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ORIGINAL PAPER

Did Religious Freedom Exacerbate COVID-19? A Global Analysis

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Abstract

Did countries that became more repressive of religion during the COVID-19 pandemic, experience more COVID-19 cases and associated fatalities than countries that did not restrict religious freedom? As the pandemic raged across the world, many houses of worship defied governmental orders against public worship, leading many pundits, policy makers, and critics of religion to express concern that churches, mosques, synagogues, and other houses of worship would become incubators of COVID-19. In this view, religious freedom was seen as an obstacle to combatting the virus. In this article, we evaluate this proposition. We find that countries that maintained their levels of religious freedom throughout the pandemic were *not* more likely to witness higher rates of COVID-19 cases and deaths from COVID-19. The results are robust to a number of different model specifications.

Keywords Religious freedom · Religion · COVID-19 · Democracy · Pandemic

Introduction

In 2020, John MacArthur, an internationally syndicated Bible teacher and minister, became embroiled in a controversy when the church pastors, Grace Community Church in Sun Valley, California, defied governmental orders to stop holding in-person worship services amidst a surge in COVID-19 cases. In a public statement, Grace Community Church likened the church's actions to those of the ancient Israelites who "resisted the ungodly tyranny of rulers who hated biblical truth." The statement declared: "We are convinced that governmental encroachment on basic human freedoms constitutes a more intimidating threat to individuals, a greater impediment

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to the work of the church, and a larger calamity for all of society than any pestilence or other natural disaster" (Grace Community Church, 2021).

MacArthur's church was hardly alone. In a majority of American states, houses of worship took legal actions against restrictions on religious gatherings. The leaders of these faith communities claimed that these restrictions designed to combat the spread of COVID-19 violated their freedom of religion, especially during a time when people were turning to religion as a means of coping with the pandemic (Pankowski & Wytrychiewicz, 2023a; 2023b). Some governors such as Texas' Greg Abbot and Indiana's Eric Holcomb abetted these defiant houses of worship by issuing executive orders preventing local governments from closing down religious services. Similar stories of religious congregations defying COVID-19 restrictions and nationwide lockdowns emerged in Brazil, France, Greece, Nigeria, South Korea, and South Africa (Schipani et al., 2020).

In light of these examples, many worried that churches, mosques, synagogues, and other houses of worship would become vectors of COVID-19 in that the activities associated with collective worship—singing, communion, prayer—were highly conducive to the spread of the virus (Lee & Oh, 2021, p. 851). To make matters worse, these activities commonly take place in enclosed spaces with people in close proximity to one another. In this view, religious freedom was seen as an obstacle to combatting the virus. Indeed, thousands of COVID-19 cases have been directly linked to religious gatherings worldwide (Ashwanden, 2020; Chang et al., 2021; Quadri, 2020). For example, nearly 5000 South Korean COVID-19 cases were traced back to Shincheonji Church of Jesus in Daegu—a church that remained open during the pandemic, banned masks, and disavowed social distancing (Hancocks & Seo, 2020).

Was Shincheonji Church representative of the way religious institutions responded to COVID-19? Did countries that maintained their religious freedom levels during the pandemic experience more COVID-19 cases and deaths than countries that enacted restrictions on religion? This is the question we examine in this article. We find that countries that elected not to engage in religious restrictions or did so minimally did *not* experience more COVID-19 infections and fatalities relative to countries that did become more restrictive of religion.

This article proceeds in four parts. The next section presents a brief overview of the literature on religion and COVID-19. Here, we also present the argument for why religious freedom might theoretically be an obstacle for combatting COVID-19. The following two sections discuss the data and methods used in the analysis and present the results. A concluding section offers some possible explanations for our paradoxical findings and suggests avenues for future research.

Religious Freedom and COVID-19

The matter of religious freedom and COVID-19 is of particular importance given the international consensus that the right to freedom of religion, belief, or conscience is among the most fundamental of human rights. The international community—including countries comprised of different majority faith traditions—has long recognized religious liberty as a fundamental human right, enshrining it in international

covenants such as the Universal Declaration of Human Rights, the Declaration on the Elimination of All Forms of Intolerance and of Discrimination Based on Religion or Belief, the European Convention for the Protection of Human Rights and Fundamental Freedoms, the International Covenant on Civil and Political Rights, and the Charter of Fundamental Rights of the European Union.

