected that morality would not serve as an intermediary, but rather have a more direct relationship with collective action intentions. For some antecedents, there were direct associations between the antecedent and morality. Our interpretation is that examining these associations experimentally or longitudinally would demonstrate that morality promotes more contact or knowledge (consistent with lower RWA or SDO promoting more positivity towards outgroups generally, e.g., Duckitt and Sibley, 2007), rather than contact or knowledge promoting more morality, as our correlational models depict here. Additionally, different associations might be observed if morality was measured differently (e.g., by assessing moral foundations or religious beliefs). Our

examination of efficacy was quite exploratory, and although it was supported in some of the indirect relationships with antecedents, this was less consistent. Efficacy was associated with identification and morality, as in previous work (Agostini and van Zomeren, 2021). Efficacy does indeed play a role in collective action, but it appears not to be through the antecedents we have examined.

Our results have implications for potential interventions informed by the model proposed by Agostini and van Zomeren (2021). Our results demonstrate—at least when examining advantaged group members and operationalizing the variables as we have—that the identity [through anger, and (sometimes) efficacy] is more influenced by antecedents than the morality path (through efficacy and anger). This opens up directions for future work in refining the model by expanding it to include antecedents ahead of identity. Arguably more important, this suggests that interventions aiming to promote advantaged group collective action should focus on increasing identification with the cause as well as anger at injustice. Although there may be other antecedents to study, our work demonstrates intergroup contact and knowledge as possible foci for interventions. Knowing that such interventions would aim to directly promote identification with the cause and anger about injustice, the interventions could be tailored (e.g., the contact participants engage in or information that they learn about could include discussions of injustice). Indeed, for contact specifically, other theoretical work has suggested that contact involving recognition and condemnation of inequality (MacInnis and Hodson, 2019) or viewing of group differences as illegitimate (Hässler et al., 2021) promotes more collective action. Our results are in line with this work and suggest possible mediating processes.

4.4 Examining two contexts

Additional contributions include that we examined two different North American contexts where social change is needed and found similar results across contexts. Our comparisons between the two contexts, however, demonstrate notable differences. There were differences whereby participants in the Indigenous-White (Canada) vs. the Black-White (U.S.) context reported more knowledge about racism, more identification with the cause, more anger about injustice, and more collective action intentions but less cross-group friendships and lower quantity and quality of intergroup contact. It appears that the White participants in Canada have some knowledge and want to act against injustice but have fewer meaningful interactions with the disadvantaged group.

These differences may be a function of the fewer opportunities for contact given the lower proportion of people in the disadvantaged group in the Canadian vs. American context examined (Government of Canada, Statistics Canada, 2022b; Jones, 2021). Residential segregation also occurs in both contexts, but with notable differences. Many First Nations and Inuit (two of the three major Indigenous groups in Canada) communities are segregated to remote reserves (Government of Canada, Statistics Canada, 2022b), sometimes only accessible by plane—weather permitting. The history of redlining communities or segregating Black people

to undesirable neighbourhoods often occurred in urban areas (Li and Yuan, 2022; Nardone et al., 2020; White et al., 2021), which may have limited contact between Black and White people, but not to the same extent as in Indigenous-White contexts (Brant, 2020; Loh et al., 2020). Further, available evidence suggests that information about relevant historical injustice is taught inconsistently in schools in both the Canadian and the American context examined (e.g., Canseco, 2022; Yancey-Bragg, 2021). There may be differences in this that are difficult to quantify. It may be that the U.S. is at a different point of the reparation process, after ferocious legal updates during the Civil Rights Era. No similar social justice movement for Indigenous people in Canada has matched this intensity, yet. These differences are important to note as they may inform intergroup contact and collective action intentions.

Examining and comparing the Indigenous-White Canadian context to the Black-White U.S. may be useful in observing differences in the reparation process. Although there are valuable contributions to examining Indigenous-White and Black-White contexts as we have, further work could compare Black-White in both Canada and the United States. Important differences would need to be recognised, however, including different histories of enslavement and (on average) different proportions of Black people in the countries. An even more unique examination would be to compare the Indigenous-White context in both countries. Of course, there would be critical differences to recognise there as well, such as different colonial histories, and geographic spread. We focused on the racial contexts discussed here as we consider these as one pressing area for solidarity-based collective action within each respective country, but recognise that there is further work to be done.

Our examination of White solidarity-based collective action in support of Indigenous issues in Canada is particularly novel in and of itself. This topic is rarely studied, nor is intergroup contact between Indigenous and White people in Canada. Although previous work has examined Black-White cross-group relationships in the U.S. (Tropp, 2007) and Canada (Aboud et al., 2003), ours is the first as far as we are aware to examine cross-group friendships among White and Indigenous people. We found that 17.5% of White participants reported having at least 1 Indigenous friend. This is higher than our initial expectations, which is promising given the established association between cross-group friendship and lower prejudice (e.g., Pettigrew and Tropp, 2006). It could also be problematic, however, given the tendency for having friendship(s) with advantaged group members to undermine disadvantaged group collective action motivation (e.g., Becker et al., 2013). With this initial proportion as a start, going forward it will be important to examine these relationships dyadically to understand these potential outcomes from both sides of the relationship.

