






ARTICLE

Do conspiracy beliefs fuel support for reactionary social movements? Effects of misbeliefs on actions to oppose lockdown and to “stop the steal”

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Abstract

Pundits have speculated that the spread of conspiracies and misinformation (termed “misbeliefs”) is leading to a resurgence of right-wing, reactionary movements. However, the current empirical picture regarding the relationship between misbeliefs and collective action is mixed. We help clarify these associations by using two waves of data collected during the COVID-19 Pandemic (in Australia, $N = 519$, and the United States, $N = 510$) and democratic elections (in New Zealand $N = 603$, and the United States $N = 609$) to examine the effects of misbeliefs on support for reactionary movements (e.g., anti-lockdown protests, Study 1; anti-election protests, Study 2). Results reveal that within-person changes in misbeliefs correlate positively with support for reactionary collective action both directly (Studies 1–2) and indirectly by shaping the legitimacy of the authority (Study 1b). The relationship between misbelief and legitimacy is, however, conditioned by the stance of the authority in question: the association is positive when authorities endorse misbeliefs (Study 1a) and negative when they do not (Study 1b). Thus, the relationship between conspiracy beliefs and action hinges upon the alignment of the content of the conspiracy and the goals of the collective action.

KEYWORDS

conspiracy, legitimacy, misinformation, reactionary collective action

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Do conspiracy beliefs fuel support for right wing, reactionary forms of collective action (Sternisko et al., 2020)? Anecdotally, examples of the links between conspiracy beliefs and collective action abound. For instance, the European Commission has drawn links between the proliferation of conspiracy theories and the intensification of commitment to right-wing extremist groups (Farinelli, 2021). The Department of Homeland Security in the United States (US) similarly issued warnings about the links between conspiracy beliefs about the 2020 Presidential election and an increased risk of political violence following the 6 January 2021, Capitol Insurrection (Barr, 2021). Finally, a disinformation campaign waged over social media fueled a nearly month-long occupation of Parliamentary grounds by right-wing extremists protesting COVID-19 restrictions in New Zealand. Despite these observed links between conspiracy beliefs and engagement in collective action, the empirical picture is mixed with evidence of positive (e.g., Imhoff et al., 2022; van Prooijen et al., 2015), negative (donations, voting; Jolley & Douglas, 2014a) and null relationships (Ardèvol-Abreu et al., 2020) between conspiracy beliefs and action.

We suggest that the key to understanding the relationship between conspiracy beliefs and collective action is to consider the ideological goals of the movement. We report two-wave, repeated measures data collected in the context of the COVID-19 Pandemic (in Australia and the United States) and two democratic elections (in New Zealand and the United States) to examine the effects of misinformation and conspiracy beliefs (collectively termed “misbeliefs”) on commitment to reactionary forms of collective action (see Becker, 2020; Thomas & Osborne, 2022). Specifically, we examine the links between misbeliefs and anti-lockdown collective action in the United States (Study 1a) and Australia (Study 1b), and anti-election protests in the United States (Study 2a) and New Zealand (Study 2b). By testing these processes across distinct issues and separate national contexts, we investigate whether the effects generalize across various misbeliefs and Western Democracies (i.e., the United States, Australia, and New Zealand).

The effects of misbelief on reactionary collective action

In this paper, we use the general term “misbelief” to capture the common effects of conspiracy beliefs and misinformation. Nevertheless, there are some important conceptual differences between the two concepts. Whereas conspiracy beliefs capture “explanations for important events that involve secret plots by powerful and malevolent actors” (Douglas et al., 2017, p. 538), misinformation relates to beliefs that are factually incorrect (Jerit & Zhao, 2020). However, not all misbeliefs are related to a nefarious, hidden agenda and not all conspiracies are false—indeed, scepticism may be an important mechanism for holding authorities to account, especially in representative democracies (Hornsey et al., 2023). In this paper, we focus on beliefs that are known to be factually incorrect and which have also been publicly linked to “claims that the public is being pervasively lied to regarding some aspect(s) of reality, to allow some group(s) to enact a harmful, self-serving agenda” (see Nera & Schöpfer, 2023, p. 287).

Although Douglas et al. (2019) suggest that conspiracy beliefs can act as a call to arms, empirical support for the idea that conspiracy beliefs motivate collective action has been slow to emerge (e.g., Bertuzzi, 2021). Moreover, the limited work in this area provides mixed support (Imhoff et al., 2021). On the one hand, people at both extremes of the political spectrum (left and right) are more prone to conspiracy endorsement than moderates, suggesting that people who are generally more politically engaged are also *more* likely to endorse conspiracy beliefs (van Prooijen et al., 2015; Imhoff et al., 2022). On the other hand, exposure to a government conspiracy theory *reduces* political engagement more generally (e.g., donation, voting; Jolley & Douglas, 2014a, Study 1; see also Butler et al., 1995). Yet elsewhere, Ardèvol-Abreu et al. (2020) draw upon two-wave panel data from five democracies (United States, Japan, United Kingdom, Poland, and Estonia) and find little support for the hypothesis that generalized conspiracist thinking is related to voting and other forms of formal political participation (e.g., attendance at rallies, protest engagement, or online actions).

Given the evidence of a positive, negative, and/or null relationship between misbelief and political engagement, Imhoff et al. (2021) suggested that part of the explanation may lie in the *means* or tactics of collective actors. They provided experimental evidence that conspiracies about a hypothetical secret plot decreased support for conventional (legal) forms of collective action while increasing support for radical (illegal, violent) collective action (see also Jolley et al., 2020; Jolley & Paterson, 2020; Vegetti & Littvay, 2021). Thus, conspiracy beliefs may elicit specific forms of collective tactics (illegal and non-normative versus conventional and normative), rather than fostering political engagement more generally.

We suggest a further critical nuance to untangling the relationship between conspiracy beliefs and action rests on the alignment between the specific content of the conspiracy and the *ends* (goals) of the collective action (see also van Prooijen, 2018; Wood & Gray, 2019). Because conspiracy theories are often deeply partisan, specific conspiracy beliefs are likely to foster some forms of action whilst undermining others (Smallpage et al., 2017). However, these relationships have been largely overlooked because much of the extant literature focuses on more generalized conspiracy beliefs (e.g., Ardèvol-Abreu et al., 2020) or hypothetical secret plots (e.g., Imhoff et al., 2021) in the context of abstract forms of political participation (e.g., voting, attending a rally in general). However, *when people take collective action, they do so with some specific desired social or political change in mind*. Consistent with the observations about the partisan nature of misbeliefs (Smallpage et al., 2017), believing that the COVID-19 Pandemic is a hoax should correlate positively with voting for a candidate who also holds those views and negatively associated with voting for a candidate who supports evidenced-based approaches to managing a Pandemic. Thus, we extend the current literature by considering the role of discrete beliefs (about COVID, elections) in the context of collective actions with specific ideological goals.

