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Ideologically-based contact avoidance during a pandemic: Blunt or selective distancing from 'others'?

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Abstract

This project sought to understand when ideology is relevant (or not) to predicting contact avoidance of 'others' during the COVID-19 pandemic. Right-leaning ideologies (political conservatism, right-wing authoritarianism, social dominance orientation) were not expected to predict greater contact avoidance per se, but rather exhibit selective avoidance of outgroup (vs. ingroup) members. White British participated in one exploratory (Study 1 $N = 364$) and two pre-registered (Study 2 $N = 431$, Study 3 $N = 700$) studies. As expected, right-leaning ideologies were significantly stronger predictors of greater preferred personal distance and contact discomfort regarding foreign outgroups (vs. British ingroup) in Studies 1 and 3 (partially supported in Study 2). Ideology rarely predicted ingroup reactions. This Ideology × Target pattern was itself not moderated by the perceived COVID-19 threat. Pre-pandemic theorizing that heightened behavioural immune system responses are associated with heightened right-leaning ideologies appear insufficient for use in actual pandemic contexts, especially when highly politicized.

KEYWORDS
behavioural immune system, contact avoidance, COVID-19, ideology

1 | INTRODUCTION

In 2019 the World Health Organisation listed communicable diseases among the top 10 threats to global health. Along with climate change, growing rates of obesity, and non-communicable diseases (e.g., diabetes, cancer), outbreaks of influenza, Ebola or other high-threat pathogens (plus vaccine hesitancy) were deemed major threats to human health. The following year an outbreak of a novel coronavirus (COVID-19) was detected in China and spread globally. By March 2021, in excess of 120 million cases of COVID-19 had been confirmed worldwide and COVID-19-related deaths exceeded 2.6 million. This tragedy, however, offers researchers a unique context to explore how people regulate exposure to others during a highly salient disease threat. After all, some people reacted to the pandemic with great fear, concern and distancing from others, whereas others downplayed the risks and appeared relatively unconcerned. Given the politicized nature of COVID-19 reactions, we explore the degree to which political ideologies in the UK predict contamination-relevant reactions (e.g., physical distancing) during a pandemic. In doing so we contrast ingroup from outgroup targets to better understand reactions that could be blunt and diffuse (i.e., applying to 'others' generally) or more targeted (i.e., applying more to outgroups) in nature. We anticipated that reactions to pandemics do not solely concern disease and contamination threats but also reflect political ideological motives and intergroup dynamics.

1.1 | Avoiding others as a defensive strategy in disease-relevant contexts

Working in conjunction with the physiological immune system, the behavioural immune system (BIS) represents a series of evolved strategies to mitigate contamination risks (Murray & Schaller, 2016; Schaller, 2011; Schaller & Park, 2011). In ancestral environments, many communicable parasites and diseases were hazardous to individuals' health. Behavioural tendencies that helped people to avoid infection would therefore have been adaptive. One adaptative tendency involves the avoidance of others who are likely carriers of contagious diseases. Consequently, people are sensitive to perceptual cues that heuristically indicate the possible presence of contagious diseases (e.g., lesions, pustules, swellings); when perceived these stimuli trigger behavioural avoidance (e.g., Ackerman et al., 2018; Murray & Schaller, 2016; Neuberg et al., 2011; Oaten et al., 2011). Moreover, because it is preferable to avoid potential disease (where there is none) than to encounter disease (where pathogens are mistakenly believed to be absent), the BIS has evolved to be hypersensitive, leading to reactions towards stimuli perceived to carry pathogens, even if such targets do not (Schaller & Park, 2011). Just as a smoke detector can sound an alarm in response to benign cues, concerns about disease result in overgeneralized prejudice towards people with non-infectious physical and mental abnormalities (e.g., the physically disabled, disfigured, obese, elderly), plus people of foreign ecological origin who pose a heightened risk by bringing novel viruses and parasites (e.g., immigrants, for review see Murray & Schaller, 2016).

Despite the functional benefits associated with the avoidance of social interactions that pose a potential infection risk, there are also costs to other fitness-promoting behaviours. If one avoided all social contact, exposure to pathogens would be minimized, but so would opportunities for resource sharing, intimacy and/or sexual interactions, and cooperation on joint tasks. Therefore, the BIS makes *trade-offs*, weighing the costs of pathogen exposure against those of social avoidance in a target-specific manner (Tybur & Lieberman, 2016). For instance, mothers report less disgust towards their own baby's diapers than those of other babies (Case et al., 2006), and people deem the bodily fluids or wastes from friends (vs. strangers) less aversive (Curtis et al., 2004; Peng et al., 2013; Rozin et al., 1989; Stevenson & Repacholi, 2005). Most recently, Tybur et al. (2020) demonstrated that social pathogen avoidance is also moderated by perceptions of interpersonal value. Specifically, people are less averse to infection-risky contact with honest and agreeable strangers relative to dishonest and disagreeable ones. Of interest to us, such trade-offs in the BIS open the door for substantial and meaningful individual differences between people in how they approach versus avoid others (and engage in other relevant distancing behaviours) in disease-relevant contexts, but, we argue, with regard to ingroup versus outgroup avoidance.

As a starting point we turned to the finding that BIS goals tend to be associated with conservative beliefs, especially socially conservative beliefs (e.g., valuing tradition; submission to authorities), as a means of mitigating pathogen threats posed by intergroup interactions (Aarøe et al., 2017; Terrizzi et al., 2010, 2013; Tybur et al., 2016). Consider that in the United States geographic areas with greater human-to-human disease contamination are more Republican than Democrat in political leaning (O'Shea et al., 2022). Indeed, a meta-analysis found that behavioural immune strength, as indicated by fear of contamination and/or disgust sensitivity, was positively related to several measures of social conservatism, including right-wing authoritarianism (RWA), social dominance orientation (SDO), political conservatism and religious fundamentalism (Terrizzi et al., 2013). These findings are concordant with the position that increases in liberalism are associated with approach orientations that focus on social gains, whereas increases in conservatism are associated with avoidance orientations that focus on social threats (Janoff-Bulman, 2009). Consistent with this premise, increases in right-leaning ideologies are associated with greater outgroup avoidance in general (Hodson, 2011). These (largely pre-COVID-19) findings suggest, in principle, that ideology is relevant in predicting disease-relevant reactions such as distancing from others, getting vaccinated, and so on.

1.2 | Reacting to others during a novel-disease-based global pandemic

Our interest concerns the role of ideology during a unique and special time-point, the COVID-19 pandemic, a once-in-a-century disease involving a novel virus that brought heightened uncertainty. We sought to understand when ideology becomes more or less relevant in predicting distancing from others, including the psychological comfort interacting with others. We considered ingroup versus outgroup status as a potential moderating variable with theoretical value—does ideology become more or less relevant in predicting social distancing as a function of whether the 'other' in question shares one's social identity or is an outsider? The United Kingdom served as our social backdrop, a predominantly White country that was one of the worst COVID-hit countries in Europe (Office for National Statistics 2020), with White British participants serving as the ingroup and unspecified 'foreigners' (Studies 1–2) or Eastern European immigrants (Study 3) as the outgroup.

We anticipated that reactions to the COVID-19 pandemic would probably be complex and nuanced. Consider that experimentally induced COVID threats among White Americans have increased discrimination towards Asians (see Lu et al., 2021; Zhao et al., 2022), whereas a British study (Meleady & Hodson, 2022) tracking naturally occurring changes in COVID-perceptions over time found that decreases in COVID-threat coincided with reduced outgroup avoidance (and no changes in anti-immigrant attitudes). Consider also that, during COVID-19, RWA (characterized by conventionality, submission to authorities, and punitiveness towards outgroups) decreased in Germany (Heller et al., 2022) but increased in the United States (Pazhoohi & Kingstone, 2021), whereas other American research found little association between political ideology and objective COVID-related changes (e.g., cases; restrictions) (Stern & Axt, 2022). In a large-scale comparison of 11 countries, most countries exhibited no relation between ideology and COVID-reactions except for American

respondents, for whom increases in right- (vs. left-) leaning ideologies were associated with greater ignoring of social distancing recommendations (Becher et al., 2021). Such findings raise broad questions about how ideology operates during the COVID-19 pandemic.

It is worth recognizing, however, that the COVID-19 pandemic introduced several complicating factors in thinking about ideology-BIS relations. Although increases in right-leaning ideologies generally predict greater disease concern and disgust reactions in pre-pandemic studies (Terrizzi et al., 2013), recent surveys of Americans have shown that, in line with partisan narratives, increases in political conservatism predict lower perceived personal vulnerability to COVID-19 (Calvillo et al., 2020), higher COVID-19 scepticism (Latkin et al., 2022), and lower willingness to engage in COVID-19 preventative measures, including social distancing (Becher et al., 2021; Plohl & Musil, 2021). Behavioural data show similar results—geotracking of smartphone data reveals that US counties that voted for Trump (Republican) over Clinton (Democrat) in the 2016 presidential election exhibited 14% less physical distancing between March and May 2020 (Gollwitzer et al., 2020). These differences in distancing were subsequently associated with higher COVID-19 infection and fatality growth rates in pro-Trump counties. Finally, Kachanoff et al. (2021) found that conservatism was associated with lower perceptions of realistic threat posed by COVID-19 (i.e., to American's health and wellbeing), but higher perceptions of symbolic threat (i.e., to American values, and what it means to be American).

These patterns suggest that during the COVID-19 pandemic ideology might become particularly relevant to predicting intergroup dynamics, such as avoiding contact with foreigners (vs. ingroup members), yet in ways not strongly related to contagion or disease-relevant concerns per se. Whereas ideology might have been a positive predictor of BIS responses (e.g., avoidance of people generally) in non-pandemic times, with increases in right-leaning ideologies predicting more protective responses in general, more nuanced patterns might emerge when a contagion context becomes politicized, as it has with COVID-19. In more politicized contexts, ideology may become increasingly relevant in predicting outgroup avoidance (reflecting heightened intergroup concerns), but become less relevant in predicting ingroup avoidance. Indeed, research from the beginning of the COVID-19 pandemic demonstrates that in the US conservatism was more strongly related to germ aversion (e.g., hand sanitizing) regarding outgroups (vs. ingroups) (O'Shea et al., 2022). Problematically, being higher in right-leaning (vs. left-leaning) ideology makes people particularly prone to the 'intimacy paradox', that is, being drawn to close friends and family members during a pandemic despite the intimate proximity elevating contagion risks (De Vries & Lee, 2022). For these reasons, we expected ideology to become particularly relevant in predicting distancing from outgroups (vs. ingroups) during a pandemic, representing a targeted focal response rather than a blunt or general one.

1.3 | Central hypothesis

Prior to COVID-19 the literature largely suggested that ideology is relevant to predicting BIS reactions, with increases in right-learning ideologies (especially those associated with social conservatism) being associated with more disgust sensitivity and perceived vulnerability to disease for example (see Terrizzi et al., 2013). Furthermore, with increases in right-wing ideology comes greater bias against low-status groups such as immigrants, predicting greater avoidance (Hodson, 2011) and greater outgroup prejudice (Altemeyer, 1996; Hodson & Dhont, 2015; Sidanius et al., 1996).[1] But the COVID-19 pandemic turned things on their head, with increases in right-wing ideology predicting lower risk perceptions and less social distancing (Calvillo et al., 2020; Latkin et al., 2022; Plohl & Musil, 2021), at least in the United States. With the pandemic being politicized in ways not evidenced in past epidemics, we predicted that increases in right-leaning ideologies would be associated with greater distancing (in accordance with pre-pandemic findings), but that the pandemic would sharpen the ingroup–outgroup distinction, particularly as right-wing ideologies became stronger. As such, we hypothesized that *increases in right- (vs. left-) wing ideological endorsement would predict greater avoidance and less comfort with social interactions, but particularly for outgroup (vs. ingroup) targets*. Such a pattern, if established, would suggest that ideologies play a role in the BIS response, but that disease contagion concerns are targeted and specific rather than blunt and diffuse. In three studies we examined White British nationals and their COVID-relevant reactions to national ingroups (White British participants) and outgroups (foreigners in Studies 1–2, and Eastern European immigrants in Study 3).

2 | STUDY 1

Study 1 provides a preliminary exploration of our main research question. Data were collected among White British adults early in November 2020, when the UK was experiencing a second wave of COVID-19 infections with a second national lockdown in place. We tested whether increases in political conservatism predicted greater social distancing and, if so, whether this effect is moderated by target group (expecting that ideology-distancing effects would be stronger for foreign outgroup members than for British ingroup members).

2.1 | Participants

Data were collected from 400 participants from the online participant panel Prolific. Because the UK is largely White, we focused on White British participants only (for similar practice, see Meleady & Hodson, 2022; Zhao et al., 2022). Data from three mixed-race and three non-British participants were excluded. One participant

[1] We thank a reviewer for pointing out that there is a literature (e.g., Brandt & Crawford, 2020) arguing that those higher in left-leaning ideologies also hold prejudices or intolerances (e.g., towards bankers or the police). Of note, our focus is on bias towards lower-status groups such as immigrants and foreigners to the United Kingdom; stronger right-leaning ideologies tend to be associated with greater opposed to such groups (Sidanius et al., 1996; Sidanius & Pratto, 1999). For more on this distinction see Hodson (2021; see also Badaan & Jost, 2020; Hodson & Dhont, 2015).

TABLE 1 Means, standard deviations and correlations for all variables (Study 1)

	$M_{ingroup}$ ($SD_{ingroup}$)	$M_{outgroup}$ ($SD_{outgroup}$)	1	2	3
(1) Conservatism	3.44 (1.45)	3.28 (1.35)	–	.19* [.05, .33]	–.23** [–.37, –.11]
(2) Preferred personal distance	54.18 (19.58)	55.74 (20.09)	–.08 [–.24, .09]	–	–.36*** [–.53, .19]
(3) Contact comfort	3.49 (1.41)	3.25 (1.28)	.09 [–.07, .24]	–.34*** [–.52, –.19]	–

Notes: Correlations in the ingroup target condition are presented below the diagonal, and correlations in the outgroup target condition are shown above the diagonal. Values in square brackets are 95% bias confidence intervals.
*$p < .05$.
**$p < .01$.
***$p < .001$.

failed an attention screen and two wanted their data excluded. We also excluded data from 27 additional participants who believed that they had already contracted COVID-19 and thus were potentially no longer at risk of infection (as was commonly thought early in the pandemic). The final sample (n = 364) included 124 males and 239 females (one did not report gender) aged between 18 and 77 (M = 36.16, SD = 13.31). The datasets for all studies are available on the Open Science Framework project page: https://osf.io/ve4h7/?view_only=086c1cfceb034fcd8e964596ffa70ceb

2.2 | Measures and procedure

All studies reported in this article received ethics approval from the School of Psychology Ethics Board (University of East Anglia, UK). All participants gave informed consent prior to their inclusion in the studies. Participants were randomly assigned to complete the measures with reference to either British people (ingroup members) or foreigners to the United Kingdom (outgroup members) in a between-subjects design. Contact avoidance was measured in two ways. *Preferred personal distance* was assessed with a graphic measure adapted from Sorokowska et al. (2017). Answers were given on a slider scale anchored by two human-like figures, labelled A and B. Participants were instructed to imagined that he or she was Person A and to indicate how close Person B could approach so that he or she would feel comfortable in a conversation during the current COVID-19 outbreak. This was accomplished by dragging the slider of the representation of Person B towards themselves. Responses ranged from 0 to 100, with higher scores indicating greater preferred personal distance.

Additionally, *comfort engaging in infection-risky behaviours* with either ingroup or outgroup members amid the pandemic was assessed in a scale adapted from Tybur et al. (2020). Behaviours included 'Sitting next to them on public transport', 'Handling items they had touched', and 'Shaking their hand' (1 = *very uncomfortable* to 7 = *very comfortable*). Nine items were combined to create a single composite score (α = .92); lower scores reflected less comfort interacting with the target. Political conservatism was measured at the end with a single self-placement item, indicating position on a political spectrum ranging from 1 (*very liberal*) to 7 (*very conservative*).

2.3 | Results

Descriptive statistics are reported in Table 1. We used PROCESS software (Model 1, Hayes, 2013) to test the association between conservatism (mean-centred), target group and their interaction on contact avoidance. Effect coding was used for the target group variable (ingroup = −1, outgroup = +1) and separate models were tested for each outcome variable (see Table 2). For relevant group comparisons, contrasts were tested at the 16th ('low') or 84th percentiles ('high') throughout the article, as recommended by Hayes (2018). Because the same model was tested on two related outcomes, a Bonferroni correction was applied by dividing alpha by the number of simultaneous comparisons. In Study 1, p-values of less than .025 were considered statistically significant (Bonferroni significance threshold p = .05/2).[2] For the results reported below, and in the subsequent studies, we focus our written summaries on effects of theoretical importance; the fuller regression results can be found in the tables.

There was no association between conservatism and preferred personal distance (b = .87, p = .242, CI_{95} [−0.59, 2.31]), and no effect of target group condition on this outcome (b = .84, p = .415, CI_{95} [−1.19, 2.87]). There was, however, a significant interaction between conservatism and target group (b = 1.91 p = .010, CI_{95} [0.45, 3.36]); see Figure 1a. There was no evidence of ingroup versus outgroup distinction at low levels of conservatism (b = −1.74, p = .227, CI_{95} [−4.57, 1.09]), but at high levels of conservatism target group was positively associated with preferred personal distancing indicating greater outgroup (vs. ingroup) avoidance (b = 3.97, p = .013, CI_{95} [0.84, 7.11]. Explored differently, simple slopes analyses demonstrated that political conservatism was associated with greater preferred personal distance when considering outgroup members (b = 2.76, p = .010, CI_{95} [0.66, 4.88]) but not when considering ingroup members (b = −1.04, p = .306, CI_{95} [−3.01, 0.96]); the statistically significant interaction term reflects that these slopes differed significantly.

A similar pattern was observed for comfort engaging in infection-risky behaviours (see Table 2). Political conservatism was not associated with comfort engaging in infection-risky social contact (b = –.07, p = .172, CI_{95} [−0.16, 0.03]), and there was no effect of target group on this outcome (b = –.12, p = .084, CI_{95} [−0.26, 0.02]). However, target

[2] We thank a reviewer for this suggestion.

TABLE 2 Regression models predicting preferred personal distance and contact comfort from conservatism, target group, and their interaction (Study 1).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	55.11				3.35			
Conservatism	.87	.74	.242	[−0.59, 2.31]	−.07	.05	.172	[−0.16, 0.03]
Target group (−1 = ingroup, +1 = outgroup)	.84	1.03	.415	[−1.19, 2.87]	−.12	.07	.084	[−0.26, 0.02]
Conservatism × Target group	1.91	.74	.010	[0.45, 3.36]	−.15	.05	.002	[−0.25, −0.06]
F	$F(3, 360) = 2.77, p < .05$				$F(3, 360) = 4.57, p < .01$			
R^2	.02				.04			
ΔR^2	.02				.03			

Note: Bonferroni significance threshold $p = .025$.

group significantly moderated the relation between political conservatism and contact comfort ($b = -.15$, $p = .002$, CI_{95} [−0.25, −0.06]). Again, there was no difference in contact comfort towards ingroup and outgroup members among participants low in conservatism ($b = .09$, $p = .367$, CI_{95} [−0.10, 0.27]), but significant intergroup bias emerged at high levels of conservatism, such as contact comfort was lower for outgroup (vs. ingroup) targets ($b = .-37$, $p = .006$, CI_{95} [−0.58, −0.16]). Alternatively, simple slopes analyses demonstrated that political conservatism was associated with less comfort engaging in infection-risky behaviours when framed around foreigners ($b = -.22$, $p = .002$, CI_{95} [−0.36, −0.08]), but not when framed around other British people ($b = .09$, $p = .214$, CI_{95} [−0.05, 0.22]); see Figure 1b.

2.4 | Discussion

Study 1 provided an initial exploration of the role of ideological conservatism in predicting contact avoidance amid the COVID-19 crisis. We found no association between conservatism and contact avoidance, and no effect of target group (British ingroup members vs. foreign outgroup members) on contact avoidance. Collapsing across targets, ideology therefore did not predict avoiding 'others' in a blunt or general sense. Critically, however, conservatism and target group interacted on both the proximity measure and the physical contact measure: increases (vs. decreases) in conservatism predicted greater avoidance of foreign outgroup members than British ingroup members (with no significant slope of ideology for ingroup targets). These findings are consistent with the notion that ideological reactions during the pandemic are pointedly *intergroup relevant*—avoidance was engaged flexibility and selectively depending on group membership of the 'other'.

3 | STUDY 2

Study 2 sought to replicate and extend Study 1. Study 1 used a measure of general political conservatism that blends social and economic conservatism in a single item. Because the BIS promotes the avoidance of social situations that could potentially lead to contamination, one might expect primarily social conservatism (vs. economic conservatism) to predict contact avoidance (O'Shea et al., 2022; Terrizzi et al., 2013). Study 2 not only examines social and economic conservatism separately but includes two additional right-wing ideologies. RWA reflects socially conservative ideologies, whereas SDO reflects economic conservatism (see Van Hiel et al., 2020) (but see Terrizzi et al., 2013). With RWA and SDO robust predictors of prejudice (Hodson & Dhont, 2015; Sibley & Duckitt, 2008), their inclusion provides a more fine-grained analysis of how ideological factors and target group membership interact to predict contact avoidance during the COVID-19 pandemic. That is, although RWA and SDO are systematically correlated they also contain unique or distinct variance (see Hodson et al., 2017), meaning that they may operate differentially. Indeed, the Dual Process Model (Duckitt et al., 2002) postulates that RWA is related to worldviews that the world is dangerous, whereas SDO is related to worldviews that the world is competitive. It is possible, therefore, that RWA (vs. SDO) is more relevant to physical distancing from foreign outgroups during a pandemic. Likewise, it is possible that social (vs. economic) conservatism is more related to behavioural immune responses such as outgroup avoidance (see Terrizzi et al., 2013). However, we include these variables for exploratory purposes (i.e., without a priori predictions).

Study 2 also considered perceived COVID-19 threat. Several studies have demonstrated that threats to social order (i.e., threats to values, traditions and social cohesion of the ingroup) can strengthen the association between right-leaning ideologies and prejudicial attitudes (Rickert, 1998; Roccato et al., 2014; Roccato & Russo, 2017; Stenner, 2005). As noted earlier, however, those higher in right-wing ideologies, at least in the United States, report less COVID-19 threat (Calvillo et al., 2020) and less realistic threat but more symbolic threat from COVID (Kachanoff et al., 2021). Nonetheless, to be cautious we adopted a more traditional (pre-COVID) stance that the interaction observed in Study 1 would be most pronounced under conditions of high (vs.) low perceived COVID-19 threat. Data were collected at the end of November 2020, three weeks after Study 1 was conducted, with the United Kingdom still in a national lockdown. Participation was restricted to individuals who had not taken part in Study 1.

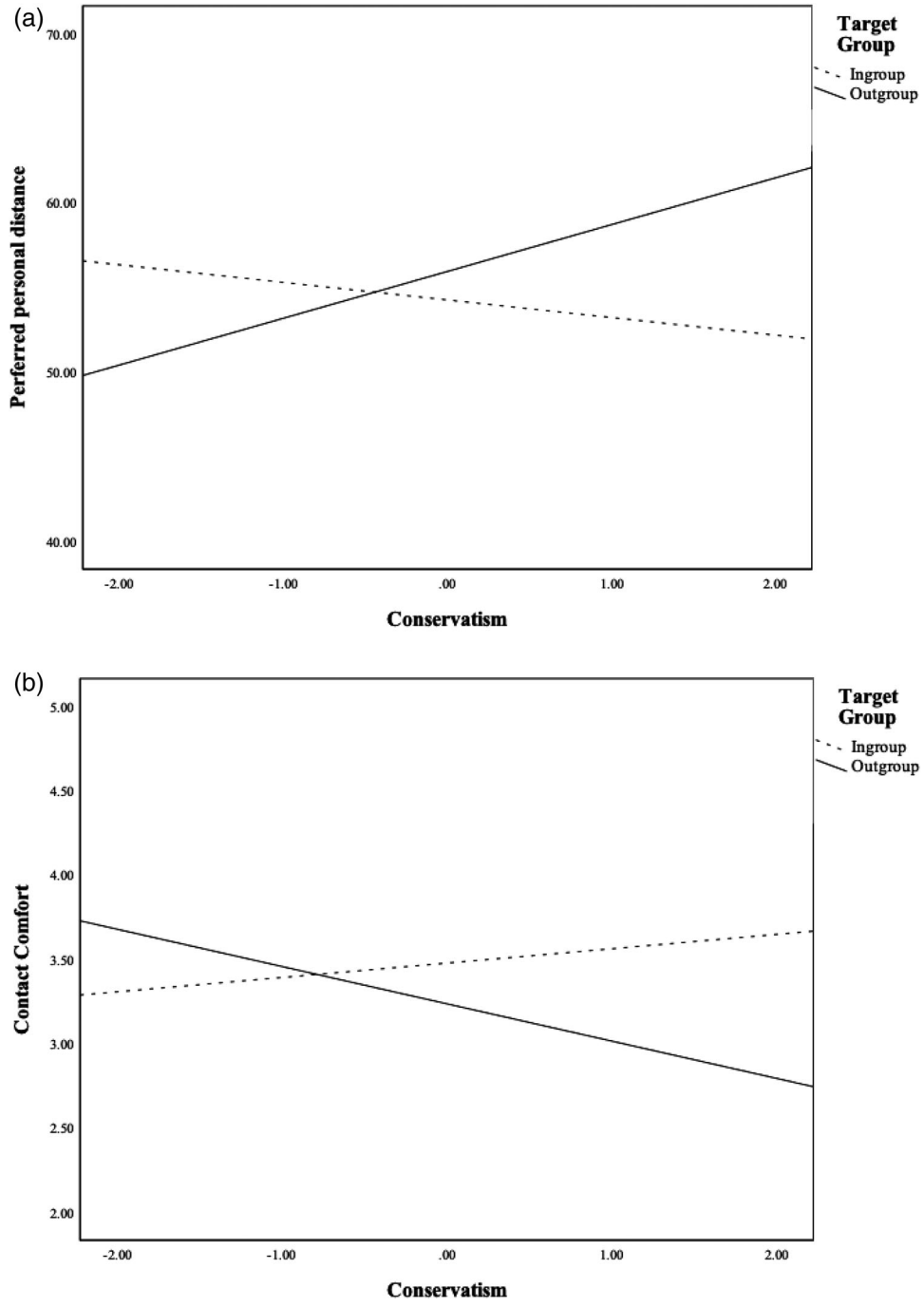

FIGURE 1 The relation between conservatism (mean-cantered) and (a) preferred personal distance and (b) comfort engaging in infection-risky behaviours as a function of target group (Study 1).

3.1 | Participants

Data were collected from 500 participants from Prolific. Data from three mixed-race and two non-British participants were excluded. Thirty-two participants failed an attention screen, plus we excluded from 32 participants who believed that had already contracted COVID-19 (as in Study 1). The final sample (n = 431) included 128 males and 302 females (one did not report gender) aged between 18 and 80 (M = 36.90, SD = 13.63). Hypotheses were pre-registered at https://aspredicted.org/3zj4i.pdf

3.2 | Measures and procedure

In Study 2 we measured general political conservatism, conservatism towards social issues, and conservatism towards economic issues, each

with a separate self-placement item (1 = *Very liberal*, to 7 = *Very conservative*). SDO was measured with the SDO_7 short form scale (Ho et al., 2015); participants indicated favourability towards eight statements from 1 (*Strongly oppose*) to 7 (*Strongly favour*). Sample items include 'An ideal society requires some groups to be on the top and others to be on the bottom' and 'It is unjust to try and make groups equal'. Half of the items were recoded such that higher scores reflect higher social dominance orientation (α = .85). RWA was measured with six items adapted from Duckitt et al. (2010). Participants indicated their agreement with statements including 'Obedience and respect for authority are the more important values children should learn' and "The 'old-fashioned ways' and the 'old-fashioned values' still show the best way to live" from 1 (*Strongly disagree*) to 5 (*Strongly agree*, α = .91).

Participants were assigned to complete the dependent measures with reference to either ingroup (British) or outgroup members (foreigners). Measures of contact avoidance (single item measure *preferred personal distance*, and *contact comfort scale*, α = .92) were identical to Study 1. Finally, perceived COVID-19 threat was measured with a single item, 'In general, how anxious are you about the COVID-19 pandemic?' (Hartman et al., 2021). Answers were provided on a 0–100 scale from '*Not at all anxious*' to '*Extremely anxious*'. The order of all measures was randomized.

3.3 | Results

To reduce the undue influence of outliers, values greater than 3 SD from the mean were winsorized to the variable's value at 3SD (see Wilcox, 2011). This transformation method was determined a priori in our pre-registration. Descriptive statistics are shown in Table 3. We used PROCESS (Model 3, Hayes, 2013) to explore the role of ideology, target group, COVID-19 threat, and their interaction in predicting preferred personal distance, as well as contact engaging in infection-risky behaviours. Separate models were tested for each outcome measure and each measure of conservatism (general political conservatism, social conservatism, economic conservatism, SDO, RWA, 10 models in total). In all models continuous predictors were mean-centred and effect coding was used for target group condition (ingroup = −1, outgroup = +1). As per Study 1, a Bonferroni adjustment was applied; *p*-values less than .025 were considered statistically significant (Bonferroni significance threshold *p* = .05/2).

3.3.1 | General conservatism

Results of Model 1a (see Table 4) revealed a non-significant association between general political conservatism and preferred personal distance (b = –.17, p = .783, CI_{95} [−1.35, 1.02]), and a non-significant effect of target group on this outcome (b = −1.55, p = .078, CI_{95} [−3.28, 0.18]). Perceptions of COVID-19 threat were significantly positively associated with preferred personal distance, b = .11, p = .001, CI_{95} [0.05, 0.17]. The two-way interaction between general conservatism and target group was non-significant (b = .85, p = .159, CI_{95} [−0.34,

TABLE 3 Means, standard deviations, and correlations for all variables (Study 2).

	$M_{ingroup}$ ($SD_{ingroup}$)	$M_{outgroup}$ ($SD_{outgroup}$)	1	2	3	4	5	6	7	8
(1) General conservatism	3.42 (1.50)	3.25 (1.42)	–	.56*** [.46, .66]	.71*** [.62, .78]	.56*** [.45, .65]	.67*** [.59, .74]	−.12 [−.25, .03]	.04 [−.09, .17]	−.17* [−.30, −.04]
(2) Social conservatism	2.33 (1.57)	2.38 (1.55)	.63*** [.53, .72]	–	.49*** [.39, .59]	.39*** [.26, .52]	.55*** [.46, .64]	−.09 [−.23, .07]	−.04 [−.16, .10]	−.09 [−.23, .05]
(3) Economic conservatism	3.57 (1.41)	3.45 (1.44)	.78*** [.73, .83]	.52*** [.42, .61]	–	.48*** [.38, .58]	.58*** [.47, .68]	−.09 [−.24, .05]	−.05 [−.18, .08]	−.03 [−.17, .11]
(4) SDO	2.33 (1.05)	2.39 (1.02)	.65*** [.57, .72]	.50*** [.38, .61]	.58*** [.50, .66]	–	.62*** [.52, .69]	−.20** [−.33, −.07]	.07 [−.01, .07]	−.09 [−.23, .06]
(5) RWA	2.69 (1.05)	2.67 (1.09)	.62*** [.51, .71]	.62*** [.53, .70]	.55*** [.45, .64]	.49*** [.39, .59]	–	−.10 [−.24, .04]	.10 [−.06, .25]	−.22** [−.36, −.07]
(6) COVID-19 threat	52.00 (27.09)	52.36 (27.14)	−.06 [−.20, .08]	−.03 [−.18, .12]	−.09 [−.23, .05]	−.18** [−.32, −.02]	.07 [−.08, .21]	–	.01 [−.12, .15]	−.23** [−.37, −.09]
(7) Preferred personal distance	54.36 (18.12)	51.61 (19.05)	−.10 [−.25, .05]	−.12 [−.26, .02]	−.05 [−.18, .08]	−.15* [−.29, .01]	−.08 [−.21, .06]	.32*** [.19, .43]	–	−.32*** [−.48, −.14]
(8) Contact comfort	3.76 (1.51)	4.47 (1.89)	.03 [−.12, .17]	−.01 [−.16, .15]	.04 [−.10, .18]	.07 [−.08, .23]	−.10 [−.25, .04]	−.48*** [−.59, −.37]	−.38*** [−.51, −.24]	–

Note: Correlations in the ingroup target condition are presented below the diagonal, and correlations in the outgroup target condition are shown above the diagonal. Values in square brackets are 95% bias confidence intervals.

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

TABLE 4 Regression models predicting preferred personal distance (Model 1a) and contact comfort (Model 1b) from general conservatism, target group, perceived COVID-19, and their interaction (Study 2).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	53.02				4.11			
General conservatism	−.17	.61	.783	[−1.35, 1.02]	−.13	.05	.013	[−0.24, −0.03]
Target group (−1 = ingroup, +1 = outgroup)	−1.55	.88	.078	[−3.28, 0.18]	.36	.08	<.001	[0.21, 0.51]
COVID-19 threat	.11	.03	.001	[0.05, 0.17]	−.02	.01	<.001	[−0.03, −0.02]
General conservatism × Target group	.85	.61	.159	[−0.34, 2.04]	−.14	.05	.011	[−0.24, −0.03]
General conservatism × COVID-19 Threat	−.01	.02	.912	[−0.05, 0.05]	.01	<.01	.352	[−0.01, 0.01]
Target group × COVID−19 Threat	−.09	.03	.006	[−0.16, −0.03]	.01	<.01	.103	[−0.01, 0.01]
General conservatism × Target group × COVID-19 threat	−.04	.02	.056	[−0.09, 0.01]	.01	<.01	.619	[−0.01, 0.01]
F	$F(7, 423) = 4.35, p < .001$				$F(7, 423) = 13.66, p < .001$			
R^2	.07				.18			
ΔR^2	.01				<.001			

Note: Bonferroni significance threshold $p = .025$ ΔR^2 = *variance explained by highest order unconditional interaction.*

2.04]), as was the interaction between conservatism × target group × COVID-19 threat, $b = -.04$, $p = .056$, CI_{95} [−0.09, 0.01].

The results of Model 1b (see Table 4) showed a significant negative association between general conservatism and contact comfort, $b = -.13$, $p = .013$, CI_{95} [−0.24, −0.03], and a significant negative association between perceptions of COVID-19 threat and contact comfort, $b = -.02$, $p < .001$ CI_{95} [−0.03, −0.02]. There was also a significant effect of target group whereby comfort engaging in infection-risky behaviours was higher for outgroup members compared to ingroup members, $b = .36$, $p < .001$, CI_{95} [0.21, 0.51]. The two-way interaction between general conservatism and target group was also significant, $b = -.14$, $p = .011$, CI_{95} [−0.24, −0.03]. There was an effect of target group at low ($b = .53$, $p < .001$, [0.33, 0.74]) but not high levels of general conservatism ($b = .12$, $p = .306$, [−0.11, 0.35]), whereby those on the political left reported more contact comfort towards outgroup (vs. ingroup) targets. Unpacked differently, simple slopes analyses revealed that conservatism predicted lower contact comfort for outgroup targets ($b = -.27$, $p < .001$, [−0.42, −0.12]) but not for ingroup targets ($b = .01$, $p = .921$, [−0.13, 0.15]); see Figure 2. There was no significant general conservation × target group × COVID-19 interaction ($b < .01$, $p = .619$, CI_{95} [−0.01, 0.01]).

3.3.2 | Social conservatism

Model 2a (see Table 5) revealed a non-significant association between social conservatism and preferred personal distance ($b = -.90$, $p = .106$, CI_{95} [−2.00, 0.19]), and no effect of target group on this outcome ($b = -1.52$, $p = .081$, CI_{95} [−3.23, 0.19]). There was a significant association between COVID-19 threat and preferred personal distance, whereby higher threat perceptions predicted greater distancing, $b = .11$, $p = .001$, CI_{95} [0.05, 0.17]. The two-way interaction between social conservatism and target group was non-significant ($b = .44$, $p = .426$, CI_{95} [−0.65, 1.54]). However, the three-way social conservatism × target group × COVID-19 threat interaction was significant, $b = -.06$, $p = .003$, CI_{95} [−0.09, −0.02]; see Figure 3. Results showed that moderating role of target group on the association between social conservatism and preferred personal distance was only significant when perceived COVID-19 threat was low ($b = 2.27$, $p = .007$). When COVID-19 threat was at average ($b = .17$, $p = .763$) or high ($b = -1.13$, $p = .137$) levels, target group did not moderate the association between political conservativism and social distancing; see Figure 3.

Model 2b (see Table 5) found no significant association between social conservatism and contact comfort ($b = -.08$, $p = .118$, CI_{95} [−0.18, 0.02]). There was a significant effect of COVID-19 threat, whereby higher perceived COVID-19 threat predicted lower comfort engaging in infection-risky social behaviours, $b = -.02$, $p < .001$ CI_{95} [−0.03, −0.02], and a significant effect of target group condition, whereby contact comfort was higher for outgroup members compared to ingroup members, $b = .36$, $p < .001$ CI_{95} [0.21, 0.52]. Both the two-way interaction between social conservatism and target group ($b = -.06$, $p = .269$, CI_{95} [−0.15, 0.04), and the social conservatism × target group × COVID-19 threat interaction were non-significant on this outcome ($b < .01$, $p = .834$, CI_{95} [−0.01, 0.01]).

3.3.3 | Economic conservatism

Model 3a (see Table 6) revealed a significant association between perceived COVID-19 threat and preferred personal distance, $b = -.11$, $p = .001$, CI_{95} [0.04, 0.17], but no significant effect of either economic conservatism ($b = -.48$, $p = .436$, CI_{95} [−1.70, 0.73]), or target group condition ($b = -1.55$, $p = .080$, CI_{95} [−3.27, 0.18]).

There was no significant two-way interaction between economic conservatism and target group ($b = .10$, $p = .878$, CI_{95} [−1.31, 1.12]),

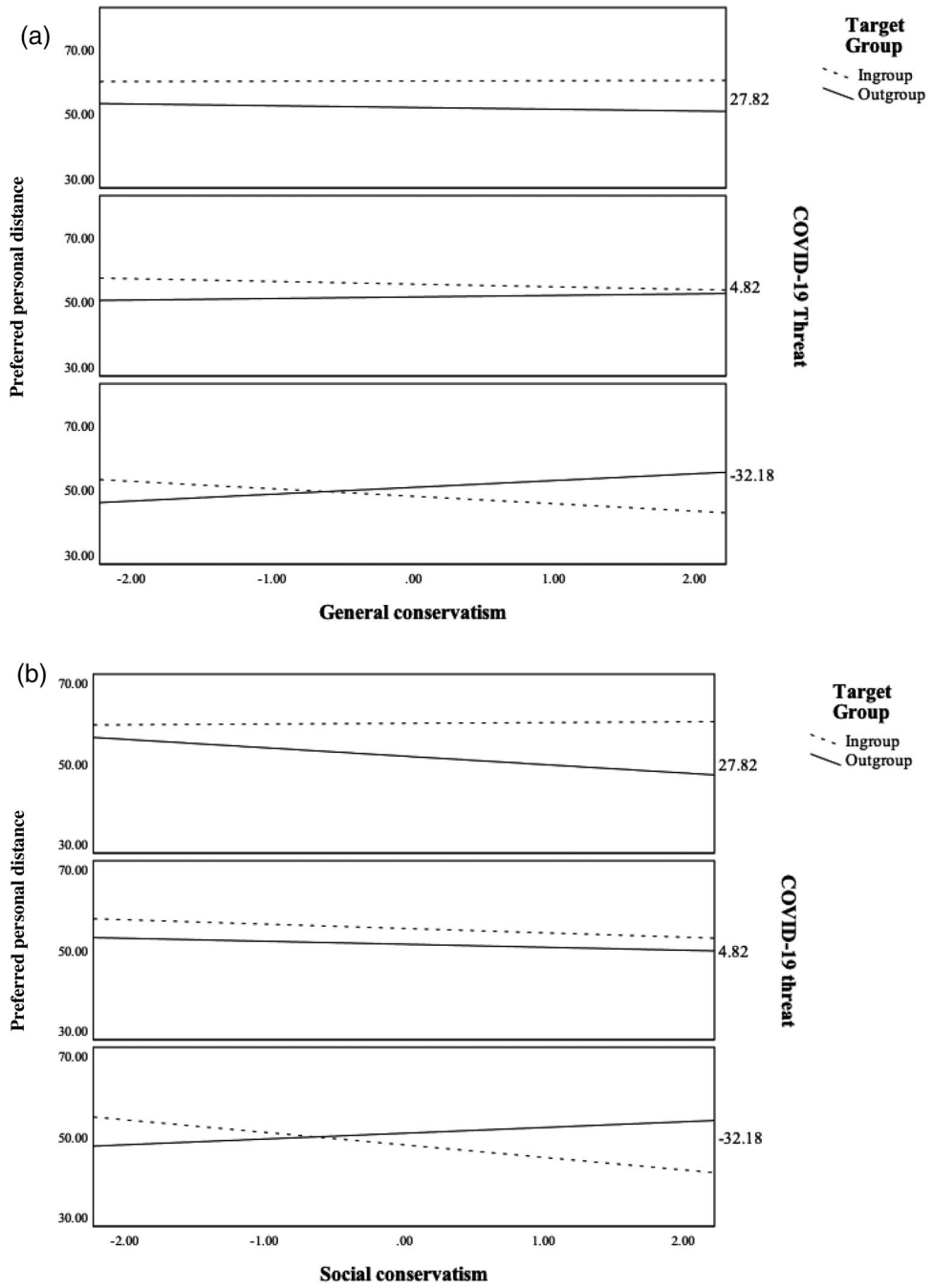

FIGURE 2 The relation between (a) general conservatism (mean-centred)/(b) RWA and comfort engaging in infection-risky behaviours/preferred personal distance as a function of target group (Study 2).

and no significant economic conservatism × target group × COVID-19 threat interaction ($b = -.03$, $p = .112$, CI_{95} [−0.08, 0.01]).

Model 3b (see Table 6) found no significant association between economic conservatism and contact comfort ($b = -.04$, $p = .521$, CI_{95} [−0.14, 0.07]), but a significant effect of target group on this outcome whereby participants reported higher contact comfort for outgroup members compared to ingroup members, $b = .36$, $p < .001$, CI_{95} [0.21, 0.51), and a significant effect of COVID-19 threat whereby higher threat predicted lower contact comfort generally, $b = -.02$, $p < .001$, CI_{95} [−0.03, −0.02]. There was no significant two-way interaction between economic conservatism and target group on this outcome ($b = -.03$, $p = .577$, CI_{95} [−0.14, 0.08]), and no economic conservatism × target group × COVID-19 threat interaction ($b < .01$, $p = .886$, CI_{95} [−0.01, 0.01]).

3.3.4 | Social dominance orientation

In Model 4a (see Table 7), there was no significant association between SDO and preferred personal distance ($b = .02$, $p = .980$, CI_{95} [−1.63,

TABLE 5 Regression models predicting preferred personal distance (Model 2a) and contact comfort (Model 2b) from social conservatism, target group, perceived COVID-19 threat, and their interaction (Study 2).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	52.92				4.11			
Social conservatism	−.90	.56	.106	[−2.00, 0.19]	−.08	.05	.118	[−0.18, 0.02]
Target group (−1 = ingroup, +1 = outgroup)	−1.52	.87	.081	[−3.23, 0.19]	.36	.08	<.001	[0.21, 0.52]
COVID-19 threat	.11	.03	.001	[0.05, 0.17]	−.02	.01	<.001	[−0.03, −0.02]
Social conservatism × Target group	.44	.56	.426	[−0.65, 1.54]	−.06	.05	.269	[−0.15, 0.04]
Social conservatism × COVID-19 Threat	.01	.02	.921	[−0.04, 0.04]	.01	<.01	.893	[−0.01, 0.01]
Target group × COVID-19 Threat	−.09	.03	.005	[−0.16, −0.03]	.01	<.01	.061	[−0.01, 0.01]
Social conservatism × Target group × COVID-19 threat	−.06	.02	.003	[−0.09, −0.02]	.01	<.01	.834	[−0.01, 0.01]
F	$F(7, 423) = 5.92, p < .001$				$F(7, 423) = 12.20, p < .001$			
R^2	.08				.17			
ΔR^2	.02				<.001			

Note: Bonferroni significance threshold $p = .025$. ΔR^2 = *variance explained by highest order unconditional interaction.*

1.72]), and no effect of target group on this outcome ($b = -1.80$, $p = .042$, CI_{95} [−3.54, −0.07]).

The two-way interaction between SDO and target group on personal distance was also non-significant ($b = 1.23$, $p = .152$, CI_{95} [−0.46, 2.93]). There was a significant positive association between COVID-19 threat and preferred personal distance, $b = .11$ $p = .001$, CI_{95} [0.05, 0.18]. The SDO × target group × COVID-19 threat interaction was also significant, $b = -.08$, $p = .010$, CI_{95} [−0.13, −0.02]. Specifically, the moderating role of target group on the association between SDO and preferred personal distance was significant only when perceived COVID-19 threat was low ($b = 3.68$, $p = .002$), and not when COVID-19 threat was average ($b = .87$, $p = .329$), or high ($b = -.87$, $p = .490$); see Figure 3.

For the model predicting contact comfort (Model 4b, see Table 7), there was again no significant association between SDO and this outcome ($b = -.14$, $p = .066$, CI_{95} [−0.29, 0.01]), but a significant association with COVID-19 threat, $b = -.02$ $p < .001$, CI_{95} [−0.03, −0.02], and target group, $b = .36$, $p < .001$, CI_{95} [0.20, 0.51]. There was no significant two-way interaction between SDO and target group on this outcome ($b = -.13$, $p = .086$, CI_{95} [−0.28, 0.02]) and no SDO × target group × COVID-19 threat interaction ($b < .01$, $p = .476$, CI_{95} [−0.01, 0.01]).

3.3.5 | Right-wing authoritarianism

In Model 5a (see Table 8), RWA was not associated with preferred personal distance ($b = .12$, $p = .887$, CI_{95} [−1.49, 1.73]), and there was no effect of target group on this outcome ($b = -1.48$, $p = .091$, CI_{95} [−3.20, 0.24]). COVID-19 threat was significantly positively associated with preferred personal distance generally, $b = .12$, $p < .001$, CI_{95} [0.06, 0.19]. The two-way interaction between RWA and target group on preferred personal distance was significant, $b = 1.97$, $p = .017$, CI_{95} [0.35, 3.58]. There was evidence of an outgroup-favouring bias in preferred personal distance at low levels of RWA ($b = -3.50$, $p = .008$, [−6.09, −0.93]) but not at high levels of RWA ($b = .68$, $p = .602$, [−1.87, 3.23]). Unpacked differently, RWA was positively (but not significantly) associated with increased personal distance for outgroup members ($b = 2.03$, $p = .080$, [−0.25, 4.30]) and negatively (but not significantly) for ingroup members ($b = -1.56$, $p = .184$, [−3.87, 0.75]). The RWA × target group × COVID-19 threat interaction was non-significant, $b = -.06$, $p = .044$, CI_{95} [−0.11, −0.01].

In the model predicting contact comfort (Model 3b, see Table 8), there was a significant association between RWA and this outcome, $b = -.26$, $p < .001$, CI_{95} [−0.40, −0.12]), and a significant association for COVID-19 threat, $b = -.02$, $p < .001$, CI_{95} [−0.03 −0.02]), and for target group, $b = .36$, $p < .001$, CI_{95} [0.21, 0.51]. The two-way interaction between RWA and target group ($b = -.15$, $p = .031$, CI_{95} [−0.30, 0.01]) and the three-way RWA × target group × COVID-19 threat interactions ($b < .01$, $p = .810$, CI_{95} [−0.01, 0.01]) were non-significant on this measure.

Given that economic and social conservatism can suppress the effects of each other in some contexts (see Costello & Lilienfeld, 2021), additional models exploring the unique effects of SDO whilst controlling for RWA, and the effects of RWA whilst controlling for SDO, are provided within the supplementary materials (see Tables S1–S4).

3.4 | Discussion

Study 2 revealed an unexpected finding: in this British sample, respondents expressed less comfort at being in contact with an ingroup than outgroup member (with no effects on personal distance preferences). This pattern presumably tapped into White British participants' understanding that their COVID-19 infection rates were then among the highest in Europe (and world). A heightened sense of discomfort

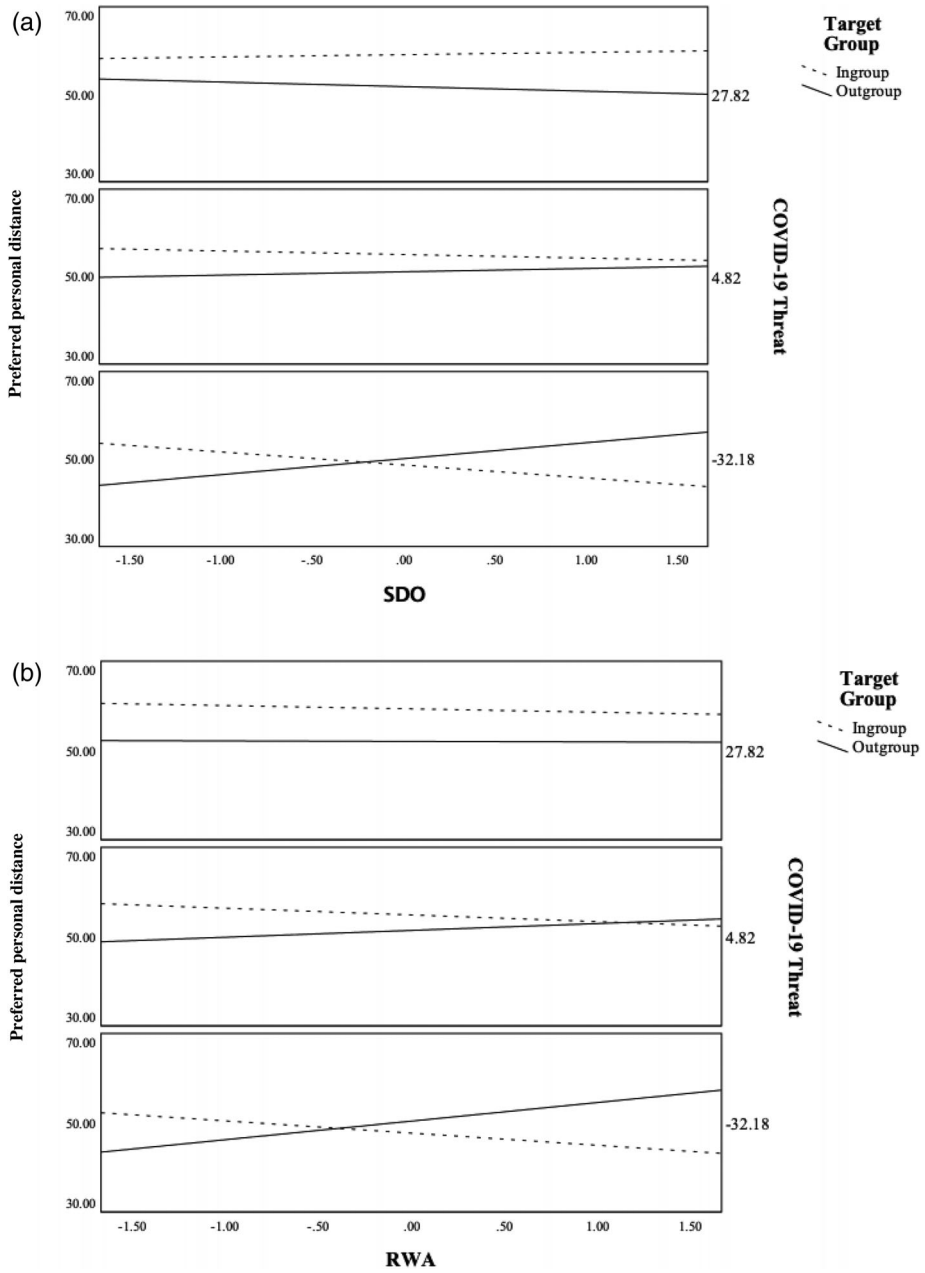

FIGURE 3 The relation between (a) social conservatism (mean-centred)/(b) SDO (mean-centred) and preferred personal distance as a function of target group and perceived COVID-19 threat (mean-centred) (Study 2).

interacting with a highly infected home population thus makes some sense. This backdrop makes the general conservatism finding regarding contact comfort all the more revealing—although respondents overall were more uncomfortable with ingroup than outgroup contact, as general conservatism rose within the sample respondents expressed more discomfort with outgroup than ingroup contact (as per Study 1).

However, Study 2 revealed multiple null findings, signalling more failure to support our main hypotheses than supporting them. This includes the failed interaction with COVID-threat perceptions (and several unexpected findings of the predicted effect at low but not high threat). This despite the stand-alone effects of threat on greater preferred distance and lower contact comfort. Although the general conservatism pattern replicated Study 1 (albeit on only one of two variables), even in a sample where most felt more uncomfortable having contact with their ingroup than outgroup, we felt it prudent to collect an additional, much larger, dataset to settle the differences of findings between the other two datasets.

4 | STUDY 3

In a new UK sample we again assessed the degree to which ideology predicts social distancing preference and contact comfort during a pandemic, expecting preferences against the outgroup (vs. ingroup)

TABLE 6 Regression models predicting preferred personal distance (Model 3a) and contact comfort (Model 3b) from economic conservatism, target group, perceived COVID-19 threat, and their interaction (Study 2).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	53.01				4.11			
Economic conservatism	−.48	.62	.436	[−1.70, 0.73]	−.04	.06	.521	[−0.14, 0.07]
Target group (−1 = ingroup, +1 = outgroup)	−1.55	.88	.080	[−3.27, 0.18]	.36	.08	<.001	[0.21, 0.51]
COVID-19 threat	.11	.03	.001	[0.04, 0.17]	−.02	<.01	<.001	[−0.03, −0.02]
Economic conservatism × Target group	−.10	.62	.878	[−1.31, 1.12]	−.03	.06	.577	[−0.14, 0.08]
Economic conservatism × COVID-19 Threat	.01	.02	.804	[−0.04, 0.05]	.01	<.01	.879	[−0.01, 0.01]
Target group × COVID-19 Threat	−.10	.03	.004	[−0.16, −0.03]	.01	<.01	.058	[−0.01, 0.01]
Economic conservatism × Target group × COVID-19 threat	−.03	.02	.112	[−0.08, 0.01]	.01	<.01	.886	[−0.01, 0.01]
F	$F(7, 423) = 3.99, p < .001$				$F(7, 423) = 11.71, p < .001$			
R^2	.06				.16			
ΔR^2	<.01				<.001			

Note: Bonferroni significance threshold $p = .025$. ΔR^2 = *variance explained by highest order unconditional interaction.*

TABLE 7 Regression models predicting preferred personal distance (Model 4a) and contact comfort (Model 4b) from SDO, target group, perceived COVID-19 threat, and their interaction (Study 2).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	52.89				4.12			
SDO	.02	.86	.980	[−1.68, 1.72]	−.14	.07	.066	[−0.29, 0.01]
Target group (−1 = ingroup, 1 = outgroup)	−1.80	.88	.042	[−3.54, −0.07]	.36	.07	<.001	[0.20, 0.51]
COVID-19 threat	.11	.03	.001	[0.05, 0.18]	−.02	<.01	<.001	[−0.03, −0.02]
SDO × Target group	1.23	.86	.152	[−0.46, 2.93]	−.13	.08	.086	[−0.28, 0.02]
SDO × COVID-19 Threat	−.01	.03	.708	[−0.07, 0.05]	.01	<.01	.994	[−0.01, 0.01]
Target Group × COVID-19 Threat	−.08	.03	.015	[−0.15, −0.02]	.01	<.01	.091	[−0.01, 0.01]
SDO × Target group × COVID-19 threat	−.08	.03	.010	[−0.13, −0.02]	.01	<.01	.476	[−0.01, 0.01]
F	$F(7, 423) = 5.00, p < .001$				$F(7, 423) = 12.68, p < .001$			
R^2	.08				.17			
ΔR^2	.01				<.01			

Note: Bonferroni significance threshold $p = .025$. SDO = Social dominance orientation. ΔR^2 = variance explained by highest order unconditional interaction.

to become stronger with increases in right-leaning ideology. In light of Study 1 (and to some extent, Study 2) we expected ideology to play little role in predicting ingroup preferences. We also made several methodological refinements. In Studies 1 and 2 the outgroup target was presented as 'foreigners to the UK', a rather vague concept. We did not ask participants which foreigners they envisioned, meaning that participants may have summoned to mind very different target groups, which may have corresponded with ideological tendencies. Moreover, at the time there were relatively low rates of COVID-19 in Africa and parts of Asia and the Middle East, relative to Europe and the Americas, which could have hampered the target manipulation's clarity and impact, potentially explaining why British participants (on average) felt more comfortable interacting with foreigners than White British participants. To reduce noise in the data, Study 3 employed a more defined outgroup target: Eastern European immigrants.

We also made an important change to the preferred personal distance measure. As elaborated below, whereas Studies 1–2 involved preferred distance of other-to-the-self, in Study 3 this measure assessed preferred distance of self-to-other, given that people can better control their own distance to others than the behaviour of others. We also introduced a third measure of avoidant behavioural tendencies in Study 3, adapting a measure of 'virtual social distancing' (Fazio et al., 2021) whereby participants are presented with a graphical depiction mirroring specific real-world scenarios and asked to position themselves in relation to other people. Importantly, responses on such self-report measures were found by Fazio et al. to predict whether participants contracted COVID-19 four months later.

TABLE 8 Regression models predicting preferred personal distance (Model 5a) and contact comfort (Model 5b) from RWA, target group, perceived COVID-19 threat, and their interaction (Study 2).

	Preferred personal distance				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	52.87				4.11			
RWA	.12	.82	.887	[−1.49, 1.73]	−.26	.07	<.001	[−0.40, −0.12]
Target group (−1 = ingroup, 1 = outgroup)	−1.48	.87	.091	[−3.20, 0.24]	.36	.08	<.001	[0.21, 0.51]
COVID-19 threat	.12	.03	<.001	[0.06, 0.19]	−.02	<.01	<.001	[−0.03, −0.02]
RWA × Target group	1.97	.82	.017	[0.35, 3.58]	−.15	.07	.031	[−0.30, −0.01]
RWA × COVID-19 threat	−.02	.03	.463	[−0.08, 0.04]	.01	<.01	.601	[−0.01, 0.01]
Target group × COVID-19	−.09	.03	.005	[−0.16, −0.03]	.01	<.01	.103	[−0.01, 0.01]
RWA × Target group × COVID-19 threat	−.06	.03	.044	[−0.11, −0.01]	.01	.01	.810	[−0.01, 0.01]
F	$F(7, 423) = 4.89, p < .001$				$F(7, 423) = 14.72, p < .001$			
R^2	.07				.20			
ΔR^2	.01				<.001			

Note: Bonferroni significance threshold $p = .025$. RWA = right-wing authoritarianism. ΔR^2 = *variance explained by highest order unconditional interaction.*

Data for Study 3 were collected in August 2021, when COVID-19 cases in the United Kingdom remained high but no official government COVID-19 restrictions were in place.

4.1 | Participants

A power analysis was conducted in G*Power 3.1 (Faul et al., 2007) using the linear multiple regression R^2 increase option. Based on the average effect sizes observed in Study 2, we sought to have .80 power for obtaining a statistically significant three-way interaction with an R^2 change of .01 beyond an anticipated R^2 of .12 produced by the other six predictor variables. The minimum recommended sample size was 685. (Note that this number was predicated on a significance level of $p < .05$. However, a reviewer later asked for Bonferroni adjustments throughout.)

Data were collected from Prolific (n = 803); data from five non-White British participants were excluded, as were data from 27 participants who failed an attention screen or wanted their data excluded. As in Studies 1–2, we excluded the data of a further 71 participants who believed that they had already contracted COVID-19. The final sample consisted of 700 participants, including 219 males and 472 females (nine participant reported their gender as 'other') aged between 18 and −79 (M = 34.03, SD = 12.36). Hypotheses were pre-registered at https://aspredicted.org/ub2uf.pdf. Given the unexpected results of Study 2, particularly with regard to threat, a non-directional hypothesis was registered regarding the possible higher-order interaction between conservatism, target group, and perceived COVID-19 threat on behavioural avoidance.

4.2 | Measures and procedure

Measures of general political conservatism, SDO (α = .84) and RWA (α = .86) were identical to Study 2; the single-item measures of social and economic conservatism were not included. Participants were then randomly assigned to complete the dependent measures with reference to either ingroup members (British people) or outgroup members (Eastern European immigrants). Contact avoidance was measured in three ways. Participants completed the same measure of *comfort engaging in infection-risky behaviours* as in Studies 1–2 (α = .93). The measure of *preferred personal distance* (Sorokowska et al., 2017) was adjusted in Study 3. In the version used in the literature participants drag a representation of another person towards a representation of themselves to indicate how close the other person could approach and yet have the participant still feel comfortable engaging in conversation. Given that, in real-life situations, people primarily have control over themselves rather than other people, this measure was adjusted so that participants dragged the representation of themselves towards the other. New to Study 3, participants completed a measure of *virtual social distancing* adapted from Fazio et al. (2021). In our behavioural scenario participants chose whether to cross a road by taking a direct route which passed by another individual ('Path A'), or by taking an indirect and longer but isolated route ('Path B'). The target individual positioned at the crossing presented as a fellow British person or an Eastern European immigrant, depending on condition. Participants indicated how they would position themselves on a scale from 1 = *definitely choose Path A* to 7 = *definitely choose Path B*, with higher scores reflecting greater avoidance tendencies. Perceived COVID-19 threat was measured with the single item as in Study 2. The order of all measures was randomized.

4.3 | Results

As pre-registered, outliers exceeding 3 SD from the mean were winsorized to the value at 3SD. Descriptive statistics for all variables are shown in Table 9. Again, we used PROCESS (Model 3) to explore the role of ideology, target group, COVID-19 threat, and their interaction in predicting behavioural avoidance tendencies. Separate models were tested for each outcome measure (preferred personal distance, comfort engaging in infection-risky behaviours and virtual social distancing) and each measure of conservatism (general political conservatism, SDO, RWA, 9 models in total). A Bonferroni adjustment for multiple testing was applied. As the same models were tested on three dependent measures in Study 3, *p*-values of less than .016 were considered statistically significant (i.e., .05/3). Continuous predictors were mean-centred and effect coding was used for target group condition (ingroup = −1, outgroup = +1).

4.3.1 | General conservatism

Results of Model 1a (see Table 10) revealed no significant association between general political conservatism and preferred personal distance on the slider measure, $b = 1.02$, $p = .024$, CI_{95} [0.13, 1.90]. There was a significant effect of target group on this outcome, $b = -1.58$, $p = .010$, CI_{95} [−2.79, −0.37], whereby individuals were generally less avoidant of outgroup (vs. ingroup) targets. Perceptions of COVID-19 threat were significantly positively associated with preferred personal distance, $b = .23$, $p < .001$, CI_{95} [0.18, 0.27]. There was no significant two-way interaction between general conservatism and target group on this outcome ($b = .60$, $p = .186$, CI_{95} [−0.28, 1.48]), and no significant interaction between general conservatism, target group and COVID-19 threat ($b = -.02$, $p = .155$, CI_{95} [−0.06, 0.01]).

The results of Model 1b (see Table 10) also revealed no significant association between political conservatism and virtual social distancing, $b = .08$, $p = .026$, CI_{95} [0.01, 0.14], but a significant negative association between target group and virtual social distancing, $b = -.50$, $p < .001$ CI_{95} [−0.60, −0.41] whereby participants were generally more avoidant of ingroup members compared to outgroup members. The two-way interaction between general conservatism and target group was also non-significant, $b = .07$, $p = .050$, CI_{95} [0.01, −0.14]. Perceived COVID-19 threat was significantly associated with virtual social distancing, $b = .02$, $p < .001$, CI_{95} [0.01, 0.02], but there was no significant interaction between general conservatism, target group and perceived COVID-19 threat ($b = -< .01$, $p = .988$, CI_{95} [−0.01, 0.01].

The results of Model 1c (see Table 10) showed a significant negative association between general conservatism and contact comfort, $b = -.16$, $p < .001$, CI_{95} [−0.24, −0.07], and a significant association between target group and contact comfort, $b = .51$, $p < .001$, CI_{95} [0.39, 0.61], whereby people were generally more comfortable engaging in infection-risky behaviours with outgroup (vs. ingroup) targets. Here, effects were qualified by a significant two-way interaction between

TABLE 9 Means, standard deviations and correlations for all variables (Study 3).

	$M_{ingroup}$ ($SD_{ingroup}$)	$M_{outgroup}$ ($SD_{outgroup}$)	1	2	3	4	5	6	7
(1) General conservatism	3.16 (1.38)	3.03 (1.35)	–	.57*** [.50, .63]	.59*** [.51, .66]	−.05 [−.17, .06]	.13* [.01, .21]	.18*** [.07, .28]	−.21*** [−.32, −.09]
(2) SDO	2.36 (0.99)	2.27 (0.97)	.56*** [.47, .63]	–	.51*** [.42, .59]	−.13* [−.24, −.02]	.21*** [.10, .31]	.20*** [.09, .31]	−.31*** [−.42, −.19]
(3) RWA	2.56 (0.95)	2.48 (0.95)	.58*** [.50, .65]	.47*** [.38, .54]	–	−.03 [−.14, .08]	.23*** [.11, .32]	.22*** [.11, .33]	−.29*** [−.38, −.18]
(4) COVID-19 threat	43.99 (26.90)	45.01 (26.20)	−.12* [−.22, −.02]	−.06 [−.16, .05]	−.08 [−.18, .02]	–	.21*** [.09, .33]	.27*** [.18, .37]	−.33*** [−.43, −.21]
(5) Preferred personal distance	43.89 (17.10)	41.05 (17.93)	−.02 [−.12, .90]	−.01 [−.11, .09]	−.06 [−.16, .03]	.49*** [.39, .58]	–	.42*** [.32, .51]	−.55*** [−.62, −.47]
(6) Virtual social distancing	2.52 (1.60)	1.52 (1.05)	−.04 [−.15, .07]	−.07 [−.17, .04]	−.04 [−.13, .06]	.44*** [.36, .52]	.39*** [.29, .48]	–	−.48*** [−.57, −.38]
(7) Contact Comfort	4.98 (1.67)	5.99 (1.71)	.04 [−.08, .15]	−.06 [−.16, .06]	.02 [−.07, .14]	−.52*** [−.60, −.44]	−.55*** [−.63, −.45]	−.47*** [−.56, −.38]	–

Note: Correlations in the ingroup target condition are presented below the diagonal, and correlations in the outgroup target condition are shown above the diagonal. Values in square brackets are 95% bias confidence intervals.

*$p < .05$.

***$p < .001$.

TABLE 10 Regression models predicting preferred personal distance (Model 1a) virtual social distancing (Model 1b) and contact comfort (Model 1c) from general conservatism, target group, perceived COVID-19, and their interaction (Study 3).

	Preferred personal distance				Virtual social distancing				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	42.69				2.04				5.47			
General conservatism	1.02	.45	.024	[0.13, 1.90]	.08	.04	.026	[0.01, 0.14]	−.16	.04	<.001	[−0.24, −0.07]
Target group (−1 = ingroup, +1 = outgroup)	−1.58	.62	.010	[−2.79, −0.37]	−.50	.05	<.001	[−0.60, −0.41]	.51	.06	<.001	[−0.24, −0.07]
COVID-19 threat	.23	.02	<.001	[0.18, 0.27]	.02	.02	<.001	[0.01, 0.02]	−.03	.01	<.001	[−0.24, −0.07]
General conservatism × Target group	.60	.45	.186	[−0.28, 1.48]	.07	.04	.050	[0.01, 0.14]	−.13	.04	.003	[−0.24, −0.07]
General conservatism × COVID-19 Threat	.03	.02	.053	[−0.01, 0.06]	.01	<.01	.055	[−0.01, 0.01]	−.01	<.01	.206	[−0.01, 0.01]
Target group × COVID-19 Threat	−.08	.02	<.001	[−0.13, −0.04]	−.01	<.01	<.001	[−0.02, −0.01]	.01	<.01	.013	[0.01, 0.01]
General conservatism × Target group × COVID-19 threat	−.02	.02	.155	[−0.06, 0.01]	.01	<.01	.988	[−0.01, 0.01]	−.01	<.01	.619	[−0.01, 0.01]
F	$F(7, 692) = 18.84, p < .001$				$F(7, 692) = 37.05, p < .001$				$F(7, 692) = 28.53, p < .001$			
R^2	.16				.27				.28			
ΔR^2	<.01				<.001				<.001			

Note: Bonferroni significance threshold $p = .016$. ΔR^2 = *variance explained by highest order unconditional interaction.*

general conservatism and target group, $b = -.13$, $p = .003$, CI_{95} [−0.21, −0.04]. The positive association between target group and contact comfort, indicating more contact comfort with outgroup members (vs. ingroup members), was weaker at high levels of conservatism ($b = .38$, $p < .001$ CI_{95} [0.25, 0.52]) than lower levels of conservatism ($b = .65$, $p < .001$ CI_{95} [0.51, 0.80]). Considered differently, simple slopes analyses demonstrated that, in line with predictions, political conservatism was associated with lower contact comfort when considering outgroup members ($b = -.29$, $p < .001$ CI_{95} [−0.41, −0.17]) but not when considering ingroup members ($b = -.02$, $p = .732$, CI_{95} [−0.14, 0.10]); see Figure 4.

Perceived COVID-19 threat was negatively associated with contact comfort ($b = -.03$, $p < .001$, CI_{95} [−0.03, −0.02]), but there was no significant interaction between general conservatism, target group and perceived COVID-19 threat ($b = -< .01$, $p = .619$, CI_{95} [−0.01, 0.01].

4.3.2 | Social dominance orientation

In Model 2a (see Table 11), there was a significant positive association between SDO and preferred personal distance, $b = 2.38$, $p < .001$ CI_{95} [−1.17, 3.60]. This effect was qualified by a significant two-way interaction between SDO and target group, $b = 2.05$ $p = .001$, CI_{95} [0.84, 3.26]. At high levels of SDO there was no effect of target group on preferred personal distance ($b = .93$, $p = .298$ CI_{95} [−0.82, 2.69]), but at low levels of SDO there was a significant negative effect of target group ($b = -3.79$, $p < .001$ CI_{95} [−5.55, −2.02]) indicating greater preferred distance from ingroup (vs. outgroup) members. In testing simple slopes, SDO was associated with greater distancing towards outgroup members ($b = 4.73$, $p < .001$ CI_{95} [2.98, 6.47]) but not towards ingroup members ($b = .29$, $p = .742$, CI_{95} [−1.42, 1.99]); see Figure 5. The three-way interaction between SDO, target group and perceived COVID-19 threat was non-significant ($b = .01$, $p = .663$, CI_{95} [−0.03, 0.05]).

Model 2b (see Table 11) revealed a non-significant association between SDO and virtual social distancing, $b = .09$, $p = .051$ CI_{95} [−0.01, 0.19], however the two-way interaction between SDO and target group was significant, $b = .17$ $p = .001$, CI_{95} [0.07, 0.26]. Individuals high in SDO showed a weaker preference for maintaining greater distance from ingroup (vs. outgroup) targets ($b = -.30$, $p < .001$, CI_{95} [−0.44, −0.17]) compared to those low in SDO ($b = -.70$, $p < .001$, CI_{95} [−0.83, −0.56]). Alternatively, higher SDO was associated with greater distancing from outgroup members ($b = .29$, $p < .001$ CI_{95} [0.15, 0.42]) but not ingroup members ($b = -.08$, $p = .218$, CI_{95} [−0.21, 0.05]); see Figure 5. There was no three-way interaction between SDO, target group, and perceived COVID-19 threat, ($b = < .01$, $p = .069$, CI_{95} [−0.01, 0.01]).

In Model 2c (see Table 11), there was a significant negative association between SDO and contact comfort, $b = -.38$, $p < .001$ CI_{95} [−0.49, −0.27]. The two-way interaction between SDO and target group on contact comfort was also significant, $b = -.24$ $p < .001$, CI_{95} [−0.36, −0.13]: the positive association between target group and contact

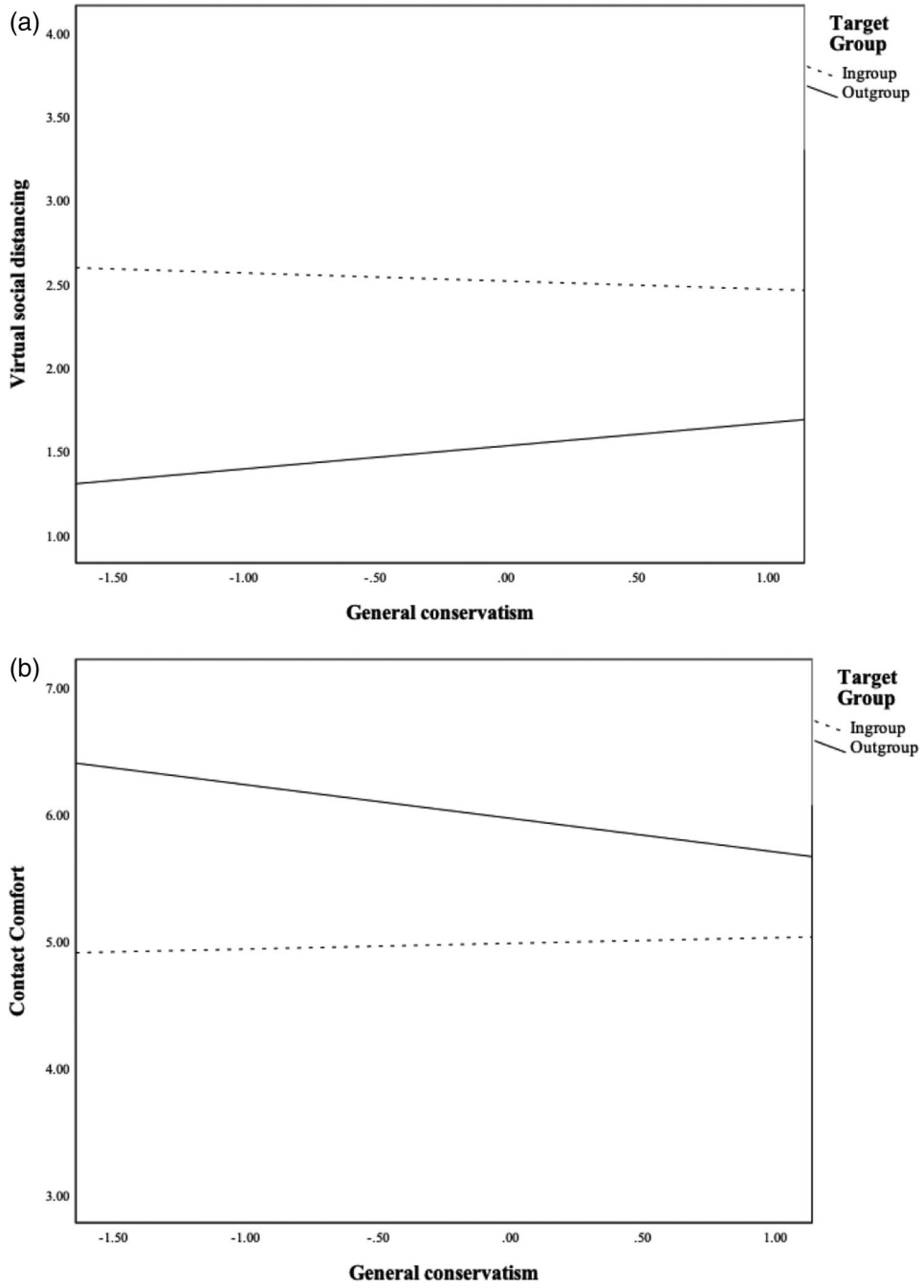

FIGURE 4 The relation between general conservatism (mean-centred) and (a) virtual social distancing and (b) comfort engaging in infection-risky behaviours as a function of target group (Study 3).

comfort, indicating higher contact comfort for outgroup members (vs. ingroup members), was weaker at high levels of SDO (b = .23, p .005, CI_{95} [0.07, 0.39]) compared to low levels of SDO (b = .77, p < .001, CI_{95} [0.61, 0.93]). Alternatively, simple slopes analyses revealed that SDO predicted lower contact comfort towards outgroup members (b = –.64, p < .001 CI_{95} [−0.80, −0.48]) but not towards ingroup members (b = –.13, p = .085, CI_{95} [−0.29, 0.02]); see Figure 5. The interaction between SDO, target group and perceived COVID-19 threat was non-significant (b = .01, p = .663, CI_{95} [−0.03, 0.05]).

4.3.3 | Right-wing authoritarianism

In Model 3a (see Table 12), RWA was found to be positively associated with preferred personal distance, b = 2.01, p = .002, CI_{95} [.74, 3.27]. The interaction between RWA and target group was, however, also significant, b = 2.61, p < .001, CI_{95} [1.35, 3.87]. At high levels of RWA there was no effect of group target on preferred personal distance (b = 1.04, p = .235, CI_{95} [−0.68, 2.74]), but at low levels of RWA preferred personal distance was lower for outgroup (vs. ingroup) targets

TABLE 11 Regression models predicting preferred personal distance (Model 2a) virtual social distancing (Model 2b) and contact comfort (Model 2c) from SDO, target group, perceived COVID-19, and their interaction (Study 3).

	Preferred personal distance				Virtual social distancing				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	42.72				2.04				5.45			
SDO	2.38	.62	<.001	[1.17, 3.60]	.09	.05	.051	[−0.01, 0.19]	−.38	.06	<.001	[−0.49, −0.27]
Target group (−1 = ingroup, +1 = outgroup)	−1.36	.61	.026	[−2.55, −0.17]	−.49	.05	<.001	[−0.58, −0.39]	.49	.06	<.001	[0.38, 0.59]
COVID-19 threat	.24	.02	<.001	[0.19, 0.28]	.02	<.01	<.001	[0.01, 0.02]	−.03	.01	<.001	[−0.03, −0.02]
SDO × Target group	2.05	.62	.001	[0.84, 3.26]	.17	.05	.001	[0.07, 0.26]	−.24	.06	<.001	[−0.36, −0.13]
SDO × COVID-19 Threat	.04	.02	.053	[−0.01, 0.09]	.01	<.01	.018	[0.01, 0.01]	−.01	<.01	.028	[−0.01, −0.01]
Target group × COVID-19 Threat	−.08	.02	.001	[−0.12, −0.03]	−.01	<.01	<.001	[−0.02, −0.01]	.01	<.01	.043	[0.01, 0.01]
SDO × Target group × COVID-19 threat	.01	.02	.663	[−0.03, 0.05]	.01	<.01	.069	[−0.01, 0.01]	−.01	<.01	.415	[−0.01, 0.01]
F	$F(7, 692) = 21.65, p < .001$				$F(7, 692) = 39.47, p < .001$				$F(7, 692) = 47.01, p < .001$			
R^2	.18				. 29				.32			
ΔR^2	<.001				<.01				<.001			

Note: Bonferroni significance threshold $p = .016$. ΔR^2 = variance explained by highest order unconditional interaction.

TABLE 12 Regression models predicting preferred personal distance (Model 3a) virtual social distancing (Model 3b) and contact comfort (Model 3c) from RWA, target group, perceived COVID-19, and their interaction (Study 3).

	Preferred personal distance				Virtual social distancing				Contact comfort			
	b	SE	*p*	95% CI	*b*	SE	*p*	95% CI	*b*	SE	*p*	95% CI
(Constant)	42.67				2.04				5.47			
RWA	2.01	.64	.002	[0.74, 3.27]	.12	.05	.019	[0.02, 0.21]	−.27	.06	<.001	[−0.39, −0.16]
Target group (−1 = ingroup, +1 = outgroup)	−1.48	.61	.015	[−2.67, −0.28]	−.50	.05	<.001	[−0.59, −0.41]	.50	06	<.001	[0.39, 0.61]
COVID-19 threat	.23	.02	<.001	[0.18, 0.27]	.02	<.01	<.001	[0.01, 0.02]	−.03	<.01	<.001	[−0.03, −0.02]
RWA × Target group	2.61	.64	<.001	[1.35, 3.87]	.13	.05	.010	[0.03, 0.23]	−.25	.06	<.001	[−0.37, −0.13]
RWA × COVID-19 Threat	−.01	.02	.562	[−0.06, 0.03]	.01	<.01	.098	[−0.01, 0.01]	−.01	.01	.283	[−0.01, 0.01]
Target group × COVID-19 Threat	−.08	.02	.001	[−0.12, −0.03]	−.01	<.01	<.001	[−0.02, −0.01]	.01	.01	.014	[0.01, 0.02]
RWA × Target group × COVID-19 threat	−.05	.02	.039	[−0.10, −0.01]	.01	<.01	.772	[−0.01, 0.01]	−.01	.01	.749	[−0.01, 0.01]
F	$F(7, 692) = 21.48, p < .001$				$F(7, 692) = 37.71, p < .001$				$F(7, 692) = 41.69, p < .001$			
R^2	.18				.28				.30			
ΔR^2	<.01				<.001				<.001			

Note: Bonferroni significance threshold $p = .016$. ΔR^2 = variance explained by highest order unconditional interaction.

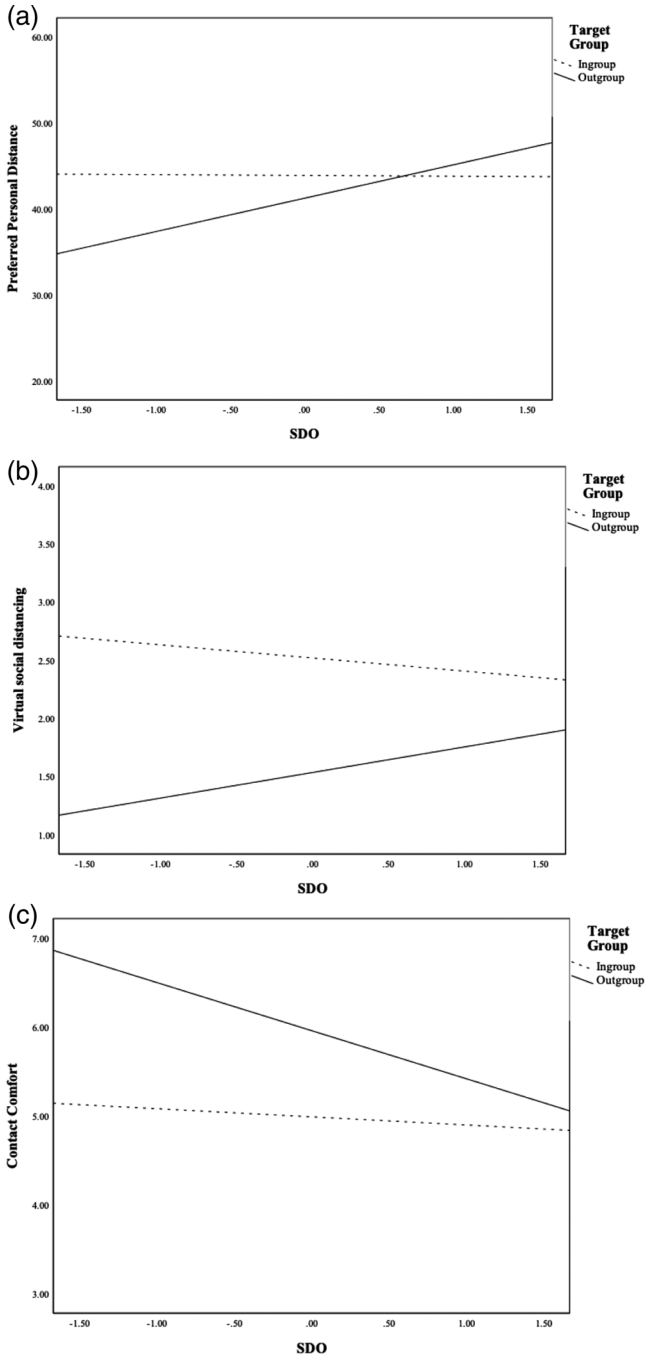

FIGURE 5 The relation between SDO (mean-centred) and (a) preferred personal distance (b) virtual social distancing and (c) comfort engaging in infection-risky behaviours as a function of target group (Study 3).

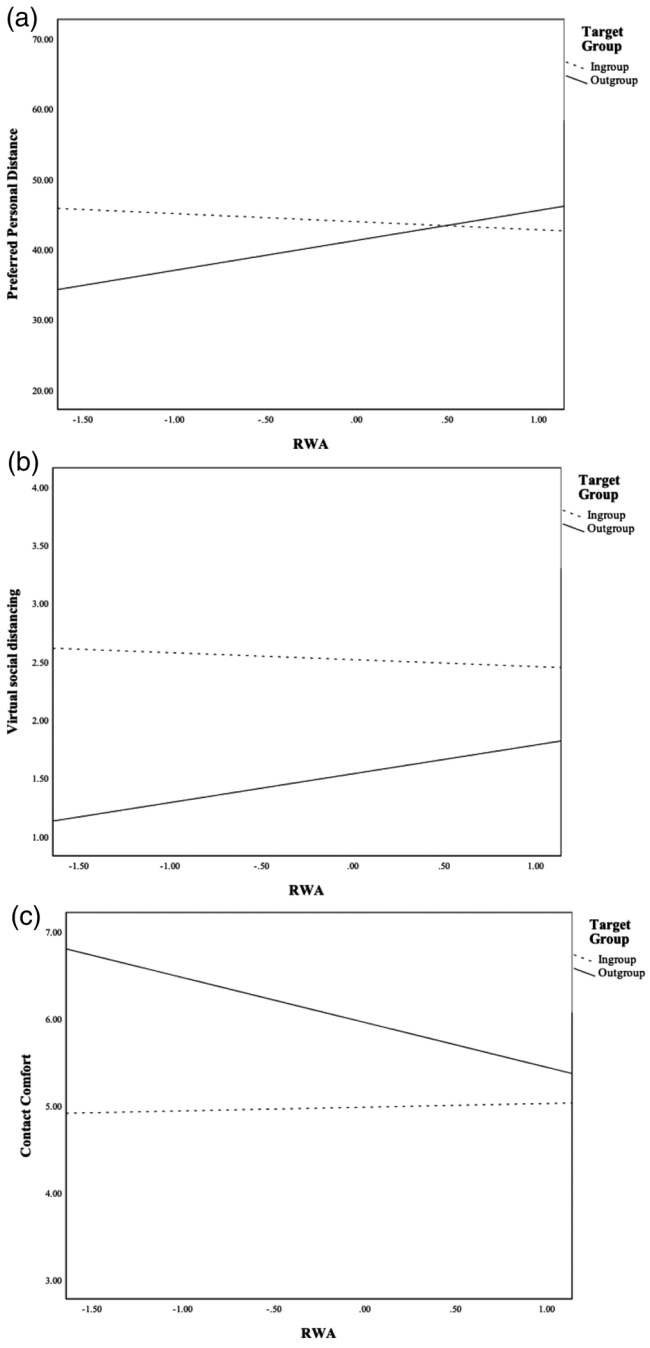

FIGURE 6 The relation between RWA (mean-centred) and (a) preferred personal distance (b) virtual social distancing and (c) comfort engaging in infection-risky behaviours as a function of target group (Study 3).

($b = -4.09$, $p < .001$, CI_{95} [−5.88, −2.32]). As expected, simple slopes analyses revealed that RWA was associated with greater distancing towards outgroup members ($b = 4.47$, $p < .001$ CI_{95} [2.67, 6.27]) but not towards ingroup members ($b = -.66$, $p = .468$, CI_{95} [−2.44, 1.12]); see Figure 6. The three-way interaction between RWA, target group and perceived COVID-19 threat was non-significant ($b = -.05$, $p = .039$, CI_{95} [−0.10, −0.01]).

In the model predicting virtual social distancing (Model 3b, see Table 12), RWA was not significantly associated with greater distancing $b = -.12$, $p = .019$, CI_{95} [0.02, 0.21] but there was a significant two-way interaction between RWA and target group $b = .13$, $p = .010$, CI_{95} [0.03, 0.23]: individuals high in RWA showed a weaker preference for maintaining greater distance from ingroup (vs. outgroup) targets ($b = -.36$ $p < .001$, CI_{95} [−0.50, −0.23]) compared to those low in RWA ($b = -.65$, $p < .001$, CI_{95} [−0.78, −0.51]). In terms of simple slopes,

RWA predicted greater virtual distancing only for outgroup members ($b = .26$, $p < .001$) and not ingroup members ($b = -.02$, $p = .787$); see Figure 6. There was no significant interaction between RWA, target group and perceived COVID-19 threat ($b = < .01$, $p = .772$, CI_{95} [−0.01, 0.01]).

Finally, in the model predicting contact comfort (Model 3c, see Table 12), there was a significant association between RWA on this outcome, $b = -.27$, $p < .001$, CI_{95} [−0.39, −0.16] and the two-way interaction between RWA and target group, $b = -.25$, $p < .001$, CI_{95} [−0.37, −0.13] was also significant. The positive association between target group and contact comfort, indicating higher contact comfort for outgroup members (vs. ingroup members), was weaker at high levels of RWA ($b = .25$ $p = .002$, CI_{95} [0.09, 0.41]) compared to low levels of RWA ($b = .77$, $p < .001$, CI_{95} [0.61, 0.94]). Alternatively, simple slope tests revealed that RWA predicted lower contact comfort only for outgroup members ($b = -.54$, $p < .001$) and not ingroup members ($b = -.02$, $p = .848$); see Figure 6. The RWA × target group × COVID-19 threat interaction was non-significant ($b = -.01$, $p = .740$, CI_{95} [−0.01, 0.01]).

We also recorded whether participants had received a COVID-19 vaccination or not in Study 3. Correlations between vaccine status and our predictor and dependent variables can be found in the Supplementary Materials (see Table S5). None of the key interaction patterns changed when vaccine status was included as a covariate in the regression models.

4.4 | Discussion

Consistent with Study 1 (and partially consistent with Study 2), ideology in the form of political ideology, RWA or SDO, was a significantly stronger predictor of feeling less comfort having contact with an outgroup than ingroup target. For both RWA and SDO (but not conservatism), elevated ideology also predicted greater preferred distance and greater virtual social distancing from the outgroup (vs. ingroup). As in Study 2, these patterns were observed despite the sample as a whole expressing greater contact avoidance towards British than foreign targets (possibly due to the United Kingdom experiencing some of the highest COVID-19 infection rates in Europe, and reflected in greater ratings of threat for those rating the ingroup than the outgroup). These outgroup-favouring patterns of distancing were weaker among those higher (vs. lower) in right-wing ideologies. As in Study 2, but here with a considerably larger sample, these two-interaction patterns were not generally moderated by perceived COVID-19 threat.

5 | GENERAL DISCUSSION

We capitalized on the advent of a naturally occurring pandemic (COVID-19) to explore the role of ideology in predicting contact and distancing preferences from others, and particularly whether this differed for ingroups and outgroups. Much of the pre-pandemic literature suggests that increases in right-leaning ideologies are associated with greater BIS reactions (Aarøe et al., 2017; Terrizzi et al., 2013), but the pandemic introduced a new, largely unanticipated social context, where COVID beliefs and reactions became politicized. We sampled White British participants in different phases of the pandemic, across three different samples. As predicted, increases in right-leaning ideologies predicted greater social avoidance reactions, but particularly (and often only) for outgroup targets and not ingroup targets. In Studies 1–3, greater conservatism predicted greater outgroup (vs. ingroup) contact discomfort; in Study 3 this same pattern was observed for SDO and RWA. The patterns regarding preferred personal distance from others were less robust; greater conservatism predicted greater outgroup (vs. ingroup) avoidance in Study 1 but not Studies 2–3. However, RWA exhibited this pattern in Studies 2–3, as did SDO in Study 3. Of note, Study 3 introduced a highly salient activity where participants could express social distancing goals visually; as RWA or SDO increased participants were significantly more likely to distance themselves from outgroups (vs. ingroups). This shows evidence of an intergroup-relevant response to contact with others during a pandemic that is fed by ideological orientations, and seems largely relevant to the outgroup. In many instances, ideology significantly predicted responses to outgroups, yet often failed to predict responses to ingroup members. This addresses a fundamental question regarding when ideology is relevant to predicting BIS-responses—primarily with regard to outgroups, not others generally.

It is important to note that this basic pattern, whereby increases in right-leaning ideologies correspond with greater contact discomfort and distancing for outgroups more than ingroups, was observed regardless of whether the sample as a whole sought more distance from outgroups (Study 1) or ingroups (Studies 2–3). This left–right difference in pushing away from outgroups therefore appears to be quite robust. Indeed, the pattern was observed earlier (Study 1; in some cases for Study 2) and later (Study 3) in the pandemic, when the public was held in lockdown (Studies 1–2) or not (Study 3), and prior to the possibility of vaccination (Studies 1–2) or when adults had been offered vaccination (Study 3). The pattern was quite robust to methodological variations also, including whether the outgroup was labelled as 'foreigners' (Studies 1–2) or 'Eastern European immigrants' (Study 3), with the latter being largely White. The pattern was also observed whether the emphasis was on moving others away from the self (Studies 1–2) or the self away from others (Study 3). Overall the pattern is clear, certainly in Studies 1 and 3 (with support for some of the analyses in Study 2), and with no instances of right-leaning ideology predicting avoidance of ingroups more than outgroups.

It is also noteworthy that COVID-19 threat played no moderating role in Study 2 (where it was predicted to exacerbate the main pattern) or in Study 3 (where it was included as an exploratory moderator). Increased threat perception did, however, predict greater distancing and less comfort with contacting 'others'; there were also significant interactions between threat and target, such that these British participants felt at greater risk of COVID after being asked about their ingroup than outgroup preferences (see Tables 4–6, 8, 10–12), consistent with high infection rates in the United Kingdom

at the time. In addition, there were few consistent or sizeable relations between ideological variables and threat (except for some negative relations regarding SDO). Collectively these findings suggest that right-wing ideological responses are not generic and blunt but rather targeted, and may not have much to do with disease concerns, contrary to past theorizing. Indeed, in our studies those higher in right-wing ideologies preferred contact with ingroups to outgroups, even though White British participants at the time displayed relatively high rates of infection, and in Studies 2 and 3 our British participants expressed higher threat concerns after thinking about the ingroup (vs. outgroup). That those higher in right-wing ideologies showed more distancing from the outgroup (vs. ingroup) undermines the notion that they particularly worry about contagion. Instead increases in right-wing ideology coincided with a pull towards the ingroup, highlighting the 'intimacy paradox' whereby some people feel safest around, and seek more contact with, those most able to spread disease and harm (De Vries & Lee, 2022). What our studies reveal is that ideologically relevant avoidance of others during a pandemic largely reflects an intergroup dynamic, where ideology is pertinent in understanding and predicting the physical avoidance of and discomfort interacting with outgroups but not ingroups. Note also that RWA and SDO showed the key pattern in Study 3, with these individual differences generally considered 'intergroup' variables (Hodson & Costello, 2007; Hodson & Esses, 2005). Rather than reflecting disease concerns, ideologically based reactions to COVID left–right disparities may reflect more how Americans think their party wants them to behave (i.e., toeing the party line) (see Douglas & Sutton, 2022), or reflect responses to messaging from political elites (Sommer & Rappel-Kroyzer, 2022), as opposed to reflecting deeply rooted ideological differences (and certainly those involving contagion concerns).

Also consistent with this intergroup interpretation, our findings might reflect the importance of ideology to social identity distinctions, with the ingroup–outgroup distinction being sharper with increases in right-leaning ideological orientations. Indeed, across countries political conservatism often correlates with national identification in the $r = .18$ range (see Maher et al., in press; Van Bavel et al., 2022). In contrast, the left end of the ideological spectrum identifies more at the higher-order level of humanity (Hamer et al., 2019). Given that our ingroup–outgroup comparisons involved national ingroup versus foreigners or immigrants, we cannot rule out this possibility (and indeed we believe that it fits with our intergroup interpretation). Of course, future research could explore ingroup–outgroup dynamics that are not linked to nationality or race (e.g., sexual orientation or socioeconomic status). Moreover, it is important to keep in mind that we sampled White British participants in a post-Brexit context. Nationally representative data show that increases in right-leaning ideology are associated with both pro-Brexit and anti-immigrant positions (Abrams & Travaglino, 2018). Thus, it may be the case that social factors, rather than disease concerns, explained the observed patterns in our data, consistent with how COVID-threat perceptions do not moderate the effect.

5.1 | Limitations and future directions

Existing research on ideological responses to the COVID-19 pandemic has largely focused on the United States and suggests that, in line with party narratives, increases in right-leaning ideology predict less compliance with government restrictions (Calvillo et al., 2020; Gollwitzer et al., 2020; Latkin et al., 2022; Plohl & Musil, 2021). But the United States might be an outlier in this regard, with political ideology predicting greater compliance with restrictions in many other countries (McLamore et al., 2022). The current study provides an important exploration of ideological effects in a socio-political context outside of the United States yet in an allied country with a strong ideological divide and a politicized COVID culture. Our conclusions may be limited to the British socio-political context, and a post-Brexit one at that, but they shed new light on ideological reactions outside the widely studied United States. Indeed, given that there is sizeable between-country variability in right-wing parties' responses to the pandemic both in terms of narratives and policies (Wondreys & Mudde, 2022), future research should explore the influence of individual differences in political ideology among participants nested in other countries and subject to different political party framing. Please note that we also limited our analysis to White British participants in part because we did not have enough non-Whites to confidently explore other British subgroups (for similar practice, see Meleady & Hodson, 2022; Zhao et al., 2022). Future research, including that in Britain, could expand consideration to other demographics to examine the generalizability of the findings.

We recognize that Study 3 was our largest sample, with both preregistered hypotheses and methods, and that it produced clear effects that largely replicated and added to the findings from Study 1, but we also acknowledge the mixed findings in Study 2. The reasons for this discrepancy are not clear, and might reflect topical events at the time of data collection. Even here, though, we found some evidence that ideology becomes more relevant when predicting outgroup (vs. ingroup) COVID avoidance behaviours, with the pattern never running in the opposite direction. It is possible that unmeasured variables played a role in Study 2. For instance, future research could seek to measure perceptions of COVID-19 incidence rates among ingroup/outgroup members directly. Of note, Tybur et al. (2020) argue that contact avoidance varies as a function of both pathogen costs and benefits afforded by contact. Measuring perceived contagion could tell us whether selective outgroup avoidance becomes more relevant with increases in right-leaning ideology because those on the right view outgroups as being more likely vectors of disease, or whether conservatives are simply less willing to tolerate the pathogen risks of less beneficial contact with outgroups.

6 | CONCLUSIONS

In hindsight we can see that the role of political ideology in understanding COVID-19 related reactions to other people would be more

nuanced than the pre-COVID literature suggested, being more political in nature. Consider that former president Donald Trump, a self-described germophobe who considers handshaking 'barbaric' (Liptak et al., 2020), nonetheless led the charge in downplaying the virus and its implications for his political gain. Prior to the COVID-19 pandemic, psychologists were converging on a narrative that political ideology is relevant to predicting BIS responses out of concerns for disease prevention. The present study confirmed that ideology predicts avoidance-relevant behaviours during a period of highly salient contagion risk, but with an important proviso: ideology becomes relevant only for outgroup (not ingroup) targets. Moreover, we found little evidence that patterns reflected concerns with disease threat (and even found that increases in right-leaning ideologies predicted approach towards the ingroup, even though the ingroup triggered more threat concerns in the samples overall). Ideologically based avoidance is thus not a blunt instrument that distances from 'others', but rather is a fine-nosed process that promotes outgroup-specific avoidance. Right-leaning ideologies are 'about' pushing back against change to the social fabric and power dynamics, a pattern more clearly observed in the present investigation than a narrative where these ideologies protect against pathogens and risk to the self. Indeed, these patterns appear more intergroup and political in nature than BIS-related, presumably reflecting the highly politicized context surrounding COVID-19.

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CONFLICTS OF INTEREST STATEMENT

The authors declare that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The datasets for all studies are available on the Open Science Framework project page: https://osf.io/ve4h7/?view_only=086c1cfceb034fcd8e964596ffa70ceb.

ETHICS STATEMENT

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SUPPORTING INFORMATION

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

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