One unexpected anomaly was that, despite only opening our studies to participants who had previously identified themselves as White in pre-screening questions, a small number of participants who did not identify as White (only) were in our samples. Although our interest was in the advantaged group, we opted to leave these participants in the samples given that we did not plan for this at the pre-registration stage. We did examine, however, whether results changed with these participants filtered out (results were largely equivalent, see Supplementary material). These discrepancies may have been due to changes in identification (e.g., in light of the social construction of race or discoveries about oneself of one's family history) or participant misrepresentation. Regardless, this is something that researchers should be aware of when recruiting specific samples based on racial identification.

4.5 Non-normative collective action

Overall, results were less consistent when examining non-normative collective action, and very few participants reported non-normative collective action intentions. Although previous work has found that the dual chamber model is supported for both normative and non-normative collective action (albeit less strongly for non-normative, Agostini and van Zomeren, 2021), the results we have obtained here should be interpreted with caution in light of the low variability. Participants may have been apprehensive to say they would participate in illegal activities or be associated with violence. This apprehension may have been what we were capturing, as public support for collective action decreases the more extreme the collective action is. Feinberg et al. (2020) reported less support for collective action over a variety of causes when actions were perceived to be harmful to others and/or highly disruptive. This result is in line with Hässler et al.'s (2021) model theorising that advantaged group members will be less motivated to participate in violent forms of collective action. Furthermore, they suggest that advantaged group members will be more likely to participate in collective action if it is not costly. Our results may suggest that advantaged group participants view violent forms of collective action as costly, as well as non-violent but still societal norm-violating forms of collective action. These forms of collective action may be deemed too much effort for advantaged group members, or it may be that the benefits are not perceived as outweighing the risks that may be associated. This can include risks of the social justice movement losing credibility, legitimacy, or support. Advantaged group members may view resorting to violence or illegal activities as unaligned with a social justice movement that seeks equality and may distance from such intentions. It may be different for disadvantaged group members. For disadvantaged group members, where the need to act is motivated by helping one's community, the benefits may outweigh the costs; the risks may be worth it. The storey is not always clear on motivations for disadvantaged group non-normative collective action, however. Tausch et al. (2011) found it to be motivated less by anger and more by contempt of injustice whereas Karampampas et al. (2020) found that those reporting higher anger were significantly more likely to commit violent political acts. Overall, for non-normative collective action, collective action motivators differ between advantaged and disadvantaged group members, or between groups, or causes.

It may also be that when examining non-normative collective action among advantaged group members, more specific forms of motivation (e.g., identification or anger) need to be examined. There is evidence that advantaged group members will get involved

with non-normative collective action supporting their group. Stathi et al. (2019), found strong forms of national identity associated with non-normative collective action. It may be that identification with a *cause* need not be enough to motivate advantaged group collective action, but actual membership (or perceived membership) in the group may be necessary. More specific forms of anger such as acute anger about a specific issue may also produce support for non-normative collective action.

4.6 Where do we go from here?

It is important to note the limitations of the current work as well as directions for future work in this area. Although the associations uncovered here were the result of a thorough examination building on previous work, these results are correlational. Nonetheless, the strong theoretical foundation and meta-analytic evidence behind much of the model suggest that there is reason to believe that causal patterns may exist whereby the antecedents explored here lead to the motivations of the dual chamber model, and subsequently, collective action. Our desire to examine participants' real-life relationships, precluded our ability to experimentally manipulate intergroup contact in the current work. Now that we have observed these relationships in real-life relationships, future work may examine how lab-formed relationships influence real-life opportunities for collective action. This would also address well-established findings whereby people who are most in need of intergroup contact (e.g., those higher in prejudice) tend to avoid it (e.g., Gross et al., 2013; Miller et al., 2004; Westerlund et al., 2021). Given our consistent findings regarding the intermediary roles of identification with the cause and anger about injustice, we consider that the most pressing priority for future experimental work is a "manipulation-of-mediator(s)" approach (see Pirlott and MacKinnon, 2016). We see several possibilities here, but first recommend a concurrent double randomisation approach whereby both an antecedent (e.g., intergroup contact) and mediator (e.g., anger about injustice) are manipulated. Ideally, there would be multiple experiments examining the different combinations of antecedents and mediators. Regardless, we view this as an exciting direction. A further important future direction is to include longitudinal elements. Overall, it is important to examine this topic using multiple methods.

As noted, our interest was advantaged group collective action, but it is critical to also examine the disadvantaged group perspective, perhaps examining both together. We view an important avenue for future work to be practical application and intervention. As noted above, interventions involving actual intergroup contact and/or knowledge focused on promoting identification with the cause and anger about injustice may be fruitful. Another important direction includes zeroing in on the role that ideology might play in collective action, especially given our focus on status quo disrupting collective action. There is some evidence to suggest that the four motivations of the dual chamber model predict status quo maintaining collective action as well (e.g., Osborne et al., 2019), but, as noted by Agostini and van Zomeren, 2021, this is an area where more work is needed.

Data availability statement

Ethics statement

The studies involving humans were approved by Acadia University Review Ethics Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

Funding

Acknowledgments

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/frsps.2024.1346857/full#supplementary-material

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