Rooted in human dignity, freedom of religion encompasses to the right of people to think freely about the purpose of their existence, to live in accordance with their understanding of ultimate truth, to bear witness to faith-based commitments, to worship together with those of like mind, to carry out rituals and practices central to their faith, to renounce or change their faith (or to have no faith at all), and to bring their religiously informed views into the public square. Religiously free individuals have the right to the peaceful practice, selection, and profession of their faith and are protected from acting against the dictates of their conscience. At the same time, however, as is the case with any other freedom, the right to religion is not absolute and presupposes justifiable limits. In the context of COVID-19, both policymakers and religious leaders proffered arguments that the pandemic represents such an instance where restrictions on religious freedom could be justifiably implemented (Movsesian, 2022).

To date, all of the scholarly work on religious freedom and COVID-19 has considered the effect of the latter on the former (Androutsopoulos, 2021, p. 14; Begović, 2020; Berkmann, 2020; Du Plessis, 2020; Johnston et al., 2021; Martínez-Torrón, 2021; Phuong, 2020; Madera, 2021; Mazurkiewicz, 2021; Sánchez-Camacho & Martinez, 2021). This scholarship discusses how, in the words of Martínez-Torrón, "the general legal and policy measures adopted by governments to control the pandemic have had an impact, direct or indirect, on the exercise of freedom of religion or belief, especially in the case of religious believers and religious communities" (Martínez-Torrón, 2021, p. 5). In this article, we do the opposite, examining the effect of religious freedom on COVID-19.

Previous peer-reviewed studies have shown religious freedom to be positively related to a number of public goods, including (i) development (Alon & Chase, 2005; Grim, 2008a; Shah, 2018), (ii) security (Farr, 2008; Toft et al., 2011; Grim & Finke, 2011; Inboden, 2012; Saiya, 2014; Saiya, 2015a; Saiya, 2015b; Saiya and Scime, 2015; Saiya, 2017a; Saiya, 2017b; Saiya and Fidler, 2018; Saiya and Scime, 2019; Saiya, 2019a; Saiya, 2019b; Saiya, 2020; Saiya and Manchanda, 2020a; Saiya and Manchanda, 2020b; Henne, Saiya, and Hand, 2020; Saiya, 2021; Saiya and Hand, 2022; Saiya, 2018), (iii) business (Grim et al., 2014), and (iv) even health (Grim & Grim, 2019). Thus, religious freedom is believed to not only be an integral part of the "bundled commodity" of human freedoms, it is also closely related to the general betterment of people's lives (Grim, 2008b).

However, in the case of the pandemic, religious freedom has generally been viewed as a serious impediment to getting the virus under control (Jaja et al., 2020; Hill et al., 2020; Schnabel & Schieman, 2021). Theoretically, religious freedom could have exacerbated COVID-19 via two general pathways. First, countries with high levels of religious freedom may have been hesitant to impose restrictions on religion, viewing such restrictions as incompatible with legally mandated guarantees of freedom of religion (Jones, 2022). In these contexts,

communities of faith may have been able to continue to gather together—and possibly spread COVID-19—with little pushback from local or national governments. Some houses of worship in generally religiously free countries such as Belgium, France, Italy, and Spain, for example, remained open even during the initial surge in cases (Martínez-Torrón, 2021, p. 8). At times, government officials justified these policies on the basis that religious services were "essential activities" and therefore could not be curtailed in the wake of the pandemic. In these cases, religiously free regimes lacked the same ability or will to crack down on religion possessed by their repressive counterparts.

Second, even if the governments of religiously free countries attempted to impose restrictions on social gatherings—and by extension religious institutions—it could also have been the case that communities of faith may have defied these orders, as was discussed earlier (Haynes, 2021). In these situations, a culture and history of religious freedom could have sparked a backlash to restrictions among religious groups who saw religious freedom as an inviolable right no matter the circumstance. For example, some people of faith refused to accept the medical reasons behind the temporary suspension of religious services, viewing these closures as part and parcel of an ongoing sinister plot by governments to quash religious faith (Brannon, 2020; Hall, 2020; Woodward, 2020).

