

FORUM – SOCIAL MOVEMENTS, PROTESTS, AND SOCIAL PARTICIPATION IN TIMES OF PANDEMIC

Submitted 09-30-2024. Approved 03-13-2025

Evaluated through a double-anonymized peer review. Guest Editors: Lizandra Serafim, Leonardo Barros Soares, and Matheus Mazzilli Pereira

The reviewers did not authorize disclosure of their identity or peer review report.

Translated version | DOI: <https://doi.org/10.12660/cgpc.v30.92178.87482>

WORKERS, RIGHT-WING SUPPORTERS, VICTIMS OF VIOLENCE, AND COVID-19: WHO PROTESTED DURING THE PANDEMIC IN BRAZIL?

Trabalhadores, direita, vítimas da violência e da Covid-19: Quem protestou durante a pandemia no Brasil?

Trabajadores, derechas, víctimas de la violencia y de la COVID-19: ¿Quién protestó durante la pandemia en Brasil?

Priscila Delgado de Carvalho^{*1} | prisciladcarvalho@ufrj.br | ORCID: 0000-0002-0189-8217

Marcos Aurélio Freire da Silva Júnior¹ | marcosfreire@ufrj.br | ORCID: 0000-0002-5553-662

^{*}Corresponding author

¹Universidade Federal Rural do Rio de Janeiro, Programa de Pós Graduação de Ciências Sociais em Agricultura, Desenvolvimento e Sociedade, Rio de Janeiro, RJ, Brasil

ABSTRACT

The COVID-19 pandemic challenges us to understand the actions of civil society and the role of protests in “turbulent contexts,” marked by uncertainty, disputes over interpretations of what is at stake, and potential changes in the ways of protesting. In Brazil, when the health crisis emerged, civil society had already been undergoing transformations, and the political scenario was compounded by a denialist government. This text looks at this scenario from the standpoint of protest events from 2020-2021, with data covering Brazil’s five regions, particularly social groups and their demands. Among the research findings are the strength of the workers’ protests, the expected growth of the right, the relevance of the local action of victims and their relatives, and the struggle against injustices and racism in the period.

Keywords: protests, pandemic, social movements, right wing, racism.

RESUMO

A pandemia de Covid-19 desafia-nos a compreender a atuação da sociedade civil e o papel dos protestos em “contextos turbulentos”, marcados por incertezas, disputas de interpretação sobre o que está em jogo, e potenciais mudanças nas formas de protestar. No Brasil, no momento da eclosão da emergência sanitária, a sociedade civil já passava por transformações, ao que se somou um governo negacionista. O texto olha para esse cenário tendo como ponto de partida eventos de protestos entre 2020-2021, com dados que cobrem as cinco regiões do país, observando especialmente grupos sociais e suas demandas. Entre os achados está a força dos protestos de trabalhadores, e o esperado crescimento das direitas, mas também a relevância da atuação local de vítimas e familiares, e a luta contra injustiças e racismo no período.

Palavras-chave: protestos, pandemia, movimentos sociais, direitas, racismo.

RESUMEN

La pandemia de COVID-19 nos desafía a comprender las acciones de la sociedad civil y el papel de las protestas en «contextos turbulentos», marcados por la incertidumbre, las disputas sobre las interpretaciones de lo que está en juego y los posibles cambios en las formas de protestar. En Brasil, cuando estalló la crisis sanitaria, la sociedad civil ya estaba experimentando transformaciones, que se vieron agravadas por un gobierno negacionista. El texto examina el período transcurrido desde los acontecimientos de protesta entre 2020-2021, con datos que abarcan las cinco regiones del país, analizando en particular los grupos sociales y sus reivindicaciones. Entre los hallazgos se encuentran la fuerza de las protestas de los trabajadores y el previsible crecimiento de la derecha, y también la relevancia de las acciones locales de las víctimas y sus familias, así como la lucha contra la injusticia y el racismo en el período.

Palabras clave: protestas, pandemia, movimientos sociales, derechas, racismo.

INTRODUCTION

Protests are a central element in analyses of political confrontation and have long been studied as a key component of the repertoires of social movements (McAdam, Tarrow & Tilly, 2001). However, in the 21st century, they have gained renewed prominence as mass outbursts and direct expressions of political and economic discontent (Della Porta, 2015; Kriesi et al., 2020; Mendonça & Domingues, 2022). Beyond their reactive nature, protests have increasingly been analyzed for their potential to create and strengthen groups, generate shared meanings, and shape performances that allow new or reconfigured political forces to emerge in contemporary conflicts (Alvarez, 2022).

Since 2020, the outbreak of the COVID-19 pandemic has profoundly affected societies and challenged scholars to understand civil society's actions amid widespread uncertainty (Abers, Almeida & von Bülow, 2023). Contrary to some expectations, restrictions on mobility did not necessarily lead to a reduction in public space or collective action, which continued both on social media and in the streets (Abers, Almeida & von Bülow, 2023). However, in certain contexts, changes in the use of public spaces, as well as in the routines and organizational habits of protest groups, have been observed (Vazquez & Cozachcow, 2021).

In Brazil, the health crisis unfolded amid a political crisis that had already altered the profile of civil society. This occurred under a far-right populist government that adopted a denialist stance regarding the severity of the virus and incorporated the mobilization of its supporters into its survival strategy during the pandemic (Rennó, Avritzer & Carvalho, 2021). Against this backdrop, this article seeks to identify and analyze the characteristics of protests during the pandemic, with a particular focus on who protested – those whose mobilizations were reported by the press – what they demanded, and from whom. We understand the pandemic as a “turbulent context” in which interpretations of what is at stake, strategies for addressing emerging challenges, and potential solutions are all subject to contestation.

