



# How Brazil's President turned the country into a global epicenter of COVID-19

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## Abstract

In this manuscript, we point out that the federal government headed by President Bolsonaro has pursued a political agenda that contributed to the spread of COVID-19, transforming the country into a major repository for SARS-CoV-2 and its variants, thus representing a risk for worldwide containment efforts. Furthermore his actions are also weakening democratic institutions, which could counter his political agenda, effectively facilitating the spread of COVID-19. Thus, the perpetuation of the COVID-19 pandemic in Brazil is due to human behaviour factors, especially high-level public decision makers.

**Keywords** Bolsonaro · Coronavirus · Epidemiology · Indigenous peoples · Public health policy · SARS-CoV-2

On 5 August 2021, Brazil passed 559,607 deaths officially attributed to COVID-19, with drastic increases in cases, hospitalizations, and deaths in many municipalities (counties) and state capitals [1]. The number of deaths is underestimated and may

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be up to twice that reported in official data [2]. Since 3 March 2021 Brazil's daily deaths per million inhabitants have surpassed those in the US. Since the beginning of the pandemic, Brazil's President Jair Bolsonaro has downplayed the severity of the disease [3], promoted an "early treatment" package of remedies that are known to be ineffective [3, 4] and acted to block measures for inhibiting transmission [5].

The Bolsonaro government paid social influencers to advocate early treatment with hydroxychloroquine and ivermectin [4]. An official Ministry of Health cell-phone app recommended these drugs for patients with COVID-19 [6]. Hydroxychloroquine has no proven beneficial effect for the treatment of COVID-19 [7], and instead, it is known to increase the length of hospital stay, the need for mechanical ventilation, and the risk of death [8]. Ivermectin is also ineffective for the treatment of COVID-19, and the laboratory that produces the drug has announced this in Brazil [9]. Use of these drugs as a way to relieve pressure on the health-care system has had the opposite effect; for example, an outbreak of cases of drug hepatitis occurred in people who ingested ivermectin following the government's recommendations [10].

In a parliamentary commission of inquiry (CPI) assessing the actions of the Bolsonaro presidential administration in the COVID-19 pandemic, lawmakers from the presidential administration's political base have brought in doctors without scientific credentials in this area to defend these drugs for the treatment of COVID-19 [11, 12]. These parliamentarians convey a view in the CPI that a scientific debate is still underway about the use of hydroxychloroquine [11, 12]; however, meta-analyses that evaluated randomized controlled trials completely rule out such efficacy [13]. Municipal governments controlled by political parties aligned with the presidential administration, such as that of Manaus (capital of the state of Amazonas), have spent heavily on these ineffective medicines [14] when they could have used these funds to acquire vaccines. Manaus bought US\$71,000 in ivermectin for the treatment of COVID-19 and did not require a bidding process to reduce costs [14]. Purchasing ineffective medicines instead of vaccines, and dispensing with the standard bidding process, could be seen as acts of administrative improbity. At the federal level, thousands of expired vaccines were administered to people throughout Brazil according to official records, although errors in the records may account for some of these irregularities [15]. The confusion reflects the absence of a national vaccination plan.

President Jair Bolsonaro has repeatedly criticized social-isolation measures adopted by mayors and governors and has falsely claimed that social-distancing measures would not work, defending the resumption of normal economic activity [16]. On 26 February 2021 he warned state governors that they would get no federal emergency relief for COVID-19 if they lock down their states [17]. Researchers who have pointed out the need for a lockdown have been threatened and physically attacked by Bolsonaro supporters [18]. An article in [19] showing risk of mortality from the chloroquine treatment recommended by President Bolsonaro resulted in death threats to the paper's first author [19–21]. An August 2020 publication [22] alerting to the risk of a second wave of COVID-19 in Manaus also resulted in death threats to the first author (who is also the first author of the present article) [23]. He was also a victim of a physical assault where the attacker accused him of meddling



in national security issues by defending more restrictive measures to contain the pandemic [23].

President Bolsonaro frequently has contact with the public without using a mask and encourages his followers to do the same. He even removed the mask of a child to pose in his arms for photographs and encouraged a 10-year-old girl posing beside him to remove her mask [24]. On 10 June 2021, President Bolsonaro announced at a press conference that he had asked the Minister of Health to issue an opinion releasing the use of masks for vaccinated individuals and for those who have had COVID-19 [25]. These statements put thousands of Brazilians at risk because even asymptomatic and vaccinated people can transmit SARS-CoV-2, which would accelerate community transmission in Brazil. Natural contact with the virus does not provide lasting immunity: reinfection can occur either by the same or a different variant, and the clinical effects are more severe upon reinfection [26]. Brazil does not have the comprehensive regional and national testing plans that have been suggested by researchers [27, 28], which makes it impractical to lift mask requirements at this time.

President Bolsonaro and his sons have used Twitter, Facebook, Instagram, WhatsApp and Youtube to distribute misinformation about the pandemic [29–31], spreading falsehoods to the population [3] such as the suggestion that the Brazilian vaccine may not work [29]. This has led a segment of the population to resist vaccination unless they can choose the “brand” of vaccine they receive [30], consequently hindering and delaying the vaccination schedule in many municipalities [32, 33]. Misinformation spread on President Bolsonaro’s official social-media profiles includes his promotion of ineffective medications [30], his statements against social distancing, and his encouragement of agglomerations without the use of masks [31]. By not banning these profiles, social media platforms share responsibility for the propagation of a discourse that encourages the spread of the virus.

President Bolsonaro’s opposition to social-distancing measures and his promotion of unscientific theories on treatments are at the root of a crisis he has provoked in Brazil’s institutions. On 29 March 2021 Bolsonaro removed his Minister of Defense, who two days before had refused the President’s request to punish an officer who had spoken publically about the Army’s policies on social distancing (which contrast with the denialism of the presidential administration). Support for the administration’s opposition to social distancing was the key factor in the change, although the list of other differences is extensive [34]. They include refusal of a request from Bolsonaro to use military influence in the National Congress to secure approval of a “state of national mobilization” giving him emergency powers based on a supposed need for these powers to combat the pandemic [35]. The irony is clear in this justification, given that Bolsonaro’s role has consistently been in the direction of blocking needed actions. The chaos created by the pandemic aids in his push to weaken democratic institutions (such as the National Congress, the judiciary, state governments and the ministries of education and environment), as the chaos Bolsonaro has provoked in a wide variety of ways throughout his presidency creates a constant sense of a “state of exception” and serves as a “ladder” to increase his power to the detriment of hard-earned social progress [36]. There is fear, though, that emergency powers in the hands of Bolsonaro could evolve into a dictatorship



[37], and Bolsonaro's frequent praise of Brazil's 1964–1985 military dictatorship [38] is relevant.

The defense minister was replaced by an Army general who had held the highest post in the Bolsonaro administration—head of the “Civil House” of the presidential office [39]. The next day the new minister relayed an order from President Bolsonaro to the heads of the Army, Navy and Airforce requesting them to support the President's positions against lockdowns or other restrictions related to the pandemic [34]. All three simultaneously resigned in protest, which has been interpreted as sending a message that the high command would not support a military coup [40]. Interpretations of these events vary widely, from raising the alarm of an imminent coup [41] to reassurance that Bolsonaro would not be successful in gaining support for such a move [35].

Bolsonaro repeatedly refers to “my Army” to emphasize his power as commander-in-chief specifically with respect to his authority to forbid the military from playing a role in implementing restrictions to prevent the spread of COVID-19 [40], and he reinforced this statement after the “crisis” initiated by the change in military command [42]. Bolsonaro's moves to use force to prevent state and local governments from implementing COVID-19 control measures are not restricted to the military: he has cultivated the allegiance of Brazil's various police forces and state militias, also with the apparent objective of giving him the capability of interfering directly in actions at the state and local level [35, 43].

Bolsonaro has also instituted a series of relaxations of Brazil's gun-control restrictions [44]. On 29 March 2021 Bolsonaro's replacement of the Minister of Justice with a person tied to what is known as the “bullet block” (“*bancada da bala*”) in the National Congress [45] is likely to lead to further easing of these restrictions. Bolsonaro has made clear that relaxing gun controls is a priority so that “the people” [i.e., his supporters] can arm themselves to resist “tyrannical” measures by state governors that restrict economic activities in efforts to combat COVID-19, as he stated in his tirade during the infamous 22 April 2020 ministerial meeting, the video recording of which was released to the public by order of the Supreme Court [46]. Bolsonaro's encouragement of his supporters to take direct and even violent action has serious consequences, such as attacks on scientists. If Bolsonaro were to increase his presidential powers, it would likely mean little or no social isolation. This would favor the re-emergence of the pandemic in places where the number of cases has been falling [47].

Cities like Manaus have been undergoing a second wave of COVID-19 that could have been avoided [22], as epidemiological models presented to public-health authorities had warned of a second collapse of the health system months in advance [48]. This neglect in containing the pandemic in Manaus [22, 36] gave rise to a new strain of SARS-CoV-2 (the gamma or P.1 variant) [49], with twice the transmission rate of the strain that initiated the pandemic [50]. The emergence of the gamma variant in Manaus occurred due to the federal government's strategy of encouraging the contagion of children with the return of in-person classes so that the population would reach herd immunity [51]. Epidemiological models indicate that the September 2020 return to in-person classes in Manaus caused the second wave of COVID-19 in that city and the emergence of the gamma variant



that potentiated the crisis and quickly spread throughout Brazil [51]. The same models rule out the possibility that the gamma variant was generated either by the November 2020 elections or by New Year's Eve parties, since on 15 November Manaus is estimated to have had at least 2000 individuals infected by this variant [51].

The gamma variant currently accounts for over 90% of the COVID-19 cases in Brazilian states such as Amazonas and Paraná [50–52], but cases of infection with the alpha and delta variants have already been recorded in several Brazilian states that are close to having their health systems collapse, as in the case of Paraná [53, 54]. The pandemic shows signs of worsening in many municipalities, but these same municipalities have decided to resume face-to-face classes in their schools [55, 56]. In Manaus, the return to in-person classes on 24 September 2020 can be considered to have been one of the triggers of the second wave: three weeks after reopening schools, the number of hospitalizations doubled, followed by a more gradual increase since the December 2020 health collapse [51]. The governor of Amazonas (Wilson Lima) has again relaxed the restrictive measures, allowing schools to reopen despite the warning of a third wave of COVID-19 [51]. Stimulating viral circulation at the present juncture could lead to the emergence of vaccine-resistant variants, thwarting global actions to contain the pandemic [50, 51]. Studies have shown the possibility of reinfection by the gamma variant [26, 51]. The ongoing spread of this variant throughout Brazil and the incipient spread of the even more infectious delta variant make an immediate nation-wide lockdown necessary. There must be a substantial advance in vaccination before resuming face-to-face classes and opening retail stores, restaurants, bars, and places of worship. The consequences of Brazil failing to implement a national lockdown, including Manaus, could jeopardize the pandemic's control on a global scale because, if variants resistant to vaccines were to emerge in Brazil, it would put other countries' vaccination programs in check [50, 51]. This is not a purely hypothetical scenario, as only in the last two months three new variants have been identified in Brazil [57–59], which currently has at least 92 strains in circulation [60] and can be considered to be a hotbed of new SARS-CoV-2 variants [61].

Manaus is notorious for its role in the pandemic and in the Brazilian government's inadequate response, this city being the first to bury its dead in mass graves during the first wave [62], the site of many preventable deaths when supplies of oxygen were allowed to run out during the second wave [63], and the source of the "Brazilian" gamma variant [64]. Pedro Serra, a professor of constitutional law at the Pontifical Catholic University in São Paulo, described the status of Manaus most eloquently: "In the field of political and moral philosophy, which ends up influencing the interpretation of legal norms, Auschwitz was for the exercise of political power in times of war as Manaus is for the exercise of political power in health issues" [65].

President Bolsonaro's actions have increased the threat to vulnerable groups such as indigenous people [3] and *quilombolas* (descendants of escaped African slaves) [66]. A set of bills known as the "death agenda" has reduced the protection of indigenous lands [67]. The President's discourse has stimulated land grabbers (*grileiros*), wildcat miners (*garimpeiros*) and loggers to invade indigenous lands, and these



invasions have occurred in record numbers [67]. Invasions increased during the pandemic, and former environment minister Ricardo Salles even punished the federal environmental agency's staff who inspected invasions in indigenous lands [68, 69]. The presence of invaders spreads SARS-CoV-2 in indigenous villages [68]. Because the indigenous cultural tradition is transmitted orally by chiefs and elders, whose age puts them at higher risk of death from COVID-19, many indigenous ethnic groups and communities have been drastically affected by the pandemic [22]. The death by COVID-19 of the last surviving man of the Juma people, chief Aruká Juma [70], illustrates how COVID-19 can decimate an entire indigenous ethnic group [22].

During the pandemic, President Bolsonaro has stimulated large infrastructure projects that impact indigenous territories, such as the planned reconstruction of the BR-319 highway that connects Porto Velho in Brazil's "arc of deforestation" on the southern edge of the Amazon region to Manaus in the central Amazon. The highway has already given invaders access to indigenous villages where they are believed to be the source of dissemination of SARS-CoV-2, as reported by the chief of the Apuriná people [71]. This road alone impacts 63 officially recognized indigenous lands, but the federal government has consulted none of them and only plans to "consult" (after the fact) the residents of four of these lands, violating ILO Convention 169 and Brazilian law [72].

The infamous January 2021 collapse of oxygen supply in Manaus [73] provided an opportunity for the city's mayor and the state's politicians to allege that the lack of the BR-319 highway was to blame for the catastrophe. However, warnings of the second wave of COVID-19 were given more than four months in advance [22], so that the Ministry of Health and the Amazonas state government could easily have arranged for adequate supplies to be shipped in advance. In addition, the Ministry of Health, instead of adopting the fastest or cheapest strategy for transporting oxygen to Manaus, chose to lobby for the BR-319 highway, sending a convoy of trucks along the highway, where the trucks got stuck on the way [73, 74]. When the oxygen ran out, the best strategy to meet the immediate need for oxygen was air transport, with longer-term demand being met by supplies shipped on barges, which is both much cheaper and less risky [74, 75].

We requested data on hospitalizations and deaths in Manaus during this period from the Amazonas State Health Department. We received a protocol response, but more than four months later, no data have been sent. Brazilian legislation requires that this type of information be public in accordance with the access-to-information law. These numbers could provide more accurate information on the number of deaths by the absence of oxygen and the number of indigenous people being treated in hospitals or who died in Manaus.

Data presented in the CPI show that proportionally more indigenous and black people die from COVID-19 than the white population [76]. Higher mortality in these vulnerable populations [76] can be seen as a reflection of government policies related to the so-called "death agenda" that affects indigenous peoples and *quilombolas* [67], together the social vulnerability that these peoples face [3, 66] and genetic vulnerability of indigenous peoples [3]. President Bolsonaro used the Brazilian army to weaken protection of the Amazon, and the army distributed hydroxychloroquine to the indigenous people [69]. The Amazon region where these



indigenous peoples are located has a high incidence of malaria, which is treated with chloroquine [77]. In many areas in the Amazon the *Plasmodium* parasite that causes malaria already shows resistance to chloroquine [78], and overuse of this drug by indigenous people [69] can induce increased parasitic resistance to the drug for the treatment of this deadly endemic disease.

During the pandemic, President Bolsonaro sanctioned evictions of traditional peoples from the territories they have historically occupied [79, 80] and vetoed measures to provide drinking water and hospital beds for indigenous peoples during the pandemic [81]. The President's sons and federal authorities even visited indigenous villages near Manaus without wearing masks [82], putting the communities at risk [3, 22]. On 23 June 2021, the Constitution, Justice and Citizenship Committee of the Chamber of Deputies approved Bill PL490/2007, which, once approved by the Senate, would effectively block any further demarcation of indigenous lands, allow some indigenous areas to be revoked, and allow non-indigenous people and companies to carry out a wide variety of damaging activities in indigenous lands [83]. PL490 drastically affects the protection of indigenous peoples in Brazil, including isolated indigenous peoples, where heavily armed land grabbers, loggers and wildcat miners [84] invaded have their lands, with the use of firearms being facilitated by decrees promulgated by Bolsonaro to ease restrictions on carrying weapons [85]. During his 2018 election campaign, Bolsonaro had repeatedly promised that not a single centimeter of land would be demarcated for indigenous peoples and that he would "revise" land demarcation [67]; these promises have been kept. Based on the evidence already available, the International Criminal Court in The Hague must accept the pending charges of crimes against indigenous peoples committed by Bolsonaro.

With more than 559,000 deaths and daily mortality rates of more than 2000 deaths maintained in recent weeks [1], Brazil can already be considered to be the global epicenter of COVID-19 by at least three indicators: (1) The number of daily cases and deaths higher than the global mean values [86], (2) Delay in vaccination and gaps in the national vaccination plan [32, 33], which has increased community transmission in the country despite the advance of vaccination [52], and (3) Emergence of a large number of new variants [87]. This makes Brazil a hotbed of new variants and carries the potential for the emergence of a variant that resists vaccines [50, 51].

The gamma variant, which is now responsible for most cases in the country, was identified only two months before it became widely disseminated and crossed international borders [88]. This variant was identified first by Japan rather than by Brazil [89], which demonstrates the country's inability to avoid becoming a threat to other countries. Since 2020 Brazil's role as an epicenter of the pandemic has been pointed out due to the rise in the transmission rates of SARS-CoV-2 [90]. Evidence of the ineffectiveness of "vertical" social isolation [91], which is still defended by President Bolsonaro [29], has existed since 2020 [91], which demonstrates a continuation of decision-making based on ideology rather than on science. When warned about the second wave, decision makers in Manaus mentioned following the Ministry of Health's strategy [92], which confirms that states adopted the federal government's strategy of not applying restrictive measures to contain the increase in cases.



Regarding the Brazilian federal government, various outcomes are possible, including business as usual, some form of dictatorship, and approval of any of the 126 proposals for the impeachment of Bolsonaro currently pending in Brazil's National Congress, many of which are for negligence in the pandemic [65]. On 7 July 2021, a statement by the President of the CPI (Omar Aziz) criticized some members of the Armed Forces for apparent involvement in a corruption scandal surrounding a contract for COVID-19 vaccines [93]. In response, Defense Minister Walter Souza Braga Netto, Navy Commander Admiral Almir Garnier Santos, Army Commander General Paulo Sérgio Nogueira de Oliveira and Air Force Commander Lieutenant Brigadier Carlos de Almeida Baptista Junior issued an official statement claiming that Omar Aziz's allegations affect the Armed Forces in a "vile and frivolous way," calling the accusations "serious, unfounded and, above all, irresponsible" [94]. The present paper shows clearly that Brazilian military forces acted to weaken both the fight against COVID-19 and the situation of indigenous peoples in Brazil by promoting measures recommended by President Bolsonaro. The political and ideological alignment of the commanders of the armed forces appointed by President Bolsonaro was shown when no punishment was applied to General Eduardo Pazuello (the former Minister of Health) after he spoke at a rally in support of Bolsonaro, which is prohibited for active military personnel [95]. The statement issued by the Minister of Defense and the commanders of the three branches of the armed forces regarding Omar Assiz's criticism of the stance of some military officials on COVID-19 even affirms that "the armed forces will not accept any frivolous attack on institutions that defend the democracy and the freedom of the Brazilian people" [94]. It is relevant that the responsibility of the armed forces to defend the democratic rule of law implies an obligation to support the parliamentary commission of inquiry (CPI) in its investigations into the actions that have impeded the fight against COVID-19 in Brazil. This commission has proved crucial in bringing to light information about the negligence of the Bolsonaro government in combating the COVID-19 pandemic, including that of military personnel, such as former Minister of Health General Eduardo Pazuello, including his actions during the Manaus oxygen crisis, and General Pazuello's immediate subordinate, Colonel Elcio Franco, who, against technical advice, limited the Brazilian government's purchase of vaccines from the COVAX Facility to a quantity sufficient for only 10% of the population [96].

Indeed, an analysis of 3049 federal norms and regulations under the Bolsonaro administration concluded that the President has pursued a deliberate agenda to spread COVID-19 [97]. The President of the Chamber of Deputies (Arthur Lira) has so far blocked any consideration of the many motions to impeach President Bolsonaro. With continuation of the present presidential administration until the end of 2022, we can expect further deterioration of the country's institutions, effectively facilitating the spread of COVID-19.

## Declarations

**Conflict of interest** The authors state that they have no conflicts of interest.





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