As explained by DeFranza et al., (2020, 3), "Because religious freedom is a form of personal freedom, restrictions, especially those imposed by government agencies, can increase opposition." Accordingly, people of faith may see sudden restrictions on religious activities as attacks on religiosity itself. Of course, it may also have been the case that certain religious leaders contributed to the general spread of COVID-19 outside of specific religious institutions in their rejection of social distancing, flouting of masking, skepticism of vaccines, and scorning of the scientific consensus regarding the severity of COVID-19 (Jones, 2022; Perry et al, 2020; Whitehead & Perry, 2020). In both of these pathways, religious individuals may have equated a failure to attend religious services with a lack of faith. This discussion yields two hypotheses:

Hypothesis 1 Countries that retained their levels of religious freedom experienced more COVID-19 infections during the first 18 months of the pandemic.

Hypothesis 2 Countries that retained their levels of religious freedom experienced more COVID-19-related deaths during the first 18 months of the pandemic.

Data and Methods

We conducted a cross-country empirical analysis to test if countries that became more restrictive of religion during the pandemic experienced higher rates of COVID-19 infections and related deaths during the first 18 months of the pandemic. The analysis is based on global cross-sectional data. The models also

include a number of covariates to control for factors that might influence the dependent variables. Measures of the variables used in the empirical analysis are discussed below.

Dependent Variable

We use two different dependent variables to test for the hypotheses stated above: (1) the cumulative cases of COVID-19 infection and (2) the cumulative number of COVID-19-related deaths for each country until 2nd July 2021 (WHO 2021). The first variable, *COVID-19_Cases*, reflects the number of cases per 100,000 people in a given country, while the second dependent variable, *COVID-19_Deaths*, measures the number of deaths due to COVID-19 for every 100,000 people.

Independent Variables

Our independent variable was the measure of government restrictions on religious organizations, termed by the Varieties of Democracy (V-Dem) dataset as "religious organization repression" (*Change_ReligiousInstitutions*). We used 2019 as our baseline year and 2020 as the pandemic year. This variable poses the question “Does the government attempt to repress religious organizations?” and utilizes a five-point scale to assess the quality of organizational religious freedom, as shown below:

1. *Severely*. The government violently and actively pursues all real and even some imagined members of religious organizations. It seeks not only to deter the activity of such groups but also to effectively liquidate them. Examples include Stalinist Russia and Maoist China.
2. *Substantially*. In addition to the kinds of harassment outlined in 3 below, the government also arrests, tries, and imprisons leaders of and participants in oppositional religious organizations who have acted lawfully. Other sanctions include disruption of public gatherings and violent sanctions of activists (beatings, threats to families, destruction of valuable property).
3. *Moderately*. In addition to material sanctions outlined in 4 below, the government also engages in minor legal harassment (detentions, short-term incarceration) to dissuade religious organizations from acting or expressing themselves. The government may also restrict the scope of their actions through measures that restrict association of religious civil society organizations with each other or political parties, bar religious civil society organizations from taking certain actions, or block international contacts.
4. *Weakly*. The government uses material sanctions (fines, firings, denial of social services) to deter oppositional religious organizations from acting or expressing themselves. They may also use burdensome registration or incorporation procedures to slow the formation of new religious civil society organizations and

side-track them from engagement. The government may also organize parallel religious organizations to crowd out independent religious organizations.

5. *No*. Religious civil society organizations are free to organize, associate, strike, express themselves, and to criticize the government without fear of government sanctions or harassment.

Our independent variable itself is a measure of the difference between the religious organization repression scores from 2019 to 2020 for each country. The variable, thus, is a measure of the change in the organizational freedom of religious institutions from 2019 to 2020 (Varieties of Democracy, 2022).

Control Variables

A number of covariates have been included to account for factors that might influence the dependent variables and drive the results. First, we include controls for political rights (*Political_Rights*) and civil liberties (*Civil_Liberties*) to account for general levels of freedom afforded to populations (Freedom House, 2020). Both variables range from 1 to 7, with lower scores corresponding to higher levels of freedom. Next, we also include a control for a country's transparency score (*Transparency*) to account for the possible misreporting or under reporting of COVID-19 cases (Transparency International, 2020). The transparency score ranges from 0 to 100, with higher scores indicating greater levels of corruption. In addition, we also include controls for political environment. *Polity* reflects a country's regime type, ranging from −10 (autocracy) to 10 (democracy). *Durability* is the number of years since the last change in regime, indicating the stability of institutions. *State_Fragility* is a measure of a state's effectiveness and legitimacy along security, political, economic, and social dimensions on a 25-point scale. *Polity*, *Durability*, and *State_Fragility* have been sourced from the Center for Systemic Peace (Marshall & Marshall, 2018, Marshall & Gurr, 2020). In addition, we also control for the logarithmic value of a country's geographic area (*Log_Area*) and population size (*Log_Population*) to account for the role of geographic and population size in exacerbating the incidence of COVID-19. We control for economic development by logging each country's GDP (*Log_GDP*). These variables were sourced from the World Bank (2021). Finally, we include regional dummies for Africa (*Africa*), Asia (*Asia*), Europe (*Europe*), and the Americas (*Americas*).

The data for all variables were arranged into a cross-sectional setup. Because the dependent variables—the number of COVID-19-related infections and deaths—are event counts that do not include negative values and are unevenly distributed across observations, negative binomial regression is the most appropriate statistical technique to gauge the relative import of the independent and control variables on the dependent variables. The summary statistics are given in Table 1.

Table 1 Summary statistics

Variables	(1) N	(2) Mean	(3) Sd	(4) Min	(5) Max
COVID-19_Cases	173	3516	3887	0	18,004
COVID-19_Deaths	173	66.15	85.31	0	583.3
Transparency	168	42.75	19.31	10	88
Political_Rights	173	3.636	2.207	1	7
Civil_Liberties	173	3.532	1.928	1	7
Africa	175	0.269	0.444	0	1
Asia	175	0.171	0.378	0	1
Europe	175	0.137	0.345	0	1
Americas	175	0.166	0.373	0	1
Polity	161	4.006	6.235	−10	10
State_Fragility	162	7.981	6.016	0	24
Durability	162	32.26	33.22	0	209
Log_GDP	164	24.77	2.056	20.55	30.52
Log_Population	171	16.10	1.750	10.54	21.05
Log_Area	172	11.86	2.146	5.075	16.61
Change_ReligiousInstituions	175	0.0142	0.245	−0.696	1.684

Results

The results appear in Tables 2 and 3, the former showing the results for the effect of religious freedom on COVID-19 infections and the latter showing the results for the effect of religious freedom on COVID-19 deaths. Both tables contain four different model specifications, varying on account of control variables used. The first model in each table controls for demographics, economics, and geography:log of population, log of GDP and log of geographical area. The second adds controls for the political context in which countries find themselves. Here we include measures for state fragility, civil liberties, and regime durability. The third specification additionally controls for three more context variables, namely Polity, transparency and political rights. The last specification accounts for regional controls in addition to all the previous covariates.

The results do not support the claim that religious freedom obstructed the containment of the virus. We find no evidence that countries with higher levels of religious freedom experienced greater COVID-19 infections and deaths compared to countries that enacted restrictive religious policies. Table 2 reveals that in all the specifications, the coefficients for the religious freedom variables are negative, indicating that higher levels of freedom are, in fact, negatively associated with COVID-19 infections. However, none of the specifications display any statistical significance. Among the covariates, *Log_Population*, *Log_GDP*, *State_Fragility,* and the regions of *Africa* and *Asia* are consistently significant at the one percent level.

Table 2 Religious freedom and COVID-19 cases

Variables	M1	M2	M3	M4
Change_ReligiousInstituions	−0.247	−0.219	−0.044	−0.090
	(0.264)	(0.257)	(0.259)	(0.239)
Log_GDP	0.795***	0.632***	0.744***	0.468***
	(0.075)	(0.115)	(0.125)	(0.131)
Log_Population	−0.817***	−0.641***	−0.775***	−0.508***
	(0.103)	(0.141)	(0.148)	(0.148)
Log_Area	−0.077	0.007	−0.031	−0.026
	(0.060)	(0.057)	(0.056)	(0.062)
State_Fragility		−0.087***	−0.113***	−0.048
		(0.033)	(0.032)	(0.033)
Civil_Liberties		−0.057	0.218	0.028
		(0.070)	(0.151)	(0.150)
Durability		−0.008***	−0.003	−0.004
		(0.003)	(0.003)	(0.003)
Polity			0.034	0.011
			(0.022)	(0.017)
Transparency			−0.023***	−0.009
			(0.009)	(0.007)
Political_Rights			−0.168	−0.137
			(0.106)	(0.107)
Africa				−1.268***
				(0.315)
Asia				−1.122***
				(0.333)
Europe				0.193
				(0.212)
Americas				0.013
				(0.229)
lnalpha				
Constant	2.155*	3.405***	3.749***	6.186***
	(1.104)	(1.316)	(1.346)	(1.638)
Observations	164	154	152	152

Robust standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

Similarly, for the impact of religious restrictions on COVID-19-related deaths, the results in Table 3 again provide no evidence that religious freedom hindered containment measures for COVID-19. Among the covariates, *Log_Population, Log_Area, State_Fragility, Transparency, Africa and Asia* consistently hold statistical significance at the one percent level. Tables 4 and 5 show the incidence rate ratio; though again we see that *Change_Religious_Instituions* lacks any statistical significance.

Table 3 Religious freedom and COVID-19 deaths

Variables	M1	M2	M3	M4
Change_ReligiousInstituions	−0.089	−0.110	0.134	0.060
	(0.276)	(0.315)	(0.279)	(0.234)
Log_GDP	0.755***	0.455***	0.674***	0.375***
	(0.083)	(0.121)	(0.137)	(0.134)
Log_Population	−0.827***	−0.500***	−0.729***	−0.332**
	(0.123)	(0.146)	(0.166)	(0.150)
Log_Area	0.072	0.147**	0.067	0.010
	(0.084)	(0.072)	(0.061)	(0.061)
State_Fragility		−0.110***	−0.142***	−0.082**
		(0.036)	(0.034)	(0.038)
Civil_Liberties		−0.158*	0.152	0.048
		(0.087)	(0.166)	(0.165)
Durability		−0.011***	−0.001	−0.001
		(0.003)	(0.003)	(0.003)
Polity			0.045*	0.018
			(0.024)	(0.019)
Transparency			−0.047***	−0.030***
			(0.010)	(0.008)
Political_Rights			−0.222*	−0.225**
			(0.122)	(0.109)
Africa				−1.052***
				(0.377)
Asia				−1.729***
				(0.346)
Europe				0.387*
				(0.207)
Americas				0.207
				(0.272)
lnalpha				
Constant	−2.316*	0.529	1.113	2.441
	(1.249)	(1.490)	(1.378)	(1.572)
Observations	164	154	152	152

Robust standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

In addition, we conducted some robustness checks. The number of COVID-19 cases and related deaths reported also depended upon the government's response measures and stringency in each country. So firstly, we added controls for *Government_Response_Index* and *Stringency_Index* (Hale et al., 2021). Provided by the Oxford COVID-19 Government Response Tracker, *Government_Response_Index* is a composite measure of 16 different indicators of a government's response (closure and containment, economic support, health system policies) during the course of the

Table 4 IRR COVID-19 cases

Variables	M1	M2	M3	M4
Change_ReligiousInstituions	0.781	0.803	0.957	0.914
	(0.206)	(0.207)	(0.248)	(0.218)
Log_GDP	2.215***	1.881***	2.105***	1.597***
	(0.165)	(0.216)	(0.264)	(0.209)
Log_Population	0.442***	0.527***	0.461***	0.602***
	(0.045)	(0.074)	(0.068)	(0.089)
Log_Area	0.926	1.007	0.970	0.974
	(0.055)	(0.058)	(0.054)	(0.061)
State_Fragility		0.917***	0.893***	0.953
		(0.030)	(0.029)	(0.032)
Civil_Liberties		0.945	1.243	1.028
		(0.066)	(0.188)	(0.154)
Durability		0.992***	0.997	0.996
		(0.003)	(0.003)	(0.003)
Polity			1.035	1.011
			(0.023)	(0.017)
Transparency			0.977***	0.991
			(0.008)	(0.007)
Political_Rights			0.845	0.872
			(0.089)	(0.093)
Africa				0.281***
				(0.089)
Asia				0.326***
				(0.108)
Europe				1.213
				(0.258)
Americas				1.013
				(0.232)
Constant	8.631*	30.108***	42.485***	486.033***
	(9.532)	(39.625)	(57.172)	(796.004)
Observations	164	154	152	152

Robust seeform in parentheses

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

pandemic, while *Stringency_Index* is an index of nine different indicators recording the "strictness" of lockdowns. The higher the number, the stronger and more stringent the response of the government. We controlled for these measures in two different time periods since response measures across the world were adjusting rapidly during 2020 to address the challenges posed by the pandemic. In one case, we controlled for these variables as in March 2020 (Table 6). In the other case, we controlled for both government response and the stringency index as in September 2020 (Table 7). For both COVID-19 cases and COVID-19 deaths, the results were found

Table 5 IRR COVID-19 deaths

Variables	M1	M2	M3	M4
Change_ReligiousInstituions	0.915	0.896	1.143	1.062
	(0.252)	(0.282)	(0.319)	(0.249)
Log_GDP	2.128***	1.577***	1.961***	1.455***
	(0.177)	(0.191)	(0.269)	(0.195)
Log_Population	0.437***	0.607***	0.483***	0.718**
	(0.054)	(0.089)	(0.080)	(0.107)
Log_Area	1.075	1.158**	1.070	1.010
	(0.091)	(0.083)	(0.065)	(0.062)
State_Fragility		0.896***	0.868***	0.921**
		(0.032)	(0.029)	(0.035)
Civil_Liberties		0.854*	1.164	1.049
		(0.074)	(0.193)	(0.174)
Durability		0.989***	0.999	0.999
		(0.003)	(0.003)	(0.003)
Polity			1.046*	1.018
			(0.025)	(0.019)
Transparency			0.954***	0.970***
			(0.010)	(0.008)
Political_Rights			0.801*	0.798**
			(0.098)	(0.087)
Africa				0.349***
				(0.132)
Asia				0.177***
				(0.061)
Europe				1.472*
				(0.304)
Americas				1.230
				(0.335)
Constant	0.099*	1.698	3.045	11.481
	(0.123)	(2.530)	(4.195)	(18.052)
Observations	164	154	152	152

Robust seeform in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

to lack any statistical significance, indicating that higher levels of religious freedom were not necessarily associated with more reported infections. The results continued to hold as before. Next, we ran methodological checks. First, we ran bootstrap regressions, which produce estimates with reduced bias in simulating samples by allowing for replacement (Tables 8). In this case as well, the results continued to support the previous findings. Second, we conducted jack-knife regressions. Jack-knifing is an older technique that resamples by dropping one observation at a time (Table 9). The results show no evidence to indicate that religious freedom obstructed efforts to contain the virus.

In general, the results indicate that religiously free countries did not fare any worse than religiously restrictive ones in managing COVID-19. While some religiously repressive countries like China and Vietnam did indeed handle the pandemic well, others like Iran were not so successful. Likewise, some religiously free countries such as Canada, South Korea, and Taiwan far outperformed others such as the USA and Italy. By and large, there appears to be little connection between a country's level of religious freedom and its success or failure in managing the pandemic.

Limitations

The results of our analysis show that religious freedom was generally not an obstacle to containing the spread of COVID-19. Still, our analysis contains some limitations that should be considered. We note three such limitations here.

First, owing to reasons of data availability, our timeframe is quite narrow, focusing only on the first 18 months of the pandemic. We believe that focusing on this period of time is reasonable given that the pandemic moved into a new phase following the development and administration of the COVID-19 vaccine. Nevertheless, the pandemic is still with us at the time of this writing. Given the structure of the data, we employed a global, cross-sectional analysis. It would therefore be interesting to see the results of more sophisticated time-series, cross-sectional analyses as data become available over several years.

Second, our use of a global sample of countries could be critiqued on the grounds that it includes in the analysis extremely disparate countries. While we have attempted to control for many of these factors in the statistical analysis, it is still possible that we have inadvertently omitted variables that could have led to dissimilar outcomes. For example, divergent COVID-19 reporting practices is an important consideration here. For this reason, it might be worthwhile for future work to consider COVID-19 responses and outcomes at the regional instead of global level. These studies could also group countries according to their levels of development, using GDP/capita or some other similar variable. In this way, future work can be sure they are comparing apples with apples.

Third, it might be argued that many of the world's religiously free countries are also highly secular, thus explaining why religious freedom is not positively associated with COVID-19 cases and deaths. In secular countries, public worship would be less of a concern with respect to COVID-19 insofar as most people would not be attending these gatherings in the first place. This is an important possibility, but one which we do not test here. We thus leave it to future work to explore all of these possibilities.

Conclusion

Since the start of the COVID-19 pandemic, many media personalities and public figures expressed fears that, if left unchecked, houses of worship would become vectors for the spread of COVID-19. Implicit in these sentiments was the belief that

religious freedom was an obstacle to effectively combatting the pandemic. The results of the present analysis show that such concerns were exaggerated: countries with greater levels of religious freedom did not suffer from more COVID-19 infections and related deaths than religiously restrictive countries.

How do we explain this paradoxical finding? Our analysis suggests that the institutions of faith which flouted governmental regulations on social gatherings, despite widespread media attention, were the exception rather than the rule (Begović, 2020; Sánchez-Camacho, 2021). Generally, houses of worship seem to have behaved in a responsible manner, recognizing the severity of the situation and the role of the state in keeping people safe (Ho et al., 2022). Throughout the pandemic, religious communities have found creative ways to practice their faith, from online services to drive-through baptisms. Recognizing that continuing to gather together in the midst of a pandemic would belie key teachings of their faith, religious institutions tended to comply with government regulations, seeing them as tragic but necessary given the dire situation (Lebni et al., 2021). Even where governmental restrictions on religious gatherings did not exist, faith-based institutions often voluntarily closed their doors. Likewise, although religious objections to the COVID-19 vaccination have received widespread attention in the media, it also appears that most people of faith had little reservation about taking the vaccine. Faith leaders and their parishioners seem to have been able to balance rights and risks, individual liberties and public health. Their commitment to the common good and the command to love one's neighbors—a foundational mandate in all of the world's major religious traditions—appears to have superseded their desire to gather communally.

Moreover, religious freedom may have also empowered communities of faith to fight the pandemic by unleashing their "spiritual capital" (Smidt, 2003). In many countries, religious institutions play an important philanthropic role. Just as religious communities have contributed to the betterment of their societies by increasing literacy, reducing poverty, promoting development, providing access to potable water, running counseling centers, leading peace and reconciliation processes, among innumerable other contributions, so too have they proven themselves to be a unique and valuable weapon in the fight against the pandemic by, among other things, disseminating health information, providing assistance to those in need, and volunteering their time and energy in their communities' anti-COVID-19 efforts. The problematic religious institutions may well have captured the attention of the media, but, on balance, faith communities likely did more good than harm.

The belief that repressive forms of government outperform liberal ones in times of crisis has an enduring appeal, owing to the former's abilities to circumnavigate civil rights and liberties (including religious freedom), act decisively, and quickly mobilize resources—traits generally not characteristic of liberal states. Yet, it is also the case that people of faith can refuse to follow orders in repressive countries. This appears to have been the case in Iran, for example, where some religious leaders refused to close holy pilgrimage sites and ordinary Iranians defied governmental orders. The conditions under which a regime was able to ''repress away'' COVID-19 appear to be so context-specific that repression could not generally be adopted by governments as an effective antidote to the pandemic.

Appendix

See Tables 6, 7, 8, and 9.

Table 6 Results when including government response and stringency indexes in March 2020

Variables	COVID Cases	COVID deaths
Change_ReligiousInstituions	−0.246	−0.107
	(0.248)	(0.243)
Log_GDP	0.371**	0.302**
	(0.151)	(0.150)
Log_Population	−0.430**	−0.283*
	(0.169)	(0.165)
Log_Area	0.003	0.050
	(0.064)	(0.065)
State_Fragility	−0.048	−0.073*
	(0.036)	(0.039)
Civil_Liberties	−0.014	−0.010
	(0.164)	(0.172)
Durability	−0.004	−0.001
	(0.003)	(0.003)
Polity	−0.007	0.001
	(0.020)	(0.022)
Transparency	−0.006	−0.027***
	(0.008)	(0.009)
Political_Rights	−0.129	−0.208
	(0.125)	(0.128)
Africa	−1.042***	−0.843**
	(0.357)	(0.406)
Asia	−1.217***	−1.768***
	(0.333)	(0.336)
CEurope	0.051	0.201
	(0.223)	(0.210)
Americas	0.053	0.181
	(0.230)	(0.255)
M2020_StringencyLegacyIndex	−0.004	0.004
	(0.010)	(0.009)
M2020_GovernmentResponseIndex	0.024	0.013
	(0.015)	(0.014)
Constant	6.559***	2.455
	(1.668)	(1.649)
Observations	146	146

Robust standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

Table 7 Results when including government response and stringency indexes in September 2020

Variables	COVID Cases	COVID deaths
Change_ReligiousInstituions	0.052	0.208
	(0.252)	(0.253)
Log_GDP	0.438***	0.391***
	(0.135)	(0.141)
Log_Population	−0.540***	−0.387**
	(0.152)	(0.158)
Log_Area	0.013	0.041
	(0.061)	(0.068)
State_Fragility	−0.027	−0.060
	(0.033)	(0.039)
Civil_Liberties	0.035	0.067
	(0.163)	(0.179)
Durability	−0.003	−0.003
	(0.003)	(0.003)
Polity	0.002	0.012
	(0.020)	(0.023)
Transparency	−0.005	−0.023**
	(0.009)	(0.010)
Political_Rights	−0.169	−0.273**
	(0.127)	(0.131)
Africa	−1.245***	−1.085***
	(0.335)	(0.406)
Asia	−1.172***	−1.787***
	(0.318)	(0.335)
Europe	0.521**	0.584***
	(0.234)	(0.221)
Americas	−0.227	−0.087
	(0.258)	(0.290)
S2020_StringencyIndex	−0.002	0.012
	(0.012)	(0.011)
S2020_GovernmentResponseIndex	0.039**	0.015
	(0.018)	(0.017)
lnalpha		
Constant	4.653***	0.716
	(1.539)	(1.494)
Observations	146	146

Robust standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

Table 8 Results when running bootstrap regressions

Variables	COVID cases	COVID deaths
Change_ReligiousInstituions	−0.090	0.060
	(0.362)	(0.368)
Log_GDP	0.468***	0.375**
	(0.134)	(0.178)
Log_Population	−0.508***	−0.332*
	(0.149)	(0.182)
Log_Area	−0.026	0.010
	(0.070)	(0.074)
State_Fragility	−0.048	−0.082*
	(0.043)	(0.046)
Civil_Liberties	0.028	0.048
	(0.173)	(0.162)
Durability	−0.004	−0.001
	(0.004)	(0.004)
Polity	0.011	0.018
	(0.017)	(0.024)
Transparency	−0.009	−0.030***
	(0.007)	(0.010)
Political_Rights	−0.137	−0.225**
	(0.130)	(0.099)
Africa	−1.268***	−1.052***
	(0.413)	(0.405)
Asia	−1.122***	−1.729***
	(0.415)	(0.312)
Europe	0.193	0.387
	(0.296)	(0.245)
Americas	0.013	0.207
	(0.286)	(0.322)
Constant	6.186***	2.441
	(1.882)	(2.192)
Observations	152	152

Standard errors in parentheses

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 9 Results when running jack-knife regressions

Variables	COVID cases	COVID deaths
Change_ReligiousInstituions	−0.090	0.060
	(0.321)	(0.307)
Log_GDP	0.468***	0.375**
	(0.167)	(0.165)
Log_Population	−0.508***	−0.332*
	(0.193)	(0.177)
Log_Area	−0.026	0.010
	(0.085)	(0.075)
State_Fragility	−0.048	−0.082
	(0.041)	(0.056)
Civil_Liberties	0.028	0.048
	(0.175)	(0.209)
Durability	−0.004	−0.001
	(0.004)	(0.004)
Polity	0.011	0.018
	(0.021)	(0.024)
Transparency	−0.009	−0.030***
	(0.009)	(0.010)
Political_Rights	−0.137	−0.225*
	(0.129)	(0.127)
Africa	−1.268***	−1.052*
	(0.385)	(0.576)
Asia	−1.122***	−1.729***
	(0.395)	(0.444)
Europe	0.193	0.387
	(0.269)	(0.256)
Americas	0.013	0.207
	(0.280)	(0.350)
lnalpha		
Constant	6.186***	2.441
	(2.067)	(1.902)
Observations	152	152

Standard errors in parentheses

***$p<0.01$, **$p<0.05$, *$p<0.1$

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