Our contribution thus offers an analysis of protest events distributed across different regions of Brazil, focusing on the social groups involved, their demands, and the repertoires employed. The article is organized as follows: the next section outlines the data production process. This is followed by a discussion of the relevant literature on protests and the pandemic. The subsequent section analyzes data on the social groups that mobilized during the pandemic, and the final section presents our concluding remarks.

METHODOLOGICAL PROCEDURES

This article employs the Protest Event Analysis (PEA) methodology (Olsak, 1989; Koopmans & Rucht, 2002; Hutter, 2014), whose main objective is to “count protests,” categorizing them according to variables relevant to political process theory, such as who acts, where, and under what demands. This approach allows us to reconstruct the nature of conflicts, how they are expressed at a given moment, and how collective actors operate and intervene in public spaces. In Brazil, the use of PEA has been expanding and is increasingly adopted in research projects by

various institutions (Silva, Araújo & Pereira, 2016; Oliveira et al., 2021; Carlos & Pereira, 2024). Drawing on a database developed by NEPAC/Unicamp (Tatagiba & Galvão, 2019), the LA Protesta_Brasil project collected data on protests reported by *Folha de S.Paulo* (FSP) between 2011 and 2020 (Tatagiba & Carvalho, 2022).

The data analyzed here are from the LA Protesta_Pandemia Survey, an offshoot of the LA Protesta_Brasil project. It shares the same methodology while expanding the scope through collaboration among researchers from the State University of Campinas (Unicamp), the Federal Universities of Minas Gerais (UFMG), Amazonas (UFAM), Paraíba (UFPB), Viçosa (UFV), and Rio Grande do Norte (UFRN), and the University of Brasília (UnB). The goal of this project was to form a research network and analyze protest dynamics in Brazil during the COVID-19 pandemic, using data collected between May 1, 2020, and May 31, 2021. Due to time and personnel constraints, the selected time frame was chosen to capture the early stages of the pandemic while also covering key events of national and regional relevance, such as the murder of João Alberto Freitas by supermarket security guards in Rio Grande do Sul in November 2020, and the oxygen crisis in Amazonas beginning in January 2021.

A key contribution of this article and the project as a whole was to address one of the main challenges of PEA research based on a single newspaper source: regional bias. To this end, data were collected from six newspapers: *A Crítica* (Manaus, AM) with 43 events, *Correio da Bahia* (Salvador, BA) with 75, *Correio Braziliense* (Brasília, DF) with 70, *Folha de S.Paulo* (FSP) (São Paulo, SP) with 196, *Tribuna do Norte* (Natal, RN) with 17, and *Zero Hora* (Porto Alegre, RS) with 46. Newspaper selection was based on several criteria. First, we aimed to include at least one newspaper from each region of Brazil. FSP was chosen due to its status as the newspaper with the largest circulation in Brazil between 1986 and 2021, though its coverage is mostly concentrated in the Southeast (Tatagiba & Galvão, 2019). For other regions, we listed the largest metropolitan areas and, among them, selected newspapers with online archives available during the pandemic. It was not possible to access newspapers from the two largest metropolitan areas in the Northeast (Fortaleza and Recife), so we used a newspaper from the third-largest, Salvador. To broaden regional coverage, we also included *Tribuna do Norte* from Natal, thanks to the collaboration of the UFRN team led by Professor Lindijane Almeida, who had already been collecting articles from that newspaper. Each team followed a shared protocol to determine which sections of the newspapers would be analyzed.

Despite these efforts to mitigate regional bias, it is important to acknowledge the ideological leanings of the analyzed newspapers, which tend to share a center-right orientation, consistent with much of Brazil's commercial press. While this observation is general, studies examining the editorial lines of newspapers at the intersection of psychology, communication, and political science often focus on electoral coverage or the representation of social movements. As noted by Feres Jr. et al. (2019), this leaves a gap in research on how protest events are covered. Some studies analyze specific editorial stances. FSP, for example, has been noted for its critical stance toward the Workers' Party (PT), which intensified during the first administration of President Lula da Silva (2003–2006; reelected for a second term, 2007–2010), especially amid the Mensalão scandal—a scheme involving monthly payments to federal deputies in exchange for support of

government initiatives in Congress. This critical position peaked during the impeachment of President Dilma Rousseff, which occurred in 2016, two years into her second term (Biroli & Mantovani, 2014; Carvalho & Lima, 2020). Zero Hora is frequently described as “conservative” and closely tied to the political elites of Rio Grande do Sul, especially in its coverage of social movements (Silva & Fernandes, 2023). Tribuna do Norte, founded and managed by a traditional family from Rio Grande do Norte, has a strong neoliberal orientation (Costa & Silva, 2019).

In summary, while recognizing the editorial profiles of these newspapers, it is also important to note that most studies on media bias focus on coverage framing rather than the impact of such biases on what gets reported or omitted. This issue is particularly relevant to our analysis, which works with aggregated data. Despite these limitations, we argue that the PEA methodology provides a valuable longitudinal perspective on protest dynamics and enables the identification of broader trends—insights that are difficult to obtain through isolated case studies. In the next section, we turn to the existing literature on protests during the pandemic, with a particular focus on the Brazilian context.

MOVEMENTS, PROTESTS, AND THE PANDEMIC

In February 2020, the World Health Organization (WHO) declared a public health emergency of international concern due to a new coronavirus (SARS-CoV-2) responsible for COVID-19. On March 11, the WHO declared a pandemic. On March 26, Brazil reported its first case of community transmission. Researchers quickly began examining the pandemic’s impact on social movements and observing the activism that emerged in response to the health crisis. Alongside a growing literature focused on government responses to the pandemic, scholars discussed how groups in society contributed to solving collective action problems – through donation management and the dissemination of information within communities – and how they either supported or challenged public authorities, thus influencing agenda-setting and policy formulation and implementation (Abers, Rossi & von Bülow, 2021).

In Brazil, the pandemic struck at a moment of institutional crisis and shortly after the far right came to power, bringing with it a project aimed at dismantling public policies across various sectors (Avritzer, 2020). This period also marked a shift in the country’s pattern of collective action. Since 2015, right-wing actors had begun to engage in protests with an intensity previously unseen in the New Republic. In a recent study on the image of civil society constructed through the analysis of protesting collective actors, Tatagiba and Carvalho (2024) identify the resilience of groups that have taken to the streets since the early days of the New Republic – workers, students, and rural and urban popular movements – which have become increasingly diverse. At the same time, they describe a transformation process they call the “pluralization of protest actors,” consisting of two key dimensions. The first concerns the relationship between individuals and organizations, noting a growing detachment from centralized organizational dynamics, the rise of more individualized activism, and the proliferation of fluid groups rather than formal organizations. The second addresses the emergence of unprecedented groups and

individuals with diverse ideological profiles taking to the streets.

We must still ask what happened to these processes during the pandemic, recognizing that activism in this period must be understood well beyond traditional protest repertoires (Carvalho et al., 2022; Abers, Almeida & von Bülow, 2023). Actors historically organized through unions and social movements – such as rural movements and labor unions – played important roles in disseminating information to their constituencies, managing donations, and pressuring the state on matters of public policy (Carvalho et al., 2022). Solidarity networks became a key form of activism, mobilized by nonprofits, associations, movements, and unions to address urgent needs while continuing to advocate for their long-standing agendas (Marques & Mendes, 2023). Many of these actors, for instance, had already engaged in food distribution during emergencies. However, the pandemic required them to combine prior experience with new strategies to navigate social and health-related restrictions (Abers, Rossi & von Bülow, 2021).

A search in the SciELO repository shows that articles on activism during the pandemic appeared in 2021, connecting the vulnerability of certain groups to their capacity to generate or demand responses to the health and economic crises. The number of publications rose significantly in 2022, when half of the 20 identified articles were published, and then gradually declined in subsequent years. These studies were published in journals from a variety of fields—health, social sciences, communication, urban planning, law, and tourism—highlighting the theme’s cross-disciplinary nature. Notably, very few of these studies offer a comprehensive view of the general profile of activism and protest during the pandemic. Instead, they provide detailed analyses of the actions of specific social groups, most of which operate at the local level: residents of peripheral communities, neighborhoods, and favelas (5 articles), workers (3), women and LGBTQIA+ populations (3), Indigenous movements (3), rural movements (3), and right-wing groups and supporters of President Jair Bolsonaro (1). These studies are discussed below.

The focus on local actions in nearly half of the studies highlights both the importance of territories in addressing the challenges posed by COVID-19 and the need for analyses that contribute to a broader understanding of activism during the period. These are localized acts of activism carried out by movements rooted in territories such as peripheral areas and favelas, advocating for health guarantees and against the social vulnerabilities intensified during the pandemic. Their actions addressed issues such as evictions, the right to housing, police violence, and racism. Developing a broader perspective that acknowledges the importance of specific cases of activism and protest – while also aiming to recognize patterns – serves as the rationale for the approach taken in this article.

The academic debate on understanding social movements and protests in non-routine moments is longstanding and diverse. When discussing collective action in protest cycles, Tarrow (2009) revisits Zolberg’s (1972) concept of “moments of madness,” in which new forms tend to emerge within existing repertoires of action. For Tarrow, these moments are characterized by “a collapse of the boundary between the instrumental and the expressive; politics breaks its limits and invades life as a whole” (Tarrow, 2009, p. 136). Although concern with moments of rupture and instability is not new in the literature, Tarrow emphasizes periods of rising protest cycles, which do not necessarily apply to the pandemic, a period marked more by

uncertainty than by mobilizing momentum. This challenge of analyzing a time with such unusual characteristics has led researchers to seek other theoretical frameworks to understand the phenomena underway. From a European perspective, Della Porta (2022) underscores the importance of social movements and protests during the pandemic and suggests that “critical emergency moments” tend to amplify the relevance of collective action, precisely because of its capacity to experiment and find ways to confront instability and change (Della Porta, 2022, p. 3).

Analyzing the Brazilian case, Abers, Almeida, and von Bülow (2023) advocate for the importance of enhancing analytical capacity by treating activism during the pandemic as activism in turbulent contexts. This perspective allows us to understand “what political actors do during (original emphasis) social and political ruptures” (*ibid.*, p. 12). These periods are marked by political, economic, or social instability and uncertainty, compelling actors to reassess preferences and adapt. After reviewing debates between institutionalist and constructivist perspectives on change—which we cannot reproduce here—we prefer the term “turbulent” because it avoids an exogenous definition of what is at stake.

Unlike the concept of crisis, which is often perceived as an external shock, the notion of turbulence emphasizes the interpretive and contested nature of such periods. It avoids assuming that all actors experience destabilization in the same manner or that it originates solely outside of them, instead calling for attention to how different actors interpret and respond to the situation. An important aspect, though not heavily emphasized by the authors, is the decision to adopt a broader analytical category than “social movements”: that of activism. This allows for the inclusion of actors who were not necessarily organized through pre-existing movements but who were active and visible in the pandemic context, including in the analysis presented below.

Abers, Almeida, and von Bülow (2023) also identify groups that interpreted the crisis not as a rupture but as a continuation of existing exclusionary patterns. While some actors viewed the health crisis as the central element of turbulence, others highlighted continuities in the erosion of the social pact and the rights guaranteed by the 1988 Constitution. Still others focused their critical analyses on the period preceding the pandemic. More conservative actors tended to situate the origins of the crisis in earlier periods of rights expansion, rather than in the pandemic itself (*ibid.*, p. 12). This shows that the pandemic in Brazil was not seen as disconnected from ongoing national political tensions. Though not reducible to those tensions, interpretations of the period also incorporated broader debates on the limits and possibilities of Brazil’s post-redemocratization social pact. These tensions are also reflected in data on the demands and profiles of those who protested during the period.

A second contribution comes from Vázquez and Cozachcow (2021), who analyze the challenges and potential of Latin American youth during the COVID-19 pandemic. Focusing on young people’s demands, they highlight how the pandemic reshaped agendas to include education, working conditions, police violence, and social distancing measures. These agendas were influenced by the new context, but in many cases, they were not primarily about the pandemic; rather, the pandemic amplified ongoing mobilizations. For instance, in Argentina, protests on environmental and urban issues and the decriminalization of abortion gained momentum; in the United States, police violence and racism came to the fore, especially after the George Floyd case.

Marques and Mendes (2023) seek to understand what they term the pandemic paradox: although mobility restrictions were enforced, the streets remained central arenas for contesting institutional politics. In Bolivia, peasants and Indigenous groups mobilized against state violence; in Chile, a referendum on constitutional reform was approved; in Peru, young people successfully demanded the president's removal. The authors identify five factors that help explain why social movements did not demobilize: (1) the continuity of social struggles; (2) a favorable political context; (3) effective solidarity networks; (4) a combination of mobilization tactics; and (5) a surplus population in forced idleness that was available to engage in structural debates (Marques & Mendes, 2023, p. 3).

These contributions inform our central issue: despite the health crisis, protests continued throughout the pandemic. This study therefore investigates: a) whether distinct groups emerged, examining their agendas and perspectives on “turbulent times”; b) whether the protests were merely events that happened to occur during the pandemic, or if the pandemic was the reason for the demonstrations; and c) whether it is possible to identify alliances and combinations of tactics associated with the protests during this period.

PROTESTS BETWEEN 2020 AND 2021: AN OVERVIEW

In general, the data produced in Brazil indicate that social distancing measures did not immediately lead to a sharp drop in protests, at least according to reports from the newspaper Folha de S.Paulo (FSP). In 2020, FSP reported 236 protests – surpassing the annual average of 200 protests for the 2011–2022 period. When examined month by month, the first months of the pandemic – March, April, May, and June – accounted for 50% of the year's events, with each month representing between 12% and 13% of the total. This indicates a significant level of contentiousness. The subsequent pandemic years saw a lower volume of reported protests: 88 events in 2021 and 104 in 2022, marking the lowest numbers of the 2011–2022 decade (the full-year data come from the LA Protesta_Brasil project and refer only to protests covered by FSP). Two non-exclusive interpretations emerge: FSP may have been particularly attentive to protests in the early phase of the pandemic due to the unprecedented nature of the situation, and the urgency and uncertainty of the moment may have caused protest momentum to fade over time.

Our database confirms that May and June 2020 were the months with the highest number of reported protests, reinforcing the previous finding. This spike was driven by a high volume of reports from FSP, *Zero Hora*, and *Correio Braziliense*. The latter newspaper showed a noteworthy pattern: it reported 18 protests in May 2020 and did not mention further mobilizations until January of the following year.

The LA Protesta_Pandemia Survey database recorded 449 protest events between May 2020 and May 2021, averaging 34.5 events per month. Among these, 272 occurred between May and December 2020, and 177 took place between January and May 2021. Table 1 displays the number of protests reported by each newspaper during this period.

Table 1 – Sum of protests reported by the set of newspapers by month

	MAY 20	JUN 20	JUL 20	AUG 20	SEPT 20	OUT 20	NOV 20	DEC 20	JAN 21	FEB 21	MAR 21	APR 21	MAY 21
Total	62	51	23	42	18	19	32	25	35	25	49	27	41

Note: Elaborated by the authors based on data from LA Protesta_Pandemia, 2024.

Social groups

An analysis of the protests by social groups reported between May 2020 and May 2021 reveals two main dynamics, which we examine in this article. On one hand, we explore the roles of workers and right-wing groups during the pandemic. On the other, we highlight the importance of protests led by family members, neighbors, and Black communities, who addressed issues directly related to the pandemic but also brought attention to a broader context of violence and human rights violations. This latter dynamic was not initially part of our focus and reveals yet another facet of the turbulence that went beyond the groups occupying the two most prominent positions.

The strength of workers and the rise of the right

Workers were involved in over 27% of the protests reported by the six newspapers during the period, while right-wing groups accounted for 18%. Together, they represent nearly half of the social actors mentioned, as shown in Table 2, which is based on the three columns of the “disaggregated social group” variable.

Table 2 – Main social groups protesting during the pandemic

SOCIAL GROUPS	NO. OF EP	% EVENT (N = 449)
Workers	124	27.6%
Nationalists, new right, and far right	81	18.0%
Residents/neighbors	39	8.7%
Victim's family members and friends	30	6.7%
Black people	30	6.7%
Sympathizers or party activists	28	6.2%
* Indigenous people + landless people + people affected by dams + Quilombolas = Rural people	26	5.8%
Business people	23	5.1%

Note: Elaborated by the authors based on data from LA Protesta_Pandemia, 2024.

The prominence of workers suggests that both those on the “front lines” of the pandemic, who had to continue working, and those who stopped working and needed to address unemployment and related needs, participated in protests, such as teachers, education workers, and employees in commerce and services. This continuity indicates that the pattern observed between 2011 and 2020, in which workers were involved in nearly 31% of the protests reported by FSP, was maintained during the pandemic. The relevance of these groups can be attributed to their capacity to mobilize through consolidated organizations with local and national structures, territorial reach, experience in interacting with the state, and expertise in organizing and publicizing protests, as highlighted by [Tatagiba and Carvalho \(2024\)](#).

This analysis aligns with studies of the pandemic period, such as [Trópia \(2021\)](#), which examined how nursing and medical professionals and union organizations in the state of São Paulo mobilized during the pandemic. Trópia tests the hypothesis that in Brazil, overlapping crises created political opportunities for union organizations that remained active through various tactics, from legal actions to more frequent use of social media, and also engaged in traditional street protests. In addition to labor-related demands, such as timely pay and compliance with contracted hours, these organizations called for personal protective equipment (PPE), the defense of the Brazil national health system (SUS), vaccines, and testing, in a context of conflict with powerful entities such as the Federal Council of Medicine, which supported the Bolsonaro government’s denialist stance ([Trópia, 2021](#)).

The presence of established organizations likely contributed to the continued visibility of workers in protests. However, media coverage also highlighted actions by other occupational categories not necessarily tied to stable unions or other entities but instead mobilized through more fluid networks and groups. These examples reflect transformations in the relationship between individuals, organizations, and protest, as systematized by [Tatagiba and Carvalho \(2024\)](#). Transportation and delivery workers using apps, as well as supermarket employees, also operated on the “front lines.” Their mobilizations brought visibility to their categories and revealed new challenges for labor-based organizations ([Marques & Mendes, 2023](#)). During the period studied, 19 news reports mentioned self-employed workers, and another 26 mentioned transportation workers. The most well-known example was the “*Breque dos Apps*,” a nationwide mobilization of app delivery workers that began in July 2020, which called for COVID-19 safety measures as well as better working conditions and pay ([Domingues, 2024](#)).

The second most visible group in the newspaper reports was classified as “nationalists, new right-wingers, and far-right activists.” Their presence on the streets highlighted one of the central tensions of the period: how to interpret and respond to the “turbulent times” identified by [Abers, Almeida, and von Bülow \(2023\)](#). The strength of right-wing mobilizations also confirms the second trend of protest pluralization along the ideological axis – a development not unique to Brazil ([Abers, Rossi & von Bülow, 2021](#)). In the Brazilian case, however, a distinctive feature is the role of the president and his allies in contesting narratives. Among other actions, the president pressured subnational governments to end social distancing measures.

Worker and right-wing protests diverged in terms of demands, targets, allies, and scope, reinforcing the idea that they represent distinct ethical-political fields ([Doimo, 1998](#)). Workers’

protests primarily addressed health concerns and labor issues, each accounting for about 20% of total demands, followed by wage-related claims (around 10%). These grievances, shaped by the pandemic, highlight the strength of labor-oriented demands. In the terms used by [Vazquez and Cozachcow \(2021\)](#), such protests can be seen as protests of the pandemic – i.e., centered on issues directly related to the crisis.

In contrast, right-wing protests primarily focused on the functioning of the state and the actions of political leaders, a category we label “state and government,” which includes support for or opposition to figures such as the president, ministers, and governors. Protesters also raised regime-related issues, such as anti-corruption campaigns, attacks on the Supreme Federal Court (STF), calls to shut down the Congress, and demands for military intervention. Together, “state” and “regime” accounted for nearly 80% of right-wing protest coverage, indicating the centrality of these themes. Although health may have formed a backdrop to some mobilizations, it was not the main organizing frame.

Differences also emerged in the identified protest targets. Workers directed their demands primarily at the federal government (27%), followed by state governments (20%) and employers (15%). By contrast, the right-wing protests overwhelmingly targeted the federal government (45%) – mainly in support of the president – and the federal judiciary (28%), particularly in opposition to STF ministers. In terms of form, protests by both groups were mostly categorized as Walks/Marches/Acts. Workers also used strikes and work stoppages, reflecting slightly more diverse tactics. As for coalition-building, right-wing protests appeared more isolated, with few instances of collaboration with workers or employers. Workers, on the other hand, mobilized alongside a broader range of social groups.

Most protests reported in newspapers were local in scope, typically taking place in a single city. This pattern persisted during the pandemic, with over 80% of events being local. However, slight differences were observed depending on the protesting group. Right-wing protests were more likely to occur across up to half of Brazil’s states (16%), while workers demonstrated greater capacity for coordinated action across more than half of the country, 8% of reported events, surpassing the 3% average observed for all groups.

The virus and violence: neighbors, family members, and Black people between health and human rights, security, and racism

The agendas of locally based protests by residents and neighbors, as well as activism grounded in bonds of affection – such as that of victims’ family members and friends – converged during the pandemic through shared demands for justice, human rights, and public security. These demands are also central to Black activism, which gained significant attention in the news during the period analyzed. Before addressing justice and security, these mobilizations emphasized the issue of racial inequality in the country. While differences exist—such as residents’ focus on urban issues and Black activists’ emphasis on anti-racist struggles—we choose to analyze them together here because, despite addressing violence and security from different angles,

they collectively expose long-standing tensions that challenge Brazilian politics and democracy: racism and police violence.

The prominence of neighbors as the third most frequently reported group in the newspapers emphasizes the significance of territories and local relations during the pandemic. This category was already among the most prominent groups in the previous decade (2011–2020), ranking fifth and appearing in just over 12% of the events reported by *Folha de S.Paulo* (FSP). In that earlier research, these groups were understood as having capillarity and territorial rootedness. Throughout the decade, they were characterized by decentralized connections and a focus on immediate concerns, generally related to urban infrastructure and city maintenance (Tatagiba & Carvalho, 2024).

During the pandemic, qualitative studies have highlighted the activism of residents in favelas and peripheral areas (Bogado, Guedes & Nazar, 2023; Paiva & Martins, 2023; Quintans, Silva & Sobrinho, 2022; Antunes & Coqueiro, 2022; Osmo & Fanti, 2021). Health-related initiatives were already underway in these territories, alongside housing concerns – especially efforts to resist evictions – and actions against police violence and racism.

Residents and neighbors did more than protest; they played a central role in addressing basic needs and fostering solidarity. These groups worked to combat denialism within communities by launching awareness campaigns that combined traditional methods, such as community radio, with new digital technologies (Abers, Rossi & von Bülow, 2021). Both the strengthening of pre-existing groups and the emergence of new collectives were observed during the pandemic. One notable example of the former is the Central Única das Favelas (CUFA), which expanded an already established network across urban peripheries with private donations used to distribute money, food, and hygiene supplies (Fonseca, 2023). As an example of an emergent group, Paiva and Martins (2023) analyze the case of Frente Maré, which was born out of a survival impulse shared by residents and activists. The collective, formed in the Maré Complex in Rio de Janeiro, became a key actor in addressing the pandemic in the area's 16 favelas. According to the authors, "82% of the population of Rio de Janeiro's favelas only had access to food thanks to donations from the collectives" (Paiva & Martins, 2023, p. 6).

Protest event data also reveal another dimension of residents' and neighbors' actions – one that drew media attention: an emphasis on demands for justice, human rights, and public security. These themes frequently appear together in protest coverage, often within the same events. Demands for urban policy come in third, followed by health-related concerns. This shift suggests a realignment of priorities among locally organized groups – from urban service issues to justice-focused demands – within a broader context of economic and health crises. We interpret these as "pandemic protests," which reinforce the notion that the central issues raised during the pandemic extended beyond health alone.

Once again, secondary literature helps us interpret these findings. Osmo and Fanti (2021), who studied legal mobilization by activists in Rio de Janeiro's favelas during the pandemic, observed that violent police operations continued even in the earliest months of the health crisis. In territories facing obstacles to implementing preventive health measures – marked by poverty and a high percentage of informal labor – police violence persisted as part of a longer

trend of escalating repression. In these areas, predominantly inhabited by Black people, the increased vulnerability to the pandemic's lethality was compounded by a rise in violent deaths caused by public security forces (Osmo & Fanti, 2021, p. 2104).

Table 3 shows the percentage of demands relative to the total number of protest events for the analytical categories of residents, family members, and Black activists:

Table 3 - Demands during the pandemic

RESIDENTS/NEIGHBORS (N=58)	VICTIMS' FAMILIES AND FRIENDS (N=54)	BLACK ACTIVISTS (N=67)
Justice and human rights (24%)	Justice and human rights (44%)	Racial issues, patriotism, and xenophobia (36%)
Public security (19%)	Public security (30%)	Justice and human rights (30%)
Urban policy, infrastructure, and transportation (17%)	Health (11%)	Public security (13%)
Health (12%)	Racial issues, patriotism, and xenophobia (6%)	State and government (10%)
Ecology and environment (9%)	Urban policy, infrastructure, and transportation (4%)	Political regime (4%)
State and government (9%)	Education, science, and technology (2%)	Health (3%)

Note: Elaborated by the authors based on data from LA Protesta_Pandemia, 2024.

The demands presented in Table 3 highlight the similarities between protests organized by “residents and neighbors” and those by “victims’ family members and friends.” The latter group, traditionally associated with individuals affected by violence, accidents, or illness, maintained its established profile. However, the systematization of protest events produced a counterintuitive result: while family members addressed the victims of COVID-19, their demands also focused on insecurity, framed through a justice-oriented lens.

The data on protest targets further reinforces the alignment between the agendas of residents and family members, as both primarily directed their actions toward the police and security forces, state governments, and officials responsible for public security within the federative structure, particularly those overseeing the military police. The emphasis by family members on the judiciary reveals a certain capacity for abstraction in their demand for justice, as it involves holding actors from other branches of government accountable. Protests led by family members were entirely local in scope; all 30 recorded events occurred within a single city. This suggests a more limited regional or national organization compared to residents and neighbors, as well as to Black activists. The latter accounted for one-fifth of the protests distributed across “several and a half of the states,” indicating the presence of a broader national movement connected to pre-existing organizations and networks.

Table 4 summarizes the protest targets of these three groups, indicating the percentage each contributes to the total recorded targets.

Table 4 – Targets of the protest according to social groups

RESIDENTS/NEIGHBORS	VICTIMS' FAMILIES AND FRIENDS	BLACK PEOPLE
Police and public security forces (28%)	Police and public security forces (33%)	Civil society (28%)
State government (17%)	Judiciary (28%)	Federal government (17%)
Federal government (13%)	State government (17%)	Judiciary (13%)
Municipal government (13%)	Civil society (8%)	Employers/private companies (13%)
Civil society (11%)	Municipal government (6%)	Police and public security forces (10%)

Note: Elaborated by the authors based on data from LA Protesta_Pandemia, 2024.

Racism and violence

Groups categorized as Black represented the fifth most frequently reported profile between May 2020 and May 2021. They organized or participated in approximately 7% of the reported events, surpassing – for the first time – the number of protests by other groups organized around political identities, such as women, Indigenous peoples, LGBTQIA+ communities, and traditional social movements like the landless and homeless. The fight against racism remained a central theme of Black protests and, when combined with demands for justice, accounted for two-thirds (66%) of the mobilizations. Public security was the third most frequent demand, once again underscoring the relationship between violence, particularly state violence, and Black and peripheral populations in Brazil. The relatively low emphasis on health-related demands suggests that, for this group, pre-existing structural issues were more pressing than the immediate health crisis. Judging by their demands, these protests occurred during the pandemic rather than being primarily about the pandemic.

The so-called “Black protest” in Brazil has historically focused on combating racism (Fernandes, 1997). Street demonstrations played a crucial role in reestablishing the political presence of the Black movement in Brazil during the 1970s (Rios, 2012). Since then, the struggle against injustice, the transformation of social values and labor market structures, and the denunciation of lives threatened by “police approaches informed by racial stereotypes” have remained central to its agenda (Rios, 2012).

During the pandemic, two major events shaped the racial debate. The first had global reverberations: on May 25, 2020, George Floyd was murdered by police in Minneapolis, United

States. The resulting Black Lives Matter movement sparked a wave of global protests. In Brazil, mobilizations began online on June 2 with a “blackout” on social media, during which users posted black squares and shared hashtags supporting the movement. This digital activism soon evolved into street protests that also denounced cases of racism and police violence in Brazil. These protests were reported by *Folha de S.Paulo* (FSP) and *Correio da Bahia*, the latter showing greater attentiveness to Black protests—likely due to the strength of the Black movement and the politicization of ethnic-racial issues in the state of Bahia.

The second major event was the murder of João Alberto Freitas, a mechanic who was killed by supermarket security guards in Porto Alegre on November 19, 2020. Protests in response were covered by Zero Hora, FSP, Correio da Bahia, and A Crítica.

Black protests during the pandemic also showed a clear pattern in terms of media coverage and timing. FSP maintained consistent attention to the issue throughout the period. *Correio da Bahia* initially covered the protests following the Porto Alegre case and resumed coverage in February 2021. *A Crítica* and *Zero Hora* focused on specific moments. These protests were also distinctive in terms of their targets. Most were directed at civil society, aiming to challenge systemic racism and promote cultural and behavioral change. Next came companies and employers, reflecting the strong backlash against the murder in Porto Alegre and the pressure for accountability from corporate actors. Only afterward did governments and security forces appear, and in equal measure.

In addition, Black protests during the pandemic continued to address police actions and violent interventions in urban peripheries (Osimo & Fanti, 2021). During the health crisis, the issue of racial violence, historically central to the Black movement, gained renewed force. These mobilizations confronted not only police forces but also private security actors, raising questions that extend beyond the scope of this study and deserve further exploration.

CLOSING REMARKS

An analysis of protests during the COVID-19 pandemic, based on reports from newspapers, captures mobilizations that achieved sufficient visibility to overcome editorial barriers. While this source has limitations, the data we collected indicate that protests remained vibrant throughout the pandemic. This reinforces the understanding that collective action is particularly crucial in times of uncertainty, as new challenges emerge from doubts about how society and the state will address various issues. During the pandemic, previously stable matters were thrown into dispute, such as the availability of work materials and personal protective equipment for health professionals, access to food, and the potential for government financial aid to people in economic distress.

We emphasize uncertainty as a defining feature of the turbulence experienced during the pandemic. But what impact did this have on protest dynamics? Our answer, albeit partial, rests on the observation that the issues addressed by different groups are not predetermined. Even intense turbulence, such as a pandemic, does not allow us to predict in advance which

groups will mobilize more forcefully, or what their specific demands and agendas will be. On one hand, our analysis reveals the continued presence of groups traditionally associated with protests, such as workers, alongside groups that emerged from recent political conflicts in Brazil, including new and extreme right-wing actors. These groups were more predictable, and their prominence shows that activism during the pandemic was not disconnected from the trajectory of protest that has developed since the New Republic, nor from recent shifts marked by the growing presence of right-wing actors in the streets. However, the variation in the demands and targets of each group supports what theories of turbulent times have predicted: different groups will express distinct concerns and agendas when adopting protest strategies. In Brazil in 2020, these differences were shaped by political alignments, and the country experienced overlapping health and ideological tensions. Yet the diversity of interpretations regarding what was at stake during this uncertain period cannot be reduced to political polarization alone, for two main reasons.

First, the data we analyzed, when combined with secondary sources, reveal diverse priorities and interpretations within groups themselves. For example, formally employed workers, typically known for wage-related demands, have shifted their focus to ensuring labor rights such as timely payment and adherence to contracted working hours. They have also rallied in defense of the Brazilian national health system (SUS), vaccines, and testing. Meanwhile, self-employed workers have gained visibility by protesting for the implementation of pandemic prevention measures, along with improved working conditions and remuneration.

Second, the protest landscape cannot be described simply as a clash between two opposing sets of demands (e.g., for or against social distancing). The prominence of issues such as justice and human rights, public security, and racism—raised by residents and neighbors, victims' family members and friends, and Black communities—suggests that the challenges highlighted during the pandemic extended far beyond health and distancing measures. These collective actors, amid the health crisis, brought attention to the persistence of violence, especially in peripheral and racialized communities, thereby contesting dominant narratives about the temporality of the pandemic's turbulence. Taking these findings into account, the results presented here encourage further research into the continuities and discontinuities in collective action brought about by the COVID-19 pandemic.

REFERENCES

- Abers, R.; Almeida, D. & von Bülow, M. (Orgs.) (2023). *A disputa pela democracia no Brasil: ativismos em contextos turbulentos*. Porto Alegre: Editora Zouk.
- Abers, R. N., Rossi, F. M., & von Bülow, M. (2021). State–society relations in uncertain times: Social movement strategies, ideational contestation and the pandemic in Brazil and Argentina. *International Political Science Review*, 42(3), 333-349. <https://doi.org/10.1177/01925121211006028>

- Alvarez, S. (2022). Protesto: provocações teóricas a partir dos Feminismos. *Polis: Revista Latinoamericana*, 21(61), 98-117. <https://doi.org/10.32735/S0718-6568/2022-N61-1717>
- Antunes, M. & Coqueiro, J. (2022). Comunicação rizomática: reflexões sobre os movimentos de resistência em tempos da Covid-19. *Saúde Debate*, 46(132), 200-210. <https://doi.org/10.1590/0103-1104202213214>
- Avritzer, L. (2020). *Política e antipolítica: a crise do governo Bolsonaro*. Coleção 2020. Ensaios sobre a pandemia: Todavia.
- Biroli, F., & Mantovani, D. (2014). A parte que me cabe nesse julgamento: A Folha de S. Paulo na cobertura ao processo do “mensalão”. *Opinião Pública*, 20(2), 204–218. <https://doi.org/10.1590/1807-01912014202204>
- Bogado, D., Guedes, C., & Nazar, J. (2023). Direito à moradia: as ações do Museu das Remoções durante a pandemia. *Revista Katálysis*, 26(1), 1-16. <https://doi.org/10.1590/1982-0259.2023.e89915>
- Carlos, E., & Pereira, M. M. (2024). “Descomemorando” o desastre no Rio Doce: táticas, performances e enquadramentos. *Revista Brasileira de Ciência Política*, 43, 1-35. <https://doi.org/10.1590/1981-38212024v43a1>
- Carvalho, P. D. de, Teixeira, M. A., Motta, R., & Penna, C. (2022). Sistemas alimentares em disputa: Respostas dos movimentos sociais à pandemia Covid-19. *Revista Brasileira de Ciências Sociais*, 37(108), e3710808. <https://doi.org/10.1590/3710808/2022>
- Carvalho, P. R. D., & Lima, A. B. (2020). Produção de sentidos e posicionamento político na mídia impressa brasileira. *Psicologia & Sociedade*, 32, e172531. <https://doi.org/10.1590/1807-0310/2020v32i172531>
- Costa, L. M., & Silva, J. P. R. H. da. (2019). Discurso e hegemonia no jornal Tribuna do Norte: a gestão privada de serviços públicos e a construção de sentidos sobre as Organizações Sociais (OSs). *Revista Mídia e Cotidiano*, 13(1), 58-82. <https://doi.org/10.1590/1982-600920191301>
- Della Porta, D. (2015). *Social movements in times of austerity: bringing capitalism back into protest analysis*. Polity Press.
- Doimo, A. M. (1998). *A vez e a voz do popular: movimentos sociais e participação política no Brasil pós-70*. Rio de Janeiro: Relume-Dumará.
- Domingues, L. B. (2024). *Dinâmicas de ação coletiva dos entregadores por aplicativos no Brasil: do “corre” cotidiano à regulamentação da atividade* (Tese de doutorado). Programa de Pós-Graduação em Ciência Política, Universidade Federal de Minas Gerais, Belo Horizonte.
- Feres Júnior, J., Candido, M. R., Melo, P. B. de, & Vieira, L. R. (2019). A cobertura jornalística das greves gerais de 2017: Paradigma de protesto ou militância política. *Opinião Pública*, 25(3), 495–530. <https://doi.org/10.1590/1807-01912019253495>
- Fernandes, F. (2017). *Significado do Protesto Negro*. Expressão Popular.

- Ferreira, J. V. B. (2023). Ativismo pandêmico em três atos: etnografia do movimento oposicionista ao lockdown no Distrito Federal. In: R. Abers, D. Almeida & M. von Bülow (Orgs.). *A disputa pela democracia no Brasil: ativismos em contextos turbulentos* (pp. 123-145). Porto Alegre: Editora Zouk.
- Fonseca, M. de S. (2023). Da favela para o asfalto: a atuação da Cufa durante a pandemia de Covid-19. In: Abers, R., Almeida, D. & von Bülow, M. (Orgs.). *A disputa pela democracia no Brasil: ativismos em contextos turbulentos* (pp. 247-263). Porto Alegre: Editora Zouk.
- Galvão, A. (2023). Sindicalismo e ação coletiva diante da precarização do trabalho no Brasil. In A. Cardoso, E. Crivelli, & F. dos Santos (Coords.). *Trabalho em transe: raízes e efeitos políticos das mudanças no mundo do trabalho no Brasil* (pp. 147-191). São Paulo: Contracorrente.
- Grosso, L. A., & Oliveira, M. A. (2021). Ocupações secundaristas em Minas Gerais: subjetivação política e trajetórias. *Educação & Sociedade*, 42(2), 455-474. <https://doi.org/10.1590/es0101-73302021252030>
- Hutter, S. (2014). Protest event analysis. Em D. Della Porta & M. Diani (Orgs.), *Methodological practices in social movement research* (p. 335–367). Oxford: Oxford University Press.
- Koopmans, R.; Rucht, D. (2002). Protest event analyzes. In: Klandermans, B.; Staggenborg, S. (eds.). *Methods of social movements research*. Minneapolis: University of Minnesota Press, