

# Sociopolitical consequences of COVID-19 in the Americas, Europe, and Asia: A multilevel, multicountry investigation of risk perceptions and support for antidemocratic practices

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### Abstract

Although different social crises may eventually favor undemocratic and authoritarian forms of governance, at some point, such antidemocratic practices require the support of a significant part of the population to be implemented. The present research investigates how and whether the COVID-19 pandemic might have favoured greater support for antidemocratic governmental practices, on the premise of regaining control and security. Using data from 17 countries ( $N = 4364$ ) and national-level indicators (i.e., real number of contagions and deaths, and sociopolitical indicators), we test how the risk of contagion and death from COVID-19, along with personal orientations (i.e., social dominance orientation [SDO], right-wing authoritarianism [RWA], and perceived anomie) motivate authoritarian and antidemocratic practices. Results from multilevel models indicate that risk perception and perceptions of political instability predict a wish for stronger leadership, agreement with martial law, and support for a controlling government especially when SDO and RWA are high, while more egalitarian and less conservative people agree less with these authoritarian measures in spite of the levels of risk perception. We discuss the implications for these findings for future research on similar but also dissimilar external events (natural disasters, war, or terror incidents) and the consequences for societies with higher authoritarian tendencies.

### KEYWORDS

antidemocratic practices, authoritarianism, COVID-19, risk perception, RWA, SDO

## INTRODUCTION

Research shows that the road to a totalitarian governance and antidemocratic practices may be paved with institutional crises (Guiso et al., 2019), moments of uncertainty (Funke et al., 2016), and the rise of populist actors (Rhodes-Purdy et al., 2021), among others. Conversely, not much is known on how exogenous shocks such as wars, natural disasters, or plagues such as the recent COVID-19 pandemic might influence such antidemocratic practices. While one line of research shows that such unpredicted and dramatic changes can trigger a change toward a more democratic regime (Habibur Rahman et al., 2017a, 2017b), another line of research argues that in such times of uncertainty, governments can turn to oppressive and antidemocratic practices (Wood & Wright, 2016).

Consequently, research on the political consequences of COVID-19 argued that, as an existential threat, the pandemic can be instrumentalized to erode rights and liberties and reinforce antidemocratic forms of governance (Cooper & Aitchinson, 2020; Youngs & Panchulidze, 2020). More recent research, however, has shown that fear and panic triggered by the pandemic did not decrease support for liberal democracy in some societies (Anghel & Schulte-Cloos, 2022). Instead, it created, at least during the early stages, a rally-around-the flag effect during which trust in institutions and leaders peaked (Yam et al., 2020). A closer look reveals that both lines of research have so far considered the pandemic, despite its long enduring consequences, as a discrete event (Reinhardt & Lutmar, 2022). However, research looking at the ongoing effects of war and natural disasters, as external and negative shocks, show that as the severity of such shocks increase, the use of repressive and authoritarian measures might also increase (Barceló et al., 2022; Lee et al., 2022).

In the present research, we apply this theorizing to the political consequences of the pandemic and focus on whether the perceptions of uncertainty and society as breaking down (Sprong et al., 2019; Teymoori & Bastian, 2017) could motivate support for draconian antidemocratic measures. First, using country/regional level indicators of the pandemic, death rates and number of positive cases, and individual-level data nested in regions, we investigate whether perceptions of contagion risk and deadly threats would trigger more support for these type of antidemocratic practices. This allows us to address the dynamic nature of the pandemic, at least across the regions, by incorporating different levels of threat (number of deaths and new cases). Second, we unpack the psychological processes, that is, risk perception, social dominance orientation, right-wing authoritarianism, that might motivate such support for antidemocratic forms of governance. Third, we not only test the risk perceptions but also investigate how the chaos (perceptions of anomie) unleashed by the pandemic fit into this equation.

Globally, the COVID-19 pandemic caused by the SARS-CoV-2 virus has left at least three million deaths in 2020 (WHO, 2021),<sup>1</sup> a widespread impoverishment of mental health (Olf et al., 2021), and an almost overnight change in human lifestyle, triggering a huge collective effort to cope with these consequences (Muldoon et al., 2021). Moreover, the very changes aimed at reducing infections and deaths (e.g., extraordinary public health measures such as confinement or physical distancing) have been difficult to implement and have had, in general, less adherence and impact among people with fewer socioeconomic resources (Buheji et al., 2020; Mena et al., 2021).

In such a context of uncertainty, risk, and existential threat, the need to regain a sense of control of our world and surroundings becomes evident.<sup>2</sup> Accordingly, research investigating

<sup>1</sup>Updated death toll as of March 21, 2023, is 6,879,677 (WHO, 2022).

<sup>2</sup>Although human needs go by various names in different theoretical traditions (e.g., physiological needs, self-preservation needs, need for autonomy; for a review, see Pittman & Zeigler, 2007), here we refer to the motivation that drives us to reduce uncertainty and survive.

the early reactions to and the political consequences of the pandemic showed that during the early days of the pandemic, trust in public institutions peaked (Kritzinger et al., 2021; Schraff, 2021), and support for national governments (Yam et al., 2020) and leaders increased.

This is contrary to findings from earlier research on long-term economic crises and instability which show that long-term economic crises tend to give way to right-leaning populist rhetoric (Montiel et al., 2021; Zulianello, 2020), attitudes favoring right-wing and populist leaders (Rhodes-Purdy et al., 2021), and, eventually, support for authoritarian actors (Berman, 2021). For instance, using cumulative data on 827 elections from 20 developed societies from 1870 until the present day, Funke et al. (2016) showed that the consequences of an economic crisis give room for greater support for far-right rhetoric, as evidenced in Greece (Halikiopoulou & Vasilopoulou, 2018), Italy, Germany, Norway, or Finland (Funke & Trebesch, 2017; Sprong et al., 2019).

Similarly, Solt's (2012) analyses using the World Value Survey data ( $N > 200,000$ ;  $k = 190$ ) showed how individual levels of authoritarianism are shaped by the context; in other words, they reflect persons' cultural learning and responses to their environment, such as inequality. Although these analyses are robust and sensible, they are limited in the sense that not only do they lack relevant individual-level factors, such as human motivations or their psychosocial effects, that might trigger support for authoritarian practices (see Sprong et al., 2019, for an exception), but they also focus mainly on the effects of instability and uncertainty that caused long-term economic crises.

Accordingly, these findings on effects of long-term *internal* shocks are not readily applicable to the crises created by *external* shocks such as natural disasters, wars, and or plagues such as the COVID-19 pandemic.

Turning our gaze to the political consequences of the pandemic, one can argue that most research looking at the similar effects of the pandemic has, so far, focused on "rally around the flag" (Dietz et al., 2021; Lai & Reiter, 2005; Mueller, 1970) or how fear and anxiety created by the pandemic can fuel authoritarian tendencies (Cooper & Aitchinson, 2020; Hartman et al., 2021). Consequently, we know less about the extent to which how and when these higher rates of approval, trust, and support for the governments and leaders can be hijacked and exploited toward eroding democracy and implementing draconian and repressive measures. Therefore, less is known on the processes through which the risk perceptions related to contagion and deaths might trigger support for these measures as a result of more dynamic developments, such as the increased rates of death and number of new cases. Second, scarce research looking at the antidemocratic consequences of the pandemic has considered, mostly, macrolevel predictors that do not account for the individual-level processes and antecedents of support for these measures. As such, it is difficult to provide a fuller account of factors and processes that facilitate instrumentalization of uncertainty and instability to erode democratic processes and to establish antidemocratic practices solely on the basis of analyses that focus on macrolevel predictors (von Soest, 2015) or analyses that employ only individual-level data.

Understanding how the COVID-19 pandemic, a phenomenon with far reaching impact on all domains, social, economic, and political of human behavior, has functioned as a potential source of threat and its instrumentalization to install antidemocratic practices and limit civil rights is of paramount importance. Accordingly, investigating the role of such risks and threats in triggering support for restrictive forms of governance can extend our understanding of how extraordinary bouts of rapid and negative social changes (de la Sablonnière, 2017; Smith et al., 2019) can be exploited to steer democracies toward antidemocratic practices.

## AUTHORITARIAN FORMS OF GOVERNANCE

Social sciences have a long tradition of studying the relationship between a major crisis, such as the COVID-19 pandemic, and support for authoritarian policies and various theories and models have been proposed.

For example, a central tenet of the social identity approach in social psychology (Tajfel & Turner, 1979; Turner et al., 1987) is group preservation (see also Hornsey, 2008). In the context of COVID-19, motivational and behavioral responses are primarily encompassed in the activation of a social identity (e.g., we, our community, our country) over an individual one (Jetten et al., 2020), and thus, it is possible to explain social polarization resulting from a crisis such as the pandemic (e.g., Bruine de Bruin et al., 2020; Gratz et al., 2021). For instance, among Swedes, Sweden's *exceptional* abstinence from law-enforced restrictions during the pandemic was associated with national identity (Simonsen, 2022). As the Swedish approach came to symbolize the Swedish identity, those who are against it both in the country and abroad were shunned and stigmatized (Esaiaasson et al., 2021). This triggered polarization, leading to a form of nonviolent group conflict between Swedish people who perceive the Swedish government's approach as an integral aspect of the Swedish national identity and supported the measures and those who criticized it. However, it is not entirely clear how such polarization within a society or between societies in the wake of a crisis leads to more support for extreme forms of governance on either of the democratic spectra—for instance, the rise of more right-wing leaders, policies, and orientations (McCann, 1997, 1999, 2008).

### Theories and explanatory models

At the individual level, previous research has proposed a number of theoretical models—for example, terror management theory (TMT), the meaning maintenance model, the compensatory control mechanism, and the behavioral immune-system hypothesis<sup>3</sup>—that might account for increasing support for antidemocratic tendency in times of crisis and when the society is perceived to be disintegrating (Sprong et al., 2019). However, most of these accounts support a general perspective defined by TMT (Greenberg & Arndt, 2012; Solomon et al., 1991) that a large—if not all—part of human life is a response to the fundamental and conscious fact that we will eventually die. In other words, the worldview we hold is a reaction that allows us to diminish our awareness of our death. This worldview—which is shared and includes, among others, beliefs and value systems—acts as a buffer that protects us from the awareness of our mortality and will therefore become more extreme to the extent that mortality awareness is more salient (Burke et al., 2010).<sup>4</sup> In the context of the COVID-19 pandemic, consequently, constant awareness of death would activate a series of proximal defense mechanisms, which in turn give way to distal reactions, such as increased agreement and defense of our worldviews. For example, this was empirically tested through an online survey across 17 countries, asking participants their dispositions and agreement with a series of social representations of the COVID-19 pandemic. In this study, Pizarro

<sup>3</sup>As we understand a broad-in-scope approach, we have proposed TMT as the broadest theory that can explain the effects and relationships we intend to analyze here. Subsequent theories and models, on the other hand, can be included within the TMT theoretical line and in particular as has been done in past studies of the COVID-19 pandemic (e.g., Baekgaard et al., 2020; Pazhoohi & Kingstone, 2021). However, it is not our aim to test these theories competitively. Rather, we want to use them as independent theoretical confirmations that cover several models and disciplines (see Muthukrishna & Henrich, 2019).

<sup>4</sup>Of particular importance is the fact that the effects produced by the awareness of our death do not need to be conscious. Conscious and unconscious thoughts about death elicit a dual system of responses to their management (i.e., proximal and distal, respectively). In the context of the COVID-19 pandemic, a high presence of nonconscious thoughts is expected, which augment a response based on (1) the maintenance of protective structures (e.g., beliefs) and (2) a defense against threats (see Pyszczynski et al., 1999).

et al. (2020) showed that the activation of death consciousness made people high in right-wing authoritarianism (i.e., worldview) more in agreement with several beliefs—concerning what the SARS-CoV-2 virus is, its origins, effects, and what should be done with norm deviators—to make sense of uncertainty. On the other hand, research based on TMT has also shown how trust in national institutions during the pandemic (as well as other ones which were not directly related to the crisis management) increased in Denmark (Baekgaard et al., 2020) or in Italy, and this increase in turn is associated with improved affective well-being (Roccatò et al., 2021). Taken together, these results show that mortality salience reinforces not only conservative values but, under some circumstances, also more positive processes such as solidarity and support for democracy (Baekgaard et al., 2020; Vail et al., 2009). However, as cross-cultural evidence suggests, the “rallying around the flag” phenomenon does not occur in every context, and high rates of internal division have also been reported during 2020 and later (Devlin & Connaughton, 2020).

In a similar vein, the meaning maintenance model (MMM, Heine et al., 2006) proposes that mortality salience (i.e., number of deaths during the pandemic) is one of the many instances in which our meaning framework is threatened. This discontinuation of meaning, according to this theory, activates a fluid compensation process that motivates reaffirmation in behavioral terms and thus leads to a reaffirmation of alternative representations (e.g., worldviews, political orientations identities). In the case of the compensatory control mechanism (CCM, Kay et al., 2008), fluctuating levels of perceived control are the central element and, when threatened, can initiate a compensatory function motivating people to endorse external systems such as religious or system-justification beliefs. More specifically, perception of reduced control over important life goals due to situational constraints may result in compensatory actions—for example, ritualistic behavior (Whitson & Galinsky, 2008)—or in delegating this control to external authorities such as religion, government, or ideology (Rothbaum et al., 1982). Empirical research, however, has been rather inconclusive. While early work on CCM shows that experimentally induced uncertainty is associated with stronger beliefs in “controlling God” (Kay et al., 2008), more recent research aiming to replicate these results has failed to produce meaningful effects of uncertainty on stronger beliefs in an external powerful authority (Hoogeveen et al., 2019).

While there are indeed differences between these models (for a review of MMM and TMT, see Proulx & Heine, 2006), in the case of the current pandemic, both the MMM and CCM can predict the same outcomes as TMT: increased support of governmental practices, even (while not restricted to) authoritarian ones. Supporting this from a different approach, the behavioral immune-system hypothesis (Schaller & Park, 2011) argues that humans—as well as other animal species—possess a series of evolved mechanisms to detect and subsequently avoid infectious pathogens (Kenrick et al., 2010, 2015). Thus, various human behaviors are the result of a motivational system—which may include, for example, social cognition—that may, in turn, affect interpersonal and intergroup relationships, as well as long-term social changes (Murray & Schaller, 2016). In the context of the COVID-19 pandemic, specifically, this motivational activation may explain the approach and avoidance behaviors aimed at both proximal (e.g., people with symptoms close one's group) and distal (e.g., immigrants from countries with higher levels of contagion) sources of contagion (see Murray & Schaller, 2016). Consequently, this motivational process can indeed fuel movements of national populism and authoritarian policies (Guiso et al., 2019; Rhodes-Purdy et al., 2021).

## Psychological processes amplifying the effects of death awareness

The main relationship of the effects of the pandemic in our motivational system(s) is, in turn, fed back by a large number of effects that favors and shapes it. Thus, for group survival (i.e., social identity perspective, TMT, and the behavioral immune system), protection from the

threat of mortality awareness (i.e., TMT), and the necessity of restoring meaning and control (i.e., MMM, CCM), there are individual and collective level variables that can influence these relations.

For example, higher levels of social dominance orientation (SDO, Pratto et al., 1994) along with right-wing authoritarianism (RWA, Altemeyer, 1988; see also Jugert & Duckitt, 2009) from immigration increases support for radical right-wing parties (Aichholzer & Zandonella, 2016) in the context of a perceived threat. Furthermore, higher levels of threat may increase RWA levels over time, which is partly explained as a function of individuals' decreased perceived control over the social world (Jugert & Duckitt, 2009; Mirisola et al., 2014; Pazhoohi & Kingstone, 2021). This is because variables such as SDO and RWA—considered as belief systems that allow the justification of the status quo (Jost et al., 2004)—can be influenced by factors in the context of the pandemic, such as the perception of a dangerous world or the salience of mortality itself (Jost & Hunyady, 2005) or even increased perception of threats such as the climate change (Uenal et al., 2021).

The chaos, the ensuing panic, and ever-changing policies to contain the pandemic may also give way to perceptions of anomie (i.e., the perception that the society is falling apart with no standards or leadership; Teymoori et al., 2016). This could further strengthen the effects of the pandemic and the functioning of a particular society in terms of antidemocratic practices (see Crimston et al., 2021).

On the other hand, collective threats alone can also generate a response in our psychology that also goes in line with the more intense maintenance of beliefs and value systems. Since human psychology has also evolved due to pressures from cultural evolution (Henrich, 2020; Richerson et al., 2010), various threats to human groups (e.g. scarcity of resources, war, natural disasters) are associated with beliefs and practices more intensely related to religions and moralizing gods (i.e., more strongly held worldview systems; Henrich et al., 2019; Norenzayan et al., 2014), which has also been the case with the current pandemic (Paloutzian & Park, 2005). In turn, these beliefs, when strongly held, may also influence how people follow (or not) the measures and recommendations of health and governmental authorities (DeFranza et al., 2020; Kranz et al., 2020).

In a general way, diverse belief systems (e.g., religious, political orientation, or system justification) play a role in how people react to and cope with the COVID-19 pandemic (Pyszczynski et al., 2021). However, it is important to consider that many of these variables, in turn, generate effects embedded in cultural systems and preexisting meaning systems. For example, the effects of political orientation on how people perceive and cope with the pandemic are not the same in different cultural contexts. For instance, in South Korea, the perceived risk of COVID-19 is associated with more conservative orientations (Ju & You, 2021) while the opposite occurs in the United States (Bruine de Bruin et al., 2020). In fact, TMT posits that being aware of one's mortality would cause an enhancement of preexisting cultural systems and political ideologies as a shield against the threat, meaning that it could boost hegemonic cultural values and thus not be restrictive to solely conservative ones. Burke et al. (2013) meta-analysis supported the “preexisting worldview hypothesis” with an effect size somewhat higher than the one for a simple conservative-or-authoritarian shift effect. In the same vein, Chatard et al. (2010) study revealed that, after the death of a close relative, Swiss liberals did not increase their conservative opinions. Rather, they showed a trend toward becoming more liberal. In conclusion, the threat linked to the COVID-19 pandemic can reinforce authoritarian attitudes only among those who share traditional and hierarchical values and beliefs.

## OBJECTIVES AND HYPOTHESES

At this background, although previous research investigated the effects of the COVID-19 pandemic on several variables (e.g., institutional trust; see Baekgaard et al., 2020; Roccato et al., 2021), no research known to us has focused on whether and how the pandemic can be a catalyst that favors antidemocratic practices—in detail, how starting on a human need for order and safety could promote typical forms of antidemocratic institutions.

Specifically, we want to test how the perceived risk of contagion and death from COVID-19, along with personal orientations, SDO and RWA, and perceptions (i.e., perceived anomie), would motivate support for a range of variables that aim at recovering the control and collective safety in times of uncertainty and high perceived threat, as well as favoring authoritarian and antidemocratic practices. In detail, our aim is to evaluate the effects of these individual- and group-level processes on (1) wish for a stronger leadership; (2) agreement with martial law; and (3) support for antidemocratic control measures.

We expect that:

**H1.1.** Risk perception will predict a stronger wish for stronger leadership.

**H1.2.** Risk perception will predict more agreement with martial law (i.e., a momentary suspension of ordinary law for a military government).

**H1.3.** Risk perception will predict more support for a controlling government (e.g., video surveillance, information recollection without one's knowledge).

We expect that all of these relations will be positive (Crimston et al., 2021; Feldman & Stenner, 1997; Roberts & Rokeach, 1956). For these predictions, we also consider other possible variables, such as the “real” risk of the pandemic, the real number of positive cases and deaths, as well as relevant individual-level (e.g., perceived anomie) and country-level variables (e.g., government's efficacy and political instability).

In addition, we predict that

**H2.** Two individual-level variables will moderate several of the relationships such as those including sociopolitical beliefs and the perception of societal cohesion.

**H2.1.** Two individual-level variables will moderate several of the relationships such as conventionalism (i.e., RWA) and the orientation to understand and enact social relationships based on authoritarian submission, and the personal orientation to support hierarchical and dominance-based intergroup relations (i.e., SDO), and should reinforce the association between threat and these outcomes.

This is so in particular because RWA and SDO represent belief systems that can serve as guidance for our motivations when facing threats (Inglehart & Norris, 2017; see also McCann, 2008). We also expect:

**H2.2.** RWA and SDO will separately moderate (Cohrs & Asbrock, 2009; Wilson & Sibley, 2013) the effects of society-level variables, such as government efficacy, political instability, and rule of law (Blair et al., 2017; Syropoulos et al., 2021).

Finally, we also predict that:

**H3.** Anomie will explain each of the dependent variables because anomic individuals are those that are less protected against mortality salience (Kastenbaum, 2009),



and anomie can be related to an even greater and more intense necessity of reducing death salience (Maxfield et al., 2014).

We derive the main hypotheses from TMT, specifically from the salience of death in the context of the pandemic and from the activation of distal defenses (Pyszczynski et al., 2021; Solomon et al., 1991). In addition, we also based these hypotheses on system justification theory, in particular how our defenses (at personal, group, and system levels) are activated in pandemic and foster various tendencies to maintain control, security, and the status quo (Jost et al., 2004; Jost & Hunyady, 2005).<sup>5</sup>

## METHOD

### Participants and procedure

The research we report here employs a large-scale cross-national and sociodemographically diverse adult sample from 17 countries spanning the Americas, Europe, and Asia, totaling 4364 people (66.54% female, 30.45% male, and 3.09% who identified themselves as nonbinary or did not want to respond). Respondents were mostly middle-aged adults whose ages ranged from 18 to 90 years old ( $M = 34.15$ ,  $SD = 14.15$ , Median = 30). Most study participants were from the Americas (33.3%) and West Asia (23.7%), followed by East and Southeast Europe (22.5%), South Europe (16.8%), and South Asia (3.7%). In terms of educational attainment, the sample mainly consists of well-educated individuals (more than 54% of the participants reported having a university bachelor's or postgraduate degree). With regard to political orientation, the sample skewed politically left ( $M = 3.35$ ,  $SD = 1.23$ , Median = 3.14; 1 = *Extremely Left*, 7 = *Extremely Right*).

All participants completed an online survey through Qualtrics from April 22, 2020, to July 5, 2020 (data collection took place mainly during May 2020 [around 56% of the responses were collected during that month]). The survey was back translated in 10 different languages and took about 25 minutes to complete. Data collection was managed centrally via template created by the authors. Each participating author was sent a dedicated link to share with and recruit (incidentally) the participants in her respective country or region. Overall, respondents were recruited through an incidental sampling procedure (e.g., online advertisements on social media platforms and academic networks were used).

We incorporated two publicly and freely available variables, country-level rates of contagion and deaths, and country-level sociopolitical indexes to the individual dataset. Such a strategy allowed us to include the daily-based national number of new contagions and deaths per 1,000,000 (Roser et al., 2020), as well as national indicators of government effectiveness (i.e., quality of public and civil service the independence of political pressures), political stability (i.e., stability and absence of political violence and/or terrorism), and rule of law (i.e., trust and compliance in the norms of society, including property, police, and justice Kaufmann et al., 2011; updated to 2020) in our main analyses. This, in turn, enabled us to control for the effects of how the contexts where people responded from influence the relationship of our main predictors, as it is been suggested previously (Duckitt, 2001; see also Crimston et al., 2021; Jurgert & Duckitt, 2009).

Table 1 shows a full country-based description of the samples with general statistics (i.e., demographics) and country-level indicators of indices of interest. The current empirical investigation received the approval of the responsible university's Psychology Research Ethics

<sup>5</sup>Note that we preregistered most of the relationships of the variables presented in this article (see <https://osf.io/dp5zt>, Model 3). The logic of these hypotheses corresponds to statistical control as well as specific relations already proved (see Figure 1).

TABLE 1 Descriptive statistics of Level-1 and Level-2 variables.

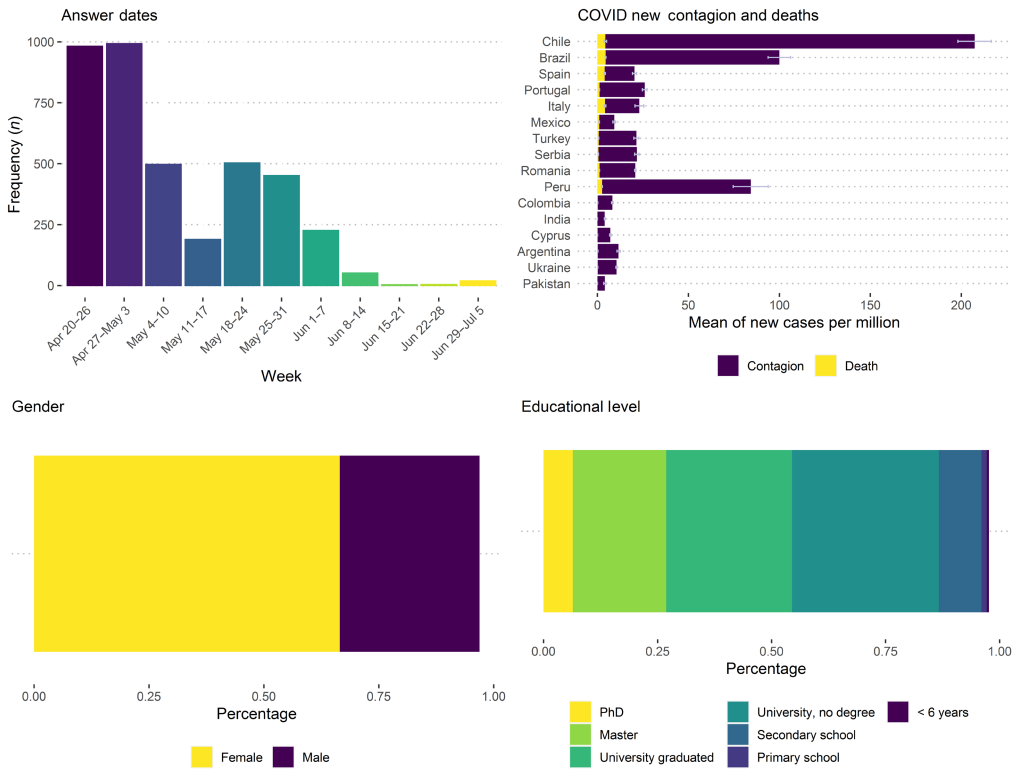
Zone	<i>n</i>	Level-1 descriptive variables				Level-2 variables										
		% women	Age		Educational level		Political orientation		Stringency index	New cases <sup>a</sup>	New deaths <sup>a</sup>	Gov. Eff.	Pol. Instab.	Rule of law		
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>							Poverty	GDP
Argentina	139	67.63	26.53	12.25	4.12	.56	4.36	1.05	.6	18,933.91	91.47	11.67	.30	-.22	.04	-.47
Brazil	214	64.95	34.85	14.02	4.86	1.03	2.61	1.25	3.4	14,103.45	78.65	100.05	4.57	-.45	-.42	-.18
Chile central (Santiago & Viña del Mar)	146	75.34	28.72	9.87	4.34	.88	3.28	1.06	1.3	22,767.04	78.17	244.54	5.22	.99	.07	1.07
Chile north (Antofagasta)	184	58.70	30.50	11.60	4.43	.84	3.28	1.13	1.3	22,767.04	76.67	177.01	1.99	.99	.07	1.07
Chile south-central (Concepción & Talca)	216	67.13	26.20	13.08	4.20	.75	3.17	.97	1.3	22,767.04	77.33	208.12	5.96	.99	.07	1.07
Colombia	330	60.61	29.83	15.66	4.37	.81	4.06	1.20	4.5	13,254.95	89.44	8.29	.29	.04	-.67	-.49
Cyprus Greek (south)	165	68.48	30.12	13.37	4.85	1.16	3.31	1.26	n.a.	32,415.13	88.76	3.61	.26	.88	.29	.58
Cyprus Turkish (north)	285	47.72	43.64	11.73	5.52	.97	2.51	1.04	n.a.	32,415.13	94.34	9.26	.14	.88	.29	.58
India	88	47.73	30.62	11.85	5.42	1.03	3.15	1.45	21.2	6426.67	79.99	4.10	.10	.89	.40	.90
Iran	448	56.92	n.a.	n.a.	4.22	1.17	3.46	.78	n.a.	n.a.	n.a.	n.a.	n.a.	-.99	-1.67	-.87
Italy	50	72.00	42.28	13.22	5.46	1.49	2.88	1.02	2	35,220.08	71.57	23.10	4.20	.40	.44	.24
Mexico south-central	170	66.47	27.63	10.38	4.22	.92	3.85	1.19	2.5	17,336.47	82.17	9.30	1.00	-.16	-.85	-.67
Pakistan	72	61.11	34.18	13.11	5.26	1.09	3.58	1.02	4	5034.71	90.00	4.13	.09	-.55	-1.85	-.69
Peru	55	63.64	42.85	17.92	5.04	.95	3.38	.93	3.5	12,236.71	95.24	84.32	2.58	-.24	-.29	-.34
Portugal	137	78.83	47.26	13.68	4.87	1.20	3.42	1.24	.5	27,936.90	70.77	26.06	1.21	1.02	1.03	1.18
Romania	483	80.54	38.45	11.59	5.43	1.05	3.85	1.15	5.7	23,313.20	86.75	20.87	1.19	-.22	.59	.37
Serbia	217	70.97	39.86	14.42	4.31	1.06	3.39	1.38	n.a.	14,048.88	94.34	21.69	.63	.03	-.09	-.18

TABLE 1 (Continued)

Zone	Level-1 descriptive variables				Level-2 variables											
	<i>n</i>	% women	Age		Educational level		Political orientation		Stringency index	New cases <sup>a</sup>	New deaths <sup>a</sup>	Gov. Eff.	Pol. Instab.	Rule of law		
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>							Poverty	GDP
Spain	347	76.95	36.55	13.22	4.90	1.12	2.74	1.13	1	34,272.36	81.58	20.67	4.21	-0.04	-1.19	-0.36
Spain north (Basque Country)	199	72.86	34.10	14.98	4.99	1.25	2.56	1.19	1	34,272.36	78.66	20.02	3.83	-0.36	-1.16	-0.67
Turkey	135	55.56	31.39	9.71	5.22	.98	3.61	1.17	.2	25,129.34	75.04	21.44	.75	.40	.44	.24
Ukraine	284	69.01	28.69	12.61	4.76	1.36	3.61	1.08	.1	7894.39	91.88	10.51	.26	-0.16	-0.85	-0.67

Note: Total *N* = 4364. Educational Level (from 1 = *Less than 6 years to 7 = Doctorate studies*; see Figure 2). Political Orientation (1 = *Extremely Left*, 7 = *Extremely Right*). Poverty indicates the percentage of the country living below the poverty line. GDP = Gross Domestic Product. Stringency Index indicates a composite based on nine response indicators (e.g., workplace closures, travel bans), from 0 to 100 (100 = strictest response).

<sup>a</sup>Cases are confirmed cases (contagion and deaths) per 1,000,000 inhabitants. Rule of Law = Trust and compliance in the norms of society, including property, police, and justice. Gov. Eff. = Government Efficacy, reflecting perceptions of the quality of public services, the independence from political pressures. Pol. Instab. = Political Instability, reflecting the perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Data of Poverty, GDP, Stringency Index, and new cases, from Roser et al. (2020), with daily variation matching the date of data gathering. Data of Government Efficacy and Political Stability, from Kaufmann et al. (2011), the most updated year available (i.e., 2020). "n.a." indicates nonavailable data.



**FIGURE 1** Answer dates, daily COVID statistics, and descriptive information of the sample. Total  $N=4364$ . National indicators of new COVID contagion and deaths (averaged during the dates people answered the survey) were not available for the Iranian sample ( $n=448$ ).

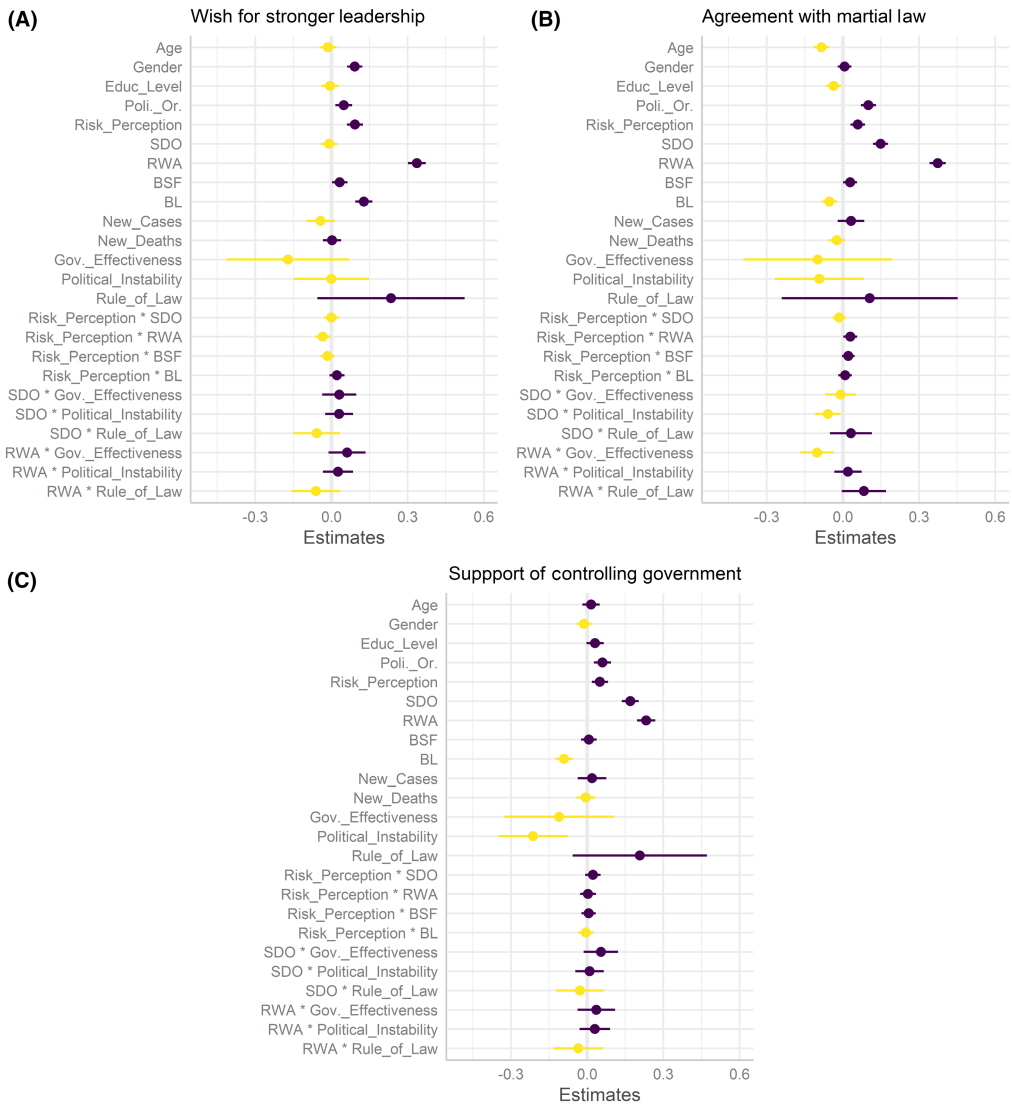
Committee. All the materials including the survey items, supplemental analyses (including factorial analyses, reliability indexes and data validation), and the database and syntax can be seen in the online supporting information on our project's website through Open Science Framework at <https://osf.io/p6gcu>.

## Instruments

All individual-level variables were measured on 7-point Likert scale. Thus, higher values show stronger risk perceptions, higher SDO, higher RWA, higher anomie, more support for stronger leaders, and more support for martial law and controlling government measures.

## Risk perception (used in Pizarro et al., 2020)

We used seven items; the first four items aimed at examining the infection-related risks (e.g., “I am afraid of falling ill with the coronavirus, or I am afraid I would pass it on to others”). On the other hand, the consequence-related anxiety was measured with three items (e.g., “I am worried of losing my job and/or that a close one does,” or “I am worried about having more conflicts with someone in my household”). They were measured on a 7-point scale (1 = *Strongly disagree*; 7 = *Strongly agree*).



**FIGURE 2** Final models' estimates for the prediction of dependent variables.  $N = 3688$  ( $k = 20$ ) included for the analyses. The plots show the final models' estimates (standardized multilevel betas and their standard errors) for the prediction of Wish for Stronger Leadership (A), Agreement with Martial Law (B), and Support of Controlling Government (C). Light and dark colors indicate negative and positive estimates, respectively.

### Social dominance orientation (Pratto et al., 1994)

We adapted three items from the SDO6 version (e.g., “It’s ok if some groups have more of a chance in life than others,” or “In getting what you want, it is sometimes necessary to use force against other groups”). They were measured on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

### Right-wing authoritarianism (Duckitt et al., 2010)

We measured RWA with two items (e.g., “Our society needs a tougher government and stricter laws”), on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

## Perceived anomie (Teymoori et al., 2016)

We measured the dimensions of the breakdown of the social fabric (e.g., “People think that there are no clear moral standards to follow”) and the breakdown of leadership (e.g., “The government is legitimate”; reverse coded), each with two items. The scale used was from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

## Wish for a stronger leadership (Sprong et al., 2019)

It was evaluated with three items (e.g., “We need strong leadership to overcome society's difficulties”), on a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

## Agreement with martial law (ad hoc)

It was evaluated with three items (e.g., “There can be no progress against the current pandemic without martial law (that is, the military to control law and order),” or “Implement the death penalty to protect public health”) from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

## Controlling government measures (ad hoc)

It was evaluated with three items (“collect information about anyone without their knowledge”; “monitor and any other information exchanged on the internet”; “keeping people under video surveillance”), from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

In addition to these scales, we asked each participant for demographic information (i.e., age, gender, educational level, and political orientation). Finally, other variables, whose analyses are not presented here, were also included.

## Analyses

We first performed a series of confirmatory factor analyses to evaluate the psychometric properties of the scales, with their respective reliability tests (i.e., McDonald's Omega or Pearson's correlation). Then, we conducted a series of steps concerning data validation, consisting in analyzing the invariance of the main relations, as well as the relationship of the predictors with other variables for validation purposes (see Data Validation, in the online supporting information).

Subsequently, we conducted descriptive and correlational analyses of all variables in the study. For testing the main hypotheses, we conducted multilevel modeling and plotting to test our hypotheses. We fitted all models hierarchically to compare the models and changes in them (full model comparisons in the online supporting information). Finally, we further explored intra- and cross-level interactions visually whenever the interaction  $p$ -value in the model was  $<.10$ .

All analyses were conducted in R (R Core Team, 2014) with RStudio (RStudioTeam, 2015). For CFAs and reliability analysis, we used the packages *lavaan* (Rosseel, 2014) and *semTools* (Jorgensen et al., 2019). For correlations, we used *apaTables* (Stanley, 2018) and for meta-analyses, *metaphor* (Viechtbauer, 2015). Last but not least, we used *lme4* (Bates et al., 2014) for multilevel models and *sjPlot* (Lüdtke, 2020) for tables and multilevel moderation effects.

## RESULTS

### Descriptive statistics

Figure 1 shows the dates of survey completion including general information about participants' gender and educational level. It further includes the average number of real cases (per 1,000,000 inhabitants) of new contagions and deaths during the dates participants responded the survey. As it can be seen, the countries (at the moment of answering) with the highest numbers of contagions and deaths were South American (Chile, Brazil, Peru), followed by European countries (Spain, Portugal, Italy).

Table 1 provides a full country-based description of the samples with general statistics (i.e., demographics), as well as country-level indicators of indexes of interest, including levels of economic growth (poverty and GDP), indexes related to the pandemic's impact and response (stringency index, new cases and deaths), and finally, those that reflect sociopolitical relationships (government's efficacy and political stability).<sup>6</sup> As it can be seen, there is great variability across the contexts where people answered from: Portugal, Chile, and Spain had the highest levels of Rule of Law (i.e., trust and compliance with societal norms) and Government Efficacy (i.e., perception of quality of public services), while the lowest indexes were those from Iran, Pakistan, Ukraine, and South American Countries such as Argentina, Colombia, Mexico, and Brazil. In the case of Political Instability (i.e., perceptions of likelihood of political instability and violence), the highest levels were those from Portugal, Romania, Italy, and Spain, while the lowest (i.e., more stability), were those from Iran, Turkey, Ukraine, and India.

### Main analyses

To test the main hypotheses, we conducted bivariate correlations, several multilevel regression analyses in a hierarchical order and meta-analyzed the relationship between the main predictor with all dependent variables. Here, we present the last step of each one that predicted the four criterion variables (Figure 2; for correlations, complete models and meta-analyses, see the online supporting information).

Concerning Hypothesis 1, correlations (Table S3) show that, for the whole sample, risk perception is significantly related to all criterion variables.<sup>7</sup> It is positively related with a wish for stronger leadership, agreement with martial law, and controlling government. Further, this variable is positively related to RWA and the two facets of anomie: the breakdown of the social fabric and leadership. Finally, direct associations with nation-level variables show that it is positively related to new COVID-19 cases of contagion and deaths (more strongly with the prior), and government efficacy and rule of law, while negatively with political instability.

The significant association of risk perception and criterion variables is also corroborated through multilevel analyses and meta-analyses. In several models (Figure 2 as well as Tables S4–S7 in the online supporting information), we observe that individuals' risk perception of the pandemic is a significant and a positive predictor of a wish for stronger leadership ( $\beta = .09$ ), agreement with martial law ( $\beta = .06$ ), and agreement with a controlling government

<sup>6</sup>In the case of Iran, there were no country-level indicators of new cases or new contagions, and thus, this sample ( $n = 448$ ) was only included for (1) descriptive analyses, (2) scale construction analyses, and (3) all supplemental analysis.

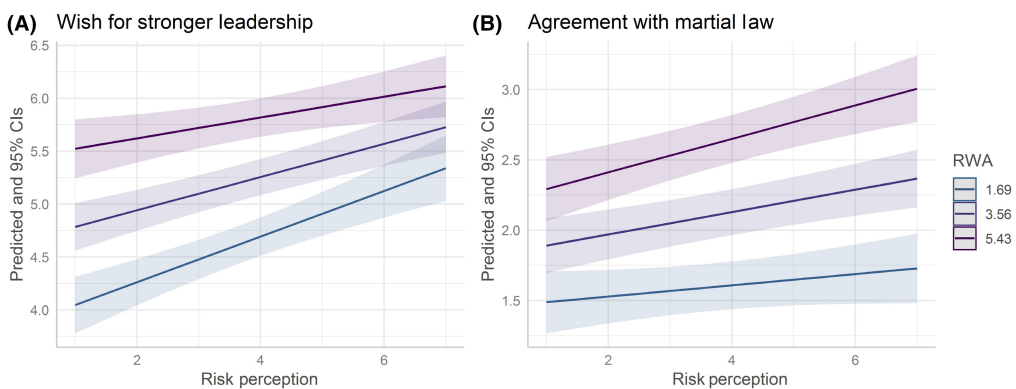
<sup>7</sup>The correlation matrix should only be taken as illustrative and not as a realistic snapshot of the relationships between the variables. Because the data is hierarchically nested, correlations might hide the true relationships (Simpson's paradox or Yule-Simpson's effect), and for this reason, main analyses are conducted with a random-effects approach through meta-analyses and multilevel analyses.

( $\beta = .05$ ) (all  $ps < .001$ ) and that all direct pooled correlations are positive and significant (Figures S5–S7). This provides support for Hypothesis 1 and shows that the predictive power of risk perception is still significant after statistically controlling key demographic variables, as well as nation-level indicators of political stability and the severity of COVID-19 in each region.

Concerning the effects of the different worldviews participants held (i.e., RWA and SDO), we found that these variables represent key predictors and moderators in the prediction of the criterion variables (H2). First, we observe that RWA moderates the effects of risk perception on wish for a stronger leadership and agreement with martial law, as well as the effects of government efficacy on the former. Specifically, those with higher levels of RWA always manifest higher levels of a wish for stronger leadership, whereas those with lower levels only manifest it at higher levels of risk perception (Figure 3, graph A). We also observe that, overall, there is little agreement with the application of martial law, which progressively increases as does risk perception and, particularly, among those with higher levels of RWA (Figure 3, graph B). In addition, when government effectiveness is lower, those who are high in RWA support martial law more (Figure 4, graph B).

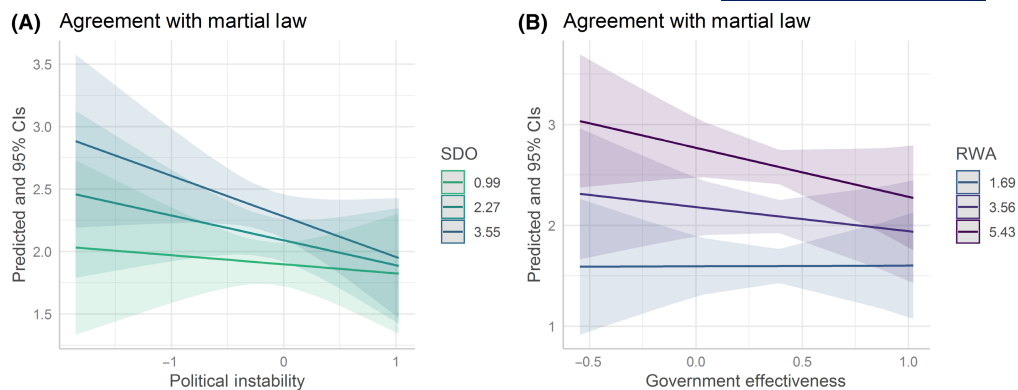
Concerning SDO, conversely, this variable moderates the effects of political stability on agreement with martial law. Specifically, participants with higher levels of SDO more strongly support this initiative but only at lower levels of political instability (i.e., when the context is more peaceful and in absence of political violence) (Figure 4, graph B). Importantly, both RWA and SDO are positive and significant predictors of the criterion variables—with the exception of SDO with regards to wish for stronger leadership—and thus, we found substantial support for Hypotheses 2.1 and 2.2.

Finally, concerning participants' perception of a crumbling society (i.e., anomie, for Hypothesis 3), both dimensions—the breakdown of the social fabric and the breakdown of leadership—predict a wish for stronger leadership ( $\beta = .03$  and  $.13$ ;  $ps = .034$  and  $< .001$ , respectively) and agreement with martial law ( $\beta = .03$  and  $-.05$ ;  $ps = .041$  and  $< .001$ , respectively). As for controlling government, only the breakdown of leadership is a significant predictor ( $\beta = -.09$ ;  $p < .001$ ). While these relations are corroborated through meta-analyses (Figures S9–S11 in the online supporting information), the associations are not positive in all cases, and thus Hypothesis 3 cannot be fully supported.



**FIGURE 3** Individual-level interaction effects.  $N = 3752$  ( $k = 20$ ) included for the analyses. Effects of risk perception moderated by levels of right-wing authoritarianism (RWA) on the prediction of wish for stronger leadership (A), and agreement with martial law (B). In each graph, darker lines indicated higher levels of RWA.





**FIGURE 4** Individual- and collective-level interaction effects.  $N = 3752$  ( $k = 20$ ) included for the analyses. Effects of political stability on agreement with martial law moderated by levels of social dominance orientation (SDO) (A); effects of government effectiveness on agreement with martial law moderated by levels of right-wing authoritarianism (RWA) (B) In each graph, darker lines indicate higher levels in the moderators.

## DISCUSSION

The present research shows how the COVID-19 pandemic can potentially generate the necessary social conditions to favour governments and leaders with authoritarian and controlling practices by using a unique adult and diverse sample and performing the largest-to-date test of the political implications of the pandemic on psychosocial variables including individual- and context-levels of analyses. Although analyses of macro conditions (e.g., societal-level factors and difficult social intervention) are abundant (e.g., Funke et al., 2016), we consider it fundamental to understand how this type of crisis can facilitate psychological processes—with a scope far beyond trust in institutions—that end up favoring antidemocratic forms of governance.

As previous research shows, the pandemic, despite all the uncertainty and instability it brought to our lives, has highlighted that we are more interconnected than we might imagine (e.g., Muldoon et al., 2021). However, it is the risk resulting from this uncertainty that we are concerned about. This risk and the threats underlying the risk triggered a rally effect (Baekgaard et al., 2020; Roccato et al., 2021; Yam et al., 2020) around the institutions and the leaders. Our results echo previous research in emphasizing that what at first glance may be seen as a positive development, delegating agency to the institutions and leaders, paradoxically, can prove to be convenient for the instrumentalization of the conditions brought by the pandemic, by different political actors, toward antidemocratic forms of governance (Caiani & Kröll, 2015). Capitalizing on the fear and risk created by the pandemic, such actors could entrench themselves in the political sphere and seek political control and legitimacy and, in all, could further foster dynamics of racism and xenophobia (Elias et al., 2021; Hartman et al., 2021). As such, the results help to better understand the dynamics that may, in the long term, increase the likelihood of a society “turning” more toward authoritarian and controlling institutions, especially during uncertain unstable periods.

Our results also highlight a tendency toward authoritarianism based on a basic psychological need (i.e., recover control and safety) becoming more salient during times of crisis (Inglehart & Norris, 2017; Jost et al., 2004; Jost & Hunyady, 2005; McCann, 2008; Proulx & Heine, 2006; Pyszczynski et al., 2021). This, in turn, can function as a catalyst for deeper changes according to the levels of sociopolitical variables in a society, as previously demonstrated (Solt, 2012).

For instance, previous research shows that long-term economic crises could facilitate right-wing and repressive practices (Funke et al., 2016; Funke & Trebesch, 2017), while natural disasters could precipitate either democratic reforms or an antidemocratic turn (Habibur Rahman et al., 2017b; Wood & Wright, 2016). Yet, preliminary research on the pandemic shows that in the early days of the pandemic, individuals delegated institutions and supported leaders as demonstrated by spiking levels of trust and compliance. As the pandemic endured, scarce research argued that this “honeymoon” can be hijacked to undermine democracy (Cooper & Aitchinson, 2020; Hartman et al., 2021). Finally, emerging research showed that fear and anxiety triggered by the pandemic are not associated with decreased support for liberal democratic practices.

Our results confirm and extend this research in a number of ways. First, we show that external and dramatic shocks can have political consequences similar to those of long-term economic crises. Thus, we extend research on the political consequences of long-term crises. Second, we also show that the pandemics function in a slightly dissimilar way to the natural disasters. Natural disasters can either bolster democracy (Barceló et al., 2022; Habibur Rahman et al., 2017a, 2017b) or facilitate antidemocratic governance and repression (Wood & Wright, 2016). Our results show that the pandemic facilitates an incremental, rather than a categorical, shift toward antidemocratic forms of governance.

The analyses described here show how the threat of becoming infected or dying from coronavirus is associated, directly and/or indirectly, with a greater wish for stronger leadership, agreement with martial law, and support of controlling government. This relationship is also observed both in the meta-analyses and in the prediction through multilevel models and with complex statistical controls. In the case of the prediction of the intention to protest against the government (see the online supporting information) for its handling of the pandemic, it is observed that the relationship is more complex (i.e., negative and not significant in the multilevel models but significant in the meta-analysis and also with significant interactions). On the other hand, as expected (Jost et al., 2004; Jost & Hunyady, 2003; Solt, 2012), certain individual orientations are both explanatory of the dependent variables (e.g., RWA directly explains all dependent variables, and SDO, two out of three), and simultaneously, factors that interact with perceived risk (i.e., interactions with perceived risk, both with risk and with collective-level variables). In fact, these variables were already linked to a greater endorsement with a *LeB-onian* representation of people, agreeing with viewing others as selfish and irrational actors (Pizarro et al., 2020).

In the present research, conversely, we can show not only if these belief systems matter, but also, when they have a role based on the relevance of the contexts. Thus, those with a greater tendency to represent social relations based on hierarchy and dominance (i.e., SDO), on the one hand, and to respect tradition and authority (i.e., RWA), on the other, support a martial law under different contexts. Those with higher scores on SDO more strongly endorse this authoritarian action when they perceive their political system as stable and without politically motivated violence. In turn, those with higher scores on RWA, when they perceive their government's services as independent and of quality. By themselves, these belief systems positively explain greater support with authoritarian practices; however, in the case of support of martial law, these variables become even more relevant when the contexts are not able to provide people stability and absence of political violence (for SDO) and an effective government (for RWA).

As for anomie, conversely, individuals with greater perception of the breakdown of leadership do agree with wishing for a stronger leadership, but they show less adherence to support authoritarian forms of governments. Although this is an indication of individuals with deteriorated social and individual well-being (Teymouri et al., 2016), this corroborates earlier results showing that it could also be an indicator of seeking more progressive leaders as a means to reinstate societal safety (Crimston et al., 2021).

While this study reinforces the idea of how a threat can foster support for authoritarian practices, it is also relevant to consider that mortality salience can also reinforce cultural values (Burke et al., 2013), support for solidarity values (Bouchat et al., 2020), and even agreement with social representations of resilience and homage to healthcare workers (Pizarro et al., 2020). Another reading of the data in this study is that people with a high level of egalitarianism and rejection of conservative traditionalism (i.e., low in SDO and RWA) are less akin to authoritarian measures (see Páez & Pérez, 2020).

Taken together, our results also show that external shocks such as the COVID-19 pandemic may trigger support for antidemocratic practices to the extent that individuals perceive the pandemic as risky and threatening. Most importantly, however, this support is augmented by at least two relatively stable personal orientations, that is, RWA and SDO. On one hand, these results show that pandemics or perhaps other similar negative and dramatic changes influence political decision-making differently. Central to this is the process through which pandemics, wars, and natural disasters increase threat perceptions and threats and in turn increase personal belief-systems, that is, SDO and RWA (Morrison & Ybarra, 2008). In fact, previous research shows that climate change as an externally oriented threat can increase racism and pro-environmental action as a function of SDO (Uenal et al., 2021). Our results extend these findings by showing that pandemic-induced threats (measured as risk perceptions, number of deaths, and new cases) can predict support for antidemocratic measures as a function of both SDO and RWA. Collectively, these findings extend our understanding of how exogenous shocks such as pandemics can have negative political consequences by specifying the role of individual-level traits in this process.

One can argue that these results contradict earlier findings which show that conservative political orientation predicts support for laxer government control during the pandemic (Peng, 2022; Ponizovskiy et al., 2022; Rothgerber et al., 2020; Stroebe et al., 2021). A closer look, however, reveals that this research used mostly attitudes toward health-protective measures such as social distancing, mask use, adhering to lock down, and washing hands. In our research, we use measures of draconian practices, that is, agreement with martial law including support for the capital punishment to control the pandemic and measures that go against civic rights and liberties such as collecting information about citizens without their knowledge. Our focus was on political consequences of the pandemic, and we did not measure adherence to health-protective measures. This contrast, however, between our results and the results of research on political orientation and adherence to health measures show that the support for draconian measures and support for health-protective measures are perceived differently at least among those who rank higher on RWA and SDO. This opens up newer avenues of research and shows that consequences of the pandemic on political and social domains of life are much more complex than it was previously thought.

Last but not least, we believe our results are reliable and generalizable over and above the findings from studies that use either macro- or microlevel data—studies that concentrate on more homogenous populations, that is, student populations and/or from WEIRD (Henrich, 2020) societies only. We remain firm in our belief that these features also contribute toward a more universal, democratic, and generalizable psychological science.

## Limitations and implications for future research

The robustness and novelty of our findings notwithstanding, we acknowledge that our research has certain limitations. First, the correlational nature of our data limits us in making causal interpretations. Although we tried to remedy for this by high ecological validity and stringent statistical tests, we believe that future research would do well by employing experimental and longitudinal designs to scrutinize our findings. One such possible avenue, for instance, is to

investigate when and how contexts (e.g., political stability) influence the value systems people hold (e.g., Carvalho et al., 2021).

We consider it highly relevant that future studies consider the temporal perspective in the study of stressful collective events and other belief systems. While our research is based on a rather early assessment of how people react to an unprecedented pandemic in recent memory, a later assessment may promote contrary effects—specifically on the relationship between RWA and the (lack of) support for the government (see Peng, 2022). For this reason, future studies should consider (1) when to assess and (2) the inclusion of other systems, such as the personal relevance given to individual liberties.

Second, we also acknowledge that perhaps one particular limitation of the present research is that we did not measure to what extent perceived control is related to more support for authoritarian forms of governance. As previous research argues, overall, the findings presented here support the view that we have a motivational system activated by the current pandemic, which allows us to cope with a dangerous context and motivate us to satisfy our needs of safety and control. However, the manner of reacting—as a function of our individual psychology immersed in particular context—tends to favor social structures and forms of ordering and governance, more akin to a controlling and authoritarian regime. We hope that given the disparities of factors that can affect institutional functioning aimed at facing major pandemics (Muldoon et al., 2021), this research could highlight the relevance of good leadership and governance to face collective threats without putting our governments at risk.

A possible third limitation might be the use of unbalanced scales metrics in our measures. Previous research has raised some concerns regarding the lack of balanced items (i.e., negative and positive) in questionnaires (e.g., Nunnally, 1978). However, as recent research shows, this might entail serious problems concerning the construct validity (Woods, 2006), and there are even calls to avoid the use of mixed scales (e.g., García-Fernández et al., 2022). In all, we believe our large and multilevel samples, together with strict statistical controls, goes toward eliminating any possible bias introduced by the use of unbalanced items. In a similar way, one of the items in our breakdown of leadership measure might be too vague. However, several lines of work have established this item along with similar items as a reliable and valid measure of the breakdown of leadership (see Teymoori & Bastian, 2017). We follow this line of research, but we do acknowledge that future research could overcome this by using better measures.

One final limitation relates to the role of RWA and SDO and how we conceptualize them in our explanatory model. It is potentially feasible to consider them as mediators between our primary variables of interest, for example, risk perception, as previous research shows that both traits can be amenable to change as a result of contextual factors (Sibley et al., 2007). However, as previous research also shows, they are likely to moderate how threats similar to the ones caused by the pandemic (climate change threats) relate to attitudes. Therefore, we consider this proposition beyond the scope of the current research which can be explored by future research.

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## DATA AVAILABILITY STATEMENT

All data (including the survey, codebook) as well as syntax of the analyses presented here are freely available in our project's page, on OSF: <https://osf.io/p6gcu>.

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