Given the growing awareness of the push-and-pull dynamics of social change (e.g., see Thomas & Osborne, 2022), we focus on the distinction between progressive and reactionary actions. *Progressive collective actions*, for instance, seek to change the status quo in favour of greater social justice and equality (Becker, 2020; Thomas & Osborne, 2022). Yet, conspiracy theory endorsement tends to reduce individual actions that support progressive causes, including climate change mitigation measures (Jolley & Douglas, 2014a) and vaccination uptake (Jolley & Douglas, 2014b). Thus, some conspiracy beliefs seem to reduce progressive actions that allow society to adapt and respond to a threat. In contrast, *reactionary collective actions* arise in response to a specific movement or change and seek to restore a prior status quo (Becker, 2020; Selvanathan et al., 2021). Such movements also generally seek to maintain traditional social hierarchies (González et al., 2022). Because conspiracy beliefs aim to explain how malicious actors “usurp political or economic power, violate rights, infringe upon established agreements, withhold vital secrets or alter bedrock institutions” (Douglas et al., 2019, p. 4), misbeliefs may directly increase support for reactionary movements that attempt to counter these forces (Sternisko et al., 2020).

Despite the increasing prominence and relevance of right-wing, reactionary movements, the collective action literature has primarily focused on the motivations to support progressive social movements and left collective support for reactionary change relatively under-studied (Thomas & Osborne, 2022; see also Bertuzzi, 2021). We address this oversight by proposing that endorsement of misbeliefs about the COVID-19 Pandemic and elections should correlate positively with support for collective action to oppose lockdowns (Study 1) and overturn democratic elections (Study 2). Thus, disentangling the relationship between conspiracy belief and collective action during times of crisis and change requires one to consider both the role of specific misbeliefs, and the ideological goals of the action (reactionary action to reinstate a former status quo).

Effects of misbelief on legitimacy

Becker (2020) suggests that reactionary movements are more likely to arise in times of societal threat. Misbeliefs may be directly and indirectly associated with reactionary action by affecting the perceived *legitimacy of the authority* who is ostensibly managing the crisis. Legitimacy is “the belief that authorities are entitled to be obeyed” (Tyler, 1997, p. 323). Legitimacy is particularly important during crises or

transitions because people are more likely to obey a legitimate authority without rewards or the threat of punishment per se (see also Turner, 2005). Legitimacy is thus key to the maintenance of social order. However, misinformation and conspiracy beliefs question conventional ways of addressing a problem or challenge, while also deriding those in power. These aspects of conspiracy endorsement are likely to be especially consequential for the legitimacy of authorities because, according to Tyler (2001, p. 416), "...the roots of legitimacy lie in people's assessments of the fairness of the decision-making procedures used by authorities and institutions." At their core, conspiracy theories provide narratives that question the fairness of processes that authorities or institutions use to make decisions and, in doing so, could affect the perceived legitimacy of that authority (see also van Prooijen, 2018). Indeed, conspiracy endorsement decreases trust in government institutions (even if the theory was unrelated to those institutions; Einstein & Glick, 2015), politicians, and scientists (Jolley & Douglas, 2014a). A conspiracy mindset also correlates negatively with trust in government institutions and their processes (Ardèvik-Avreu et al., 2020).

Here, we test the propositions that misbeliefs foster support for reactionary collective actions both directly (Study 1–2) and indirectly (Study 1) by altering the perceived legitimacy of the authority handling the situation (Tyler, 1997). However, one key qualification here is that the relationship between misbelief endorsement and perceptions of the legitimacy of the authority will also *depend critically upon what that authority's stance is* in relation to the conspiracy and misinformation. That is, in a "post-truth" era (Lewandowsky et al., 2017) where the authorities themselves can disseminate the misinformation, the valence of such an effect is likely to depend on what that authority's stance is—an issue that we discuss below.

The current research

We present four studies that test whether misbelief affects reactionary actions (anti-lockdown action in Study 1a–b, action to protest outcomes of an electoral process, Study 2a–b) both directly (Study 1–2) and indirectly via the perceived legitimacy of the authority (Study 1). Each study utilizes two-wave, repeated measures data in two different national samples. An important aspect of our approach is that we seek to identify *how* people differ over the months (Study 1) or weeks (Study 2) under investigation. Specifically, we use Latent Change Score Models to examine the effects of (latent, unobserved) *changes* in misbeliefs and action, over and above the effects of the within-timepoint associations (reflecting stable, contemporaneous associations). Indeed, conspiracy beliefs themselves are influenced by both stable trait-based factors that differ between people (e.g., the conspiracy mentality or mindset; Imhoff & Bruder, 2014) and malleable state-based responses to the situation that differ within people over time (perhaps especially during societal crises; van Prooijen & Douglas, 2017). Similarly, commitment to collective action is likely to reflect influences from stable, longstanding views about taking action (see Duncan, 2012; Thomas et al., 2022) and fluctuations or changes due to societal transitions or events (Becker, 2020; Livingstone, 2014). Our approach therefore seeks to disentangle these two sources of variance to provide a comprehensive test of how people's stable and malleable beliefs relate to their support for collective action over time.

Transparency and openness

The data used for these analyses were collected as part of broader projects examining responses to societal changes. As such, additional measures were collected beyond those reported here (for the verbatim measures, Study 1: https://osf.io/hacpj/?view_only=ac723cda59f54169a3079a155c34894a; Study 2: https://osf.io/js3c2/?view_only=e9f5b614eac941d8b3c6925287945f8c). We first pre-registered our general approach to exclusions, sample size, and the methods for each project after data collection but before conducting data analyses (Study 1: https://osf.io/p7uny/?view_only=294c2ed8f7b5485a8feb

570ef6dc05fc; Study 2: https://osf.io/8vp6s/?view_only=45386580ba534a5c97699aaa7e737420). We pre-registered a sample size based on an assumed 50% attrition rate from Time 1 to subsequent time points that also reflected the resources available to conduct the studies. The obtained sample sizes exceed recommendations for studies using Full Information Maximum Likelihood to test mediation in longitudinal research with planned missing observations (e.g., Jia et al., 2014). Next, we separately pre-registered our hypotheses and analyses for the present research before conducting any confirmatory tests (Study 1: https://osf.io/q3pmb/?view_only=4c8a3d8bcdcf24e559175aa5a3499a923; Study 2: https://osf.io/u6dx4/?view_only=9f02c005259543b0af17b87f8d3f1fb8). We also included the data and code for both studies (Study 1: https://osf.io/xaznc/?view_only=cb237372691a47cb82491cf2db2c39ed; Study 2: https://osf.io/9uv8j/?view_only=c737eaa51cc4424998c5c23cb8ba1836). However, we did not pre-register specific aspects of our analysis that arose during the model building process; these are described transparently below (see Petersen et al., 2022). We also did not pre-register predictions regarding the specific pattern of within- or between-person changes per se; these results are therefore exploratory. Note that the pre-registrations and online supplements describe tests of the effects of misbelief on democratic attitudes that were beyond the scope of a single paper; the links above also report those other effects.

STUDY 1

On 11 March 2020, the World Health Organization declared the uncontained spread of SARS-CoV-2 a pandemic. Alongside the spread of the virus, the proliferation of misbelief, misinformation, and conspiracies led the World Health Organization to declare an ‘infodemic’ and ensuing call for action to counter its negative effects. This research focuses on misbelief and conspiracies about COVID-19, and their effects on reactionary collective action in the United States (Study 1a) and Australia (Study 1b) between May and August 2020.

For both nations, misinformation and conspiracy beliefs regarding the origins, severity, and consequences of the COVID-19 Pandemic were widely circulated (Douglas, 2021). Misbeliefs purported that the threat of the virus was over-stated and that the Pandemic was a hoax perpetrated by powerful elites. Other misbeliefs ostensibly accepted the threat of the virus but suggested that powerful elites (Bill Gates, Dr Fauci) were responsible for its circulation; adversaries had generated it as a biological weapon and/or that it was spread via the 5G Network. It is now well-documented that such misbeliefs were associated with reductions in preventative health behaviours (e.g., Bierwaczzonek et al., 2020; Earnshaw et al., 2020) and reduced intention to vaccinate (Earnshaw et al., 2020). However, we are unaware of longitudinal research that considers the effects of conspiracy beliefs about COVID-19 in the context of intentions to engage in reactionary, anti-lockdown collective action (but see Liekefett, Bürner, & Becker, 2023).

Important contextual differences in how the authorities handled the crisis in Australia versus the US are critical to understanding the relationship between misbelief and legitimacy and reactionary collective action. In the US, experts widely criticized President Trump for his repeated failure to heed the advice of scientific and health authorities (Select Subcommittee on the Coronavirus Crisis, 2021). President Trump himself often directly espoused misbeliefs (e.g., the “therapeutic” effects of bleach; health authorities exaggerated the death rate). In other words, misbeliefs ultimately bolstered the legitimacy of authorities’ (in)action in the US. People’s belief that the virus is a hoax and/or part of a global conspiracy to control them should therefore correlate positively with the perceived legitimacy of the authority (i.e., the authority is acting legitimately) which should, in turn, correlate positively with reactionary collective action intentions.

In contrast to authorities in the US, Australian Prime Minister Scott Morrison largely adopted the advice of health and scientific authorities to manage the initial outbreak. The outbreak was recognized as a threat and was acted upon so that Australia could (by virtue of its relative physical isolation) minimize the economic and health impacts of the virus. In this context, misbeliefs and conspiracy would

de-legitimate the authorities' public health (stay-at-home orders) and economic measures (closures, lockdown). People's belief that the virus is a hoax and/or part of a global conspiracy to control them should therefore correlate negatively with the legitimacy of the authority (i.e., the authority is acting illegitimately) in Australia which, in turn, should correlate negatively with reactionary action intentions.

Our approach disaggregates between- and within-person effects by using latent change score modelling to test the effects of changes in misbelief endorsement on reactionary collective action (anti-lockdown intention) via legitimacy of the authority (namely, President Trump in the US, and Prime Minister Morrison in Australia) relative to baseline measures of those variables. Latent change score models model within-person change as a variable itself (Δ) that is predicted and explained by other variables within the structural equation model. Change was modelled as a latent variable to circumvent known problems with raw change scores. This allowed us to capture within-person differences, free of measurement error, and without restrictive assumptions (McArdle, 2009). Significant associations between the change variables indicate that changes in misbeliefs are associated with changes in actions, whereas significant associations between the baseline variables suggest that misbeliefs, legitimacy, and action are associated over time and between people.

Study 1 Method

Participants

In the US (Study 1a), participants ($N=510$) were recruited via Prolific and remunerated £4.75 for completing both surveys. At Time 1, 48.4% of participants identified as female and 48.4% identified as male (1% identified as other and 2.2% did not wish to disclose). Participants were aged 18–84 years ($M=44.90$, $SD=15.99$). The majority of participants (53.7%) supported the Democratic party (26.7% Republican, 18% were uncertain/another party) and were highly educated with 86.9% having completed at least a Bachelors Degree at university. We adopted a planned missingness longitudinal design (Little & Rhemtulla, 2013) and a subset of participants ($n=372$) were randomly invited to participate at Time 2. The Supplementary File S1 provides full details of attrition analysis.

In Australia (Study 1b), participants ($N=535$) were recruited via Qualtrics panels and reimbursed with points that accrued to purchase gift cards. At Time 1, 56.3% of participants identified as male and were a mean of 50.26 years old ($SD=16.04$). 37% reported supporting the Liberal Party (32% the Labor Party, 2.4% the National Party, and 8.6% the Greens Party; the remaining participants supported Independents and other political parties). A randomly selected sub-set of participants were invited to participate at Time 2 ($N=365$; see the Supplementary File S1 for details of attrition analysis). Missing data were estimated using FIML in MPlus version 8.6.

Measures

Unless otherwise indicated, all items were measured on a 1 (Strongly disagree) to 7 (Strongly agree) Likert scale. The measurement approaches for the US and Australia were similar, with context-specific adjustments as described below.

Misbelief and conspiracy

We measured misbeliefs about the COVID-19 pandemic on multiple dimensions drawn from popular reporting about prevalent beliefs at the time (e.g., Lynas, 2020). In the US survey, three items reflected scepticism of the virus (“The COVID pandemic is a hoax” and “COVID-19 virus does not actually exist”) and its impacts (“The number of fatalities linked to the virus has been dramatically overstated”). Two items reflected the “global elites” conspiracy belief that the Pandemic was started by Bill Gates and is spread via the 5G network. The final items reflected blaming the Chinese for spreading the virus

(“The Chinese are to blame for the spread of COVID-19”), that it was a biological weapon, and that immigrants were spreading it. Although outside of our pre-registration, we created parcels of cognate items to reduce model complexity and stabilize parameter estimates (Matsunaga, 2008). The misbelief latent variable was indicated by four items: two parcelled items that captured COVID scepticism (hoax), as well as the 5G and Bill Gates conspiracies (elites); and two individual items that reflected the belief that COVID is a biological weapon spread by migrants. The item reflecting blame of Chinese people for the spread of the virus did not load strongly onto the factor and was therefore removed from the measurement model. The Supplementary File S1 (Table S1) shows the parcels loaded strongly onto the underlying misbeliefs latent factor.

The Australian survey included a sub-set of three items: “The COVID pandemic is a hoax”, “COVID-19 virus does not actually exist”, and “COVID-19 is spread via the 5G network”. All the times loaded onto a latent misbelief factor (see Table S2).

Legitimacy of authority

In both samples, the perceived legitimacy of the authority handling the crisis was measured with three items, for example: “The government's response to this crisis is appropriate”. The Supplementary File S1 shows that the measure was reliable with all the items loading strongly onto the legitimacy factor (Table S1 for US sample, Table S2 for Australian sample).

Reactionary (anti-lockdown) collective action

We assessed both intentions to engage in an action and self-reported (in the past 8 weeks) engagement in action. Participants reported their intentions to participate in an anti-lockdown rally or send an email to authorities indicating their opposition to lockdowns or had taken either of those actions in the past 8 weeks. Anti-lockdown collective action was modelled in both nations with three items: two intention-based items (intention to rally, intention to email) and a parcelled aggregate of self-reported engagement in those actions which loaded strongly together on the collective action factor (Table S1 for US sample, Table S2 for Australian sample).

Study 1 Results

Analysis strategy

Table 1 displays the means (standard deviations) over the two time points for the US and Australian samples, while Table 2 displays the correlations for the key variables of interest over time. Table S1 (Study 1a, US sample) and Table S2 (Study 1b, Australian Sample) in the Supplementary File S1 contain full details of measurement invariance testing for the key constructs (misbelief, legitimacy, and reactionary anti-lockdown collective action).

Within the Latent Change Score models (LCS; see Selig & Preacher, 2009), the latent change variable (denoted with Δ) was represented by the (latent, unobserved) difference between adjacent

TABLE 1 Study 1 Means (standard deviation) for observed variables over the two timepoints (United States and Australia COVID-19).

	United States		Australia	
	Time 1	Time 2	Time 1	Time 2
COVID-19 misbelief	2.01 (1.08)	1.92 (1.05)	1.45 (0.91)	1.46 (0.93)
Legitimacy of authority	3.16 (1.71)	2.76 (1.67)	5.38 (1.35)	5.07 (1.39)
Anti-lockdown self-reported action	1.97 (0.16)	1.96 (0.17)	1.98 (0.13)	1.99 (0.85)
Anti-lockdown intention	1.96 (1.27)	1.87 (1.28)	2.10 (1.26)	1.89 (1.24)

TABLE 2 Study 1 Correlations for key variables over the two timepoints (United States and Australia COVID-19).

	COVID-19 misbelief (time 1)	Legitimacy of authority (time 1)	Anti-lockdown action (time 1)	COVID-19 misbelief (time 2)	Legitimacy of authority (time 2)	Anti-lockdown action (time 2)
COVID-19 Misbelief (Time 1)	—	.529***	.587***	.935***	.633***	.474***
Legitimacy of authority (Time 1)	−.199***	—	−.343***	.495***	.829***	.303***
Anti-lockdown action (Time 1)	.427***	−.317***	—	.549***	.394***	.832***
COVID-19 Misbelief (Time 2)	.645***	−.156***	.302***	—	.633***	.485***
Legitimacy of authority (Time 2)	−.160*	.796***	−.232***	−.175***	—	.387***
Anti-lockdown action (Time 2)	.344***	−.272***	.565***	.339***	−.330***	—

Note: * denotes $p \leq .05$, *** denotes $p < .001$. Correlations for Australian sample are underneath the diagonal, correlations for United States sample are above the diagonal.

observations. Given our interest in identifying the direct and indirect effects (via legitimacy) of misbelief and in keeping with the rationale for establishing mediation (see Baron & Kenny, 1986), we first estimated the effects of the independent variable (misbeliefs) on the outcome variable (action) without including the mediator (legitimacy). We then tested the full direct and indirect effects of misbelief: Changes in misbelief predicted changes in legitimacy which, in turn, predicted changes in lockdown action. Consistent with our theorizing of indirect effects, latent change factors of each construct were predicted by Time 1 indicators of hypothesized preceding variables (i.e., X on M, X and M on Y). Time 1 cross-sectional associations were also specified so that change was modelled over and above baseline associations. Each manifest variable was allowed to correlate with itself over time.

Study 1a: United States

All the final measurement models incorporated partial measurement invariance (see Supplementary File S1) and evidenced excellent fit with these data; these formed the basis of the tests of the structural model. Table 3 displays the model fit statistics for testing the effects of misbelief on anti-lockdown action via legitimacy and shows that the model fit these data well. Figure 1 displays the standardized regression coefficients.

As hypothesized, changes in misbelief were associated with increased legitimacy of President Trump's handling of the Pandemic and increased intention to engage in anti-lockdown protest (Figure 1). The direct relationship between changes in misbelief and action (values to the left of the forward-slash) attenuates once legitimacy is included in the model (values to the right of the forward-slash; Figure 1). However, changes in perceived legitimacy of Trump's handling of the pandemic were not associated with anti-lockdown action (see Figure 1). Legitimacy was not associated with anti-lockdown action at either the baseline or change level, and the indirect effects were non-significant (Table 4). Whilst misbelief affected legitimacy and engagement in anti-lockdown action, it affected these two outcomes separately.

TABLE 3 Fit statistics for the latent change score models (Study 1).

Sample	χ^2 (df), p	CFI	RMSEA [90% CI]	SRMR
United States	460.336 (168) $p < .001$	.950	.058 [0.052, 0.065]	.052
Australia	338.735 (123) $p < .001$	.949	.058 [0.052, 0.065]	.063

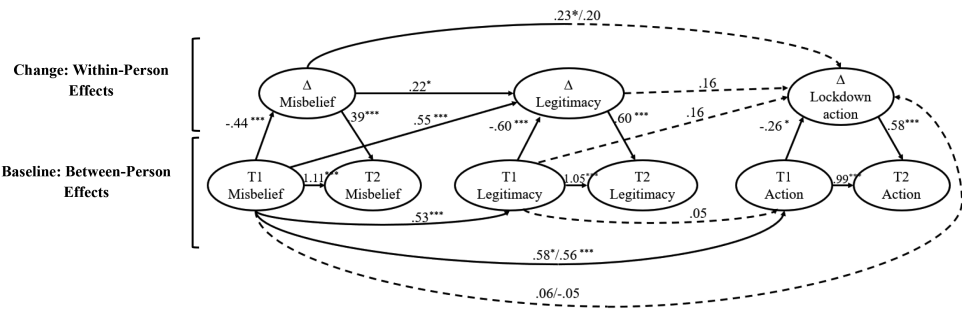


FIGURE 1 Standardized coefficients for LCS testing effects of misbeliefs on reactionary collective action via legitimacy, in the context of the COVID-19 Pandemic in the United States (Study 1a). *** denotes that $p < .001$, * denotes that $p < .05$. Dotted lines denote that the path was not significant $p > .05$. Values to the left of the forward slash are for the model which excludes legitimacy.

TABLE 4 Tests of standardized indirect effects for tests of misbelief on outcome variables (Study 1).

Sample	Within/between-person effect	Path	Estimate	Bootstrapped 95% CI
United States	Within-person effect	Δ Misbelief \rightarrow Δ Legitimacy \rightarrow Δ Action	0.083	[−0.026, 0.654]
		T1 Misbelief \rightarrow Δ Legitimacy \rightarrow Δ Action	0.075	[−0.046, 0.213]
		T1 Misbelief \rightarrow T1 Legitimacy \rightarrow Δ Action	0.071	[−0.037, 0.204]
	Between-person effect	T1 Misbelief \rightarrow T1 Legitimacy \rightarrow T1 Action	0.035	[−0.077, 0.136]
Australia	Within-person effect	Δ Misbelief \rightarrow Δ Legitimacy \rightarrow Δ Action	0.045	[0.015, 0.113]
		T1 Misbelief \rightarrow Δ Legitimacy \rightarrow Δ Action	−0.013	[−0.076, 0.021]
		T1 Misbelief \rightarrow T1 Legitimacy \rightarrow Δ Action	0.032	[0.003, 0.082]
	Between-person effect	T1 Misbelief \rightarrow T1 Legitimacy \rightarrow T1 Action	0.052	[0.023, 0.099]

Note: Significant indirect effects are bolded.

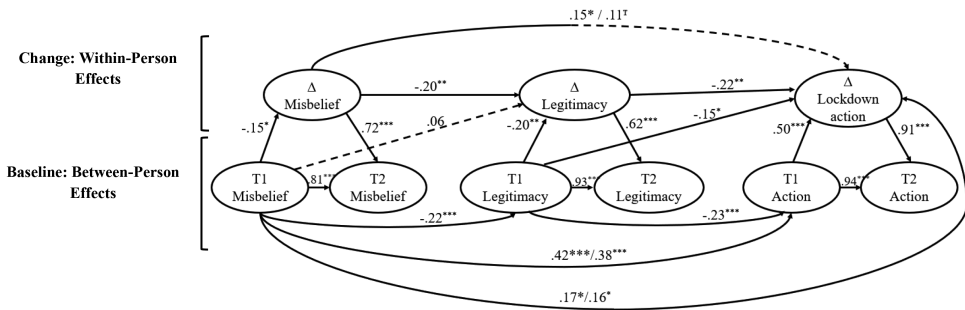


FIGURE 2 Standardized coefficients for LCS testing effects of misbeliefs on reactionary collective action via legitimacy, in the context of the COVID-19 Pandemic in Australia (Study 1b). *** denotes that $p < .001$, ** denotes that $p < .01$, * denotes that $p < .05$, † denotes that $p < .08$. Dotted lines denote that the path was not significant $p > .05$. Values to the left of the forward slash are for the model which excludes legitimacy.

At baseline (i.e., between-person effects), Time 1 COVID misbeliefs were associated with endorsement of Trump's handling of the crisis and commitment to anti-lockdown action (Time 1; Figure 1). Baseline misbelief is associated with changes in the perceived legitimacy of Trump's handling of the crisis, suggesting that the within- and between-person effects may also interact. These data provide good support for our hypotheses, albeit with some caveats discussed below.

Study 1b: Australia

The Supplementary File S1 contains details of measurement invariance testing (see Table S2). Table 3 displays the model fit statistics for the structural model. Figure 2 displays the standardized regression coefficients for the final model for lockdown action.

Examination of the within-person effects revealed that changes in COVID-19 misbeliefs were related to within-person changes in endorsement of PM Morrison's legitimacy (Figure 2). However, unlike the US where the paths were positive (Figure 1), these paths were *negative* in the Australian sample. Thus, as people increasingly endorsed COVID-19 misbeliefs, they also came to see the Prime Minister's handling of the Pandemic as illegitimate. Changes in legitimacy were, in turn, associated with changes in support for lockdown protests (Figure 2). Table 4 shows that the indirect effects were significant. Change in misbelief directly affected change in action (values to the left of

the forward-slash) but this was attenuated once legitimacy was included in the model (values to the right of the forward-slash; [Figure 2](#)). Over and above these within-person changes, the tests of the between-person effects showed that baseline (Time 1) endorsement of misbelief was associated with baseline legitimacy and action ([Figure 2](#)).

Study 1 Discussion

Study 1 examined the effects of COVID-19 misbeliefs on reactionary anti-lockdown action in two Western democracies. Across both studies, our results demonstrate that these effects are composed of state-like, within-person changes and stable, between-person effects. Specifically, endorsement of misbelief was associated with changed perceptions of whether the authority was “doing a good job” (legitimacy), and increased commitment to anti-lockdown reactionary action. As expected, there were also some marked differences in the two samples. In the US, COVID misbeliefs were associated with positive change in the endorsement of President Trump's handling of the pandemic and increased support for anti-lockdown action, but legitimacy and anti-lockdown action were not associated in that context. In Australia, changes in COVID misbeliefs were reliably associated with an increasingly critical stance on the legitimacy of authorities that, in turn, was associated with increased intention to engage in anti-lockdown protest.

STUDY 2

The 2020 US Presidential Election between Democratic candidate Joe Biden and Republican candidate Donald Trump was held on the 3rd of November. The 2020 New Zealand General Election between incumbent Prime Minister and leader of the left-leaning Labour Party, Jacinda Ardern, and her main challenger, Judith Collins, leader of the right-leaning National Party, was held on the 17th of October. The two electoral contests were conducted within weeks of each other, providing a compelling comparison. In Study 2, we focus on misbeliefs about the electoral contests and their effects on reactionary collective action (i.e., efforts to overturn the election result), in New Zealand and the US, over the period immediately before, during, and after the elections. We did not focus on legitimacy in this context because legitimization needs an object ([Zelditch, 2001](#)) and beliefs about the legitimacy of elections were also unlikely to be empirically distinct from the misbeliefs themselves. We therefore examined direct effects of election misbelief on reactionary collective action.

Misinformation and conspiracy theories regarding the electoral process and outcome were widely circulated during the US Presidential Election. Then-President Trump and his supporters frequently claimed that the election procedures and result were fraudulent. Trump and his supporters alleged widespread voter fraud or irregularities in voting (e.g., tampering with postal ballots, rigged voting machines, certification of votes) and perpetuated implausible claims of an international communist conspiracy. The claims were never substantiated by any investigation and were discredited by the Director of the Cybersecurity and Infrastructure Security Agency.

Effects of misbelief on reactionary action

In the US context, misbeliefs could bolster the intention to take reactionary collective action to protest the electoral result (i.e., to ‘Stop the Steal’). People's belief that the process and outcome of the election were illegitimate and invalid should correlate positively with intentions to take action to protest the result. In New Zealand, however, claims of electoral fraud and voting were limited. Nevertheless, New Zealand's General Election was inevitably affected by the spectacle of the (concurrent) US Presidential election, as claims that Dominion Voting Systems Corporation had been involved in a plot to steal votes

were also made in New Zealand. These claims circulated amongst a small number of Facebook users and were quickly discredited. Nevertheless, New Zealanders' belief that the election process and result was fraudulent should still correlate positively with reactionary collective action intentions (see also Uscinski & Parent, 2014).

To test the effects of election misbeliefs of anti-election reactionary action, we sampled participants in both countries approximately 2 weeks before the election results, on the day of the result/announcement, and 2 weeks after the results were known. Given the delays/uncertainty of the result of the 2020 US Presidential Election, we delayed Time 2 data collection by a day so that the result was certain. However, reactionary collective action support was only measured at Times 2 and 3 and, thus, our reporting focuses only on those two time points (which are referred to below as Times 1 and 2 for simplicity). We again used an LCS model to examine the effects of (changes in) misbeliefs in predicting (changes in) anti-election collective action, as well as baseline associations between variables.

Study 2 Method

Participants

In the US, participants ($N = 609$) were recruited via Dynata Panels and reimbursed with points that accrued to purchase gift cards. 50.9% of participants identified as female (0.5% non-binary) and were aged between 13 and 83 ($M = 49.74$, $SD = 17.19$). 41.1% identified as conservative and 34.4% as liberal. 63.2% had completed a Bachelor's Degree or higher. A randomly selected sub-set of participants were invited to participate at Times 2 ($n = 467$) and 3 ($n = 375$) as part of a planned missingness longitudinal design (Little & Rhemtulla, 2013). The Supplementary File S1 includes details of attrition analyses.

The New Zealand participants ($N = 605$) were also recruited via Dynata Panels and reimbursed with points that accrued to purchase gift cards. 49.4% of participants identified as female (1.3% non-binary/other) and were between 18 and 96 years of age ($M = 47.55$, $SD = 16.85$). 32.7% identified as conservative and 44.1% as progressive. 44.9% had a Bachelor's degree or higher. A randomly selected sub-set of participants were invited to participate at Times 2 ($n = 465$) and 3 ($n = 393$). The Supplementary File S1 includes full details of the attrition analysis. For both studies, missing data were estimated using FIML in MPlus.

Measures

Unless otherwise indicated, all items were measured on a 1 (Strongly disagree) to 7 (Strongly agree) Likert-type scale. The measurement approach was almost identical across the US and New Zealand samples, with context-specific adjustments as described below.

Misbelief and conspiracy

We measured misbeliefs about the General Election (New Zealand) and Presidential Election (US) with five items. Two items assessed endorsement of the belief that voter fraud was an issue ("Widespread voter fraud is undermining this election", "The postal (mail-in) ballots are being interfered with"), another item measured belief that foreign actors interfered in the election, and two items assessed the belief that powerful elites influenced the outcome ("The election is being influenced by powerful people, who are altering the outcome" and "This election is being conducted in accordance with all the necessary rules and laws", reverse-scored). Exploratory factor analysis revealed, however, that the item measuring belief that foreign actors influenced the outcome did not load strongly with the other factors at any of the time points in the US sample, and the fit of the measurement model was inadequate. Although the foreign actor item loaded on the misbelief factor in the New Zealand sample, we omitted

it so that the measures were directly comparable across the two samples. Removing this item created a measure with four indicators that all loaded strongly onto the underlying misbelief factor in both countries (see Table S3).

Reactionary (anti-election) collective action

Two items measured intention to attend a protest in relation to the outcome of the election. The item stem read: “Thinking about the outcome of this election... I intend to attend a peaceful protest” and “...I intend to attend a protest, even if that protest may turn violent”. The two items were strongly correlated in the US sample, Time 1 $r = .78, p < .001$, Time 2, $r = .75, p < .001$, as well as in the New Zealand sample, Time 1 $r = .78, p < .001$, Time 2, $r = .75, p < .001$, suggesting that anti-election protest and violence are strongly interlinked in both contexts. Since two-item latent variables are not identified, we modelled this variable as an observed (mean-scaled) variable.

Study 2 Results

Table 5 displays the means (standard deviations) over time for the US and New Zealand samples, and Table 6 displays the correlations for the key variables of interest. Table S3 contains full details of longitudinal measurement invariance testing for the misbelief measure. The final measurement model for each construct across time incorporated partial measurement invariance (see Supplementary File S1).

Study 2a: United States

We again used an LCS model to test the effects of election misbeliefs on anti-election reactionary action. The latent change variable (denoted with Δ) was represented by the (latent, unobserved) difference between adjacent observations (Times 1 and Times 2; see Figure 3). The model fit these data well (Table 7). Figure 3 shows that within-person increases in misbelief were associated with

TABLE 5 Study 2 Means (standard deviation) for observed variables over the three timepoints (United States and New Zealand Elections).

	United States		New Zealand	
	Time 1	Time 2	Time 1	Time 2
Election misbelief	3.86 (1.72)	3.43 (2.00)	2.42 (1.11)	2.19 (1.09)
Anti-election action intention	1.95 (1.31)	1.91 (1.21)	1.74 (1.03)	1.71 (1.03)

TABLE 6 Study 2 Correlations for key variables over two timepoints (New Zealand and United States Election).

	Election misbelief (time 1)	Anti-election action (time 1)	Election misbelief (time 2)	Anti-election action (time 2)
Election misbelief (Time 1)	–	.05	.79***	.05
Anti-election action (Time 1)	.43***	–	–.07	.62***
Election misbelief (Time 2)	.72***	.39***	–	.03
Anti-election action (Time 2)	.33***	.63***	.41***	–

Note: *** denotes $p < .001$. Correlations for New Zealand sample are underneath the diagonal, correlations for United States sample are above the diagonal.

increased reactionary collective action intentions to oppose the election. Contrary to expectations, there was no association between baseline misbeliefs and action intentions in the US sample (Figure 3).

Study 2b: New Zealand

As in Study 2a, we used an LCS model to test the effects of election misbeliefs on anti-election reactionary action. Table 7 demonstrates that the model fit these data well. Figure 4 shows that, as hypothesized, baseline misbelief endorsement predicted anti-election reactionary action. Also as expected, changes in misbelief between Time 1 and 2 were associated with change in intention to engage in reactionary collective action to oppose the election.

Study 2 Discussion

Study 2 showed that changes in misbeliefs about an electoral outcome were associated with changes in intention to actively and violently oppose that result in both nations (Figures 3 and 4). People who

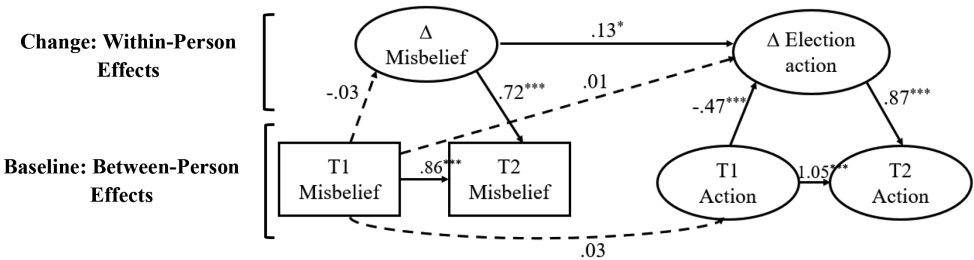


FIGURE 3 Standardized coefficients for LCS testing effects of misbeliefs on intention to oppose the Presidential Election result, in the context of the United States Presidential Election (Study 2a). *** denotes that $p < .001$, * denotes that $p < .05$. Dotted lines denote that the path was not significant $p > .05$.

TABLE 7 Fit Statistics for the models (Study 2).

Sample	Outcome variable	χ^2 (df), p	CFI	RMSEA [90% CI]	SRMR
United States	Anti-election action	144.598 (34) $p < .001$	.963	.083 [0.070 0.098]	.051
New Zealand	Anti-election action	100.785 (38) $p < .001$	.974	.060 [0.046 0.074]	.047

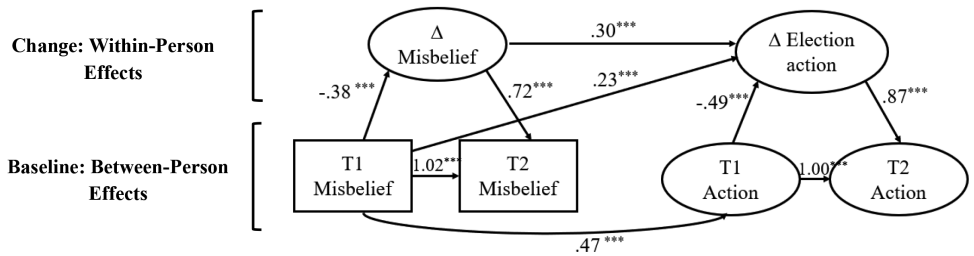


FIGURE 4 Standardized coefficients for LCS testing effects of misbeliefs on intention to oppose the General Election result, in the context of the New Zealand General Election (Study 2b). *** denotes that $p < .001$. Dotted lines denote that the path was not significant $p > .05$.

increasingly adopt misbeliefs about the irregularity of an election are increasingly inclined to protest or disrupt its outcome. However, we did not find support for baseline effects of misbelief on intention to protest the outcome in the US sample (Study 2a), and the correlations displayed in Table 6 suggest that these were not associated, even if *changes* in those misbeliefs over the timeframe were. Intriguingly, although misbeliefs were more widespread, only a small minority of people who actively endorsed those beliefs were prepared to act on them.

GENERAL DISCUSSION

Pundits suggest that proliferating misbeliefs catalyse the emergence of reactionary, right-wing movements. Yet, empirical tests of the effects (outcomes) of misbelief have been slow to emerge in general (Jolley et al., 2020) and collective action in particular (Bertuzzi, 2021). In the few studies that have examined these associations, results have been mixed (Imhoff et al., 2022). In this paper, we investigated the within- and between-person effects of misbeliefs on commitment to reactionary collective action. Four pre-registered studies in the context of two different societal transitions (pandemic, elections) investigate and map the relative contributions of the within-person changes and baseline between-person effects. Table 8 summarizes the support for these different hypotheses across Studies 1 and 2.

Conspiracy and misbelief as drivers of reactionary collective action

What role does misinformation and conspiracy play in shaping how people organize themselves collectively to respond to societal challenges (that is, take collective action)? The current literature addressing this question is mixed, with some evidence suggesting that misbeliefs undermine political engagement (e.g., Jolley & Douglas, 2014a), while others showing that a general conspiratorial mindset is not associated with political engagement (e.g., Ardèvol-Abreu et al., 2020). We suggested that misbeliefs may not be associated with political engagement in the abstract but are likely to foster support for movements with discrete goals aligned with the specific misbeliefs (van Prooijen, 2018). In the context of the two issues studied here, we conceptualized the collective actions as reactionary, that is, the movements sought to oppose change and/or reinstate a former status quo.

Indeed, Table 8 shows that misbeliefs, legitimacy, and reactionary collective action engagement are consistently related, albeit with some caveats. There was broad evidence that misbeliefs correlate positively with reactionary actions in the context of anti-lockdown actions (Study 1) and 'Stop the Steal' anti-election actions (Study 2). These results suggest that these factors are related but do not explain how they are related. Some have theorized that misbeliefs are particularly likely to spur reactionary social movements during times of societal change or transition (Becker, 2020; Sternisko et al., 2020). If this is the case, then *changes in* misbeliefs should also predict changes in the perceived legitimacy of authorities and action. To address these possibilities, we considered two types of effects: between-person, baseline effects that reflect differences between people at the initial survey, and within-person effects that reflect changes within people over the two timepoints (months in Study 1, weeks in Study 2).

As hypothesized, there was relatively consistent evidence for both between-person and within-person effects. Specifically, average levels of misbelief, legitimacy, and reactionary collective actions are related. Additionally, changes in people's endorsement of misbelief explained their changes in legitimacy and action (Sutton & Douglas, 2020; Table 8). American respondents who tended to be higher in misbeliefs also tended to report greater legitimacy of President Trump's handling of the Pandemic (Study 1a); however, Australian respondents who were higher in misbeliefs tended to be more cynical about Australian Prime Minister Morrison's leadership during the Pandemic (Study 1b). Legitimacy is particularly important during societal transition because a legitimate authority will be obeyed (Tyler, 1997). Thus, legitimacy is key to understanding the maintenance of social order and social change (Zelditch, 2001).

TABLE 8 Overview of study results vis support for the hypotheses (Study 1–2).

Study	Context	Sample nationality	Outcome variable	Baseline: Between-person effects	Change: Within-person effects
Study 1a	COVID-19	United States	Legitimacy of authority handling crisis	✓	✓
			Reactionary anti-lockdown action	✓	✓
Study 1b	COVID-19	Australia	Legitimacy of authority handling crisis	✓	✓
			Reactionary anti-lockdown action	✓	✓
Study 2a	Election	United States	Reactionary anti-election action	X	✓
Study 2b	Election	New Zealand	Reactionary anti-election action	✓	✓

Misbeliefs appear to be associated with a cynical mindset that foments distrust in people and institutions, including how people appraise the legitimacy and effectiveness of authorities' actions (Freeman et al., 2022)—unless the rhetoric of those authorities also perpetuate the misbeliefs as part of populist appeals (Smallpage et al., 2017).

Baseline misbeliefs also correlated with greater anti-lockdown action in the US and Australia (Study 1), and greater intention to protest the election result in New Zealand (Study 2b) but, unexpectedly, not the US (Study 2a). The current results suggest that misbeliefs play a more prominent role in promoting state-based changes in commitment to reactionary action (Becker, 2020)—even if the misbeliefs do not themselves assuage the feelings of anxiety and uncertainty that motivated them in the first place (Liekfett, Christ, & Becker, 2023).

Our data shows that baseline levels of misbelief also predict within-person changes in outcomes (see Figures 1 and 4). These cross-level effects suggest that people who endorse particular beliefs at baseline may be more likely to change in response to critical events. Future longitudinal research must carefully consider the timeframe to reliably assess the prevalence of both kinds of effects. Moreover, interventions could focus on disturbing or attenuating these within-person changes during destabilizing periods of societal transition. Intervening to correct or inoculate against misbeliefs is notoriously challenging (e.g., Bak-Coleman et al., 2022). However, shifting attention to accuracy (e.g., Pennycook et al., 2021), as well as communicating the weight-of-evidence and scientific consensus (e.g., Whitehead et al., 2023), can reduce susceptibility to misinformation. Nevertheless, combined approaches are likely to be more effective than any single intervention (Bak-Coleman et al., 2022).

Limitations and future directions

Although there is a rich literature on the drivers of engagement in collective action for progressive change, the current research is amongst only a handful of papers that consider the drivers of reactionary or conservative forms of collective action (e.g., González et al., 2022; Liekfett & Becker, 2022; Mikołajczak & Becker, 2022). It is also novel in adopting contemporary statistical approaches to model change as a variable in and of itself (see Osborne & Little, 2023). Despite these strengths, our approach has notable limitations.

First, the latent change score models involved only two time points across all four datasets. Change was therefore modelled simultaneously between the independent, mediator, and outcome variables and is correlational in nature; claims about temporal precedence should be viewed with this limitation in mind. We noted above that Study 2 involved three waves but only two measures for collective action. Future longitudinal research should include three or more waves of measurement to allow for tests that can simultaneously differentiate within- and between-effects, and test for reverse causal paths in one model. Indeed, it is plausible that participating in collective action—and the implied social support of others who share one's conspiratorial worldviews—may reinforce misbeliefs such that the two dynamically inter-relate over time.

Our approach studied contemporary, reactionary misbeliefs, but recent evidence suggests that conspiracy mentality is associated with ideological extremism on both the right and left (e.g., Imhoff et al., 2022). We demonstrated that COVID and election misbeliefs are associated with commitment to reactionary action but we would not expect these misbeliefs to be associated with progressive actions to, for example, collectively support preventative health measures or protect democratic freedoms—important boundary conditions of these effects. A stronger test of the role of misbelief in shaping collective action engagement could emerge where there are both left-aligned conspiracies and right-aligned conspiracies. We also argued that misbeliefs are more likely to be associated with action when they are contextually aligned, rather than more generalized (e.g., Ardèvol-Abreu et al., 2020). Nevertheless, future research is needed to directly compare the effects of specific versus more generalized beliefs on collective action support.

Given that the specific pattern of effects differed between contexts (on some issues, some nations), future research could seek to identify key contextual moderators for these effects. For instance, the national-level stability (or fragility) of democracy may moderate these effects. At the individual level, support for democracy (González et al., 2022) and the endorsement of ideologies that legitimate inequality (e.g., right-wing authoritarianism, social dominance; Choma et al., 2020; González et al., 2022) are known predictors of conservative or reactionary movements that may covary with, or further condition, the effects of misbelief.

Concluding comments

When people engage in collective action, they do so with a specific, desired outcome in mind. The results presented here demonstrate that the relationship between misbeliefs and support for any particular social movement depends on an interplay of dispositional (mindset), situational (contextual changes) and ideological factors. These results illustrate that the ways in which misbeliefs shape action depend upon the position of authorities (who is “calling the shots”) and their ideological alignment with the given set of misbeliefs.

AUTHOR CONTRIBUTIONS

Emma F. Thomas: Conceptualization; investigation; funding acquisition; writing – original draft; methodology; validation; visualization; writing – review and editing; formal analysis; project administration; data curation. **Lucy Bird:** Methodology; writing – review and editing; writing – original draft; investigation. **Alexander O'Donnell:** Conceptualization; writing – review and editing; methodology; formal analysis. **Danny Osborne:** Conceptualization; funding acquisition; writing – review and editing; methodology. **Eliana Buonaiuto:** Investigation; writing – review and editing; methodology; project administration. **Lisette Yip:** Investigation; writing – review and editing; methodology; project administration. **Morgana Lizzio-Wilson:** Conceptualization; writing – review and editing. **Michael Wenzel:** Conceptualization; investigation; funding acquisition; writing – review and editing; methodology; project administration; formal analysis. **Linda Skitka:** Conceptualization; investigation; funding acquisition; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Open Science Framework at Study 1: https://osf.io/xaznc/?view_only=cb237372691a47cb82491ef2db2c39ed; Study 2: https://osf.io/9uv8j/?view_only=c737eaa51cc4424998c5c23cb8ba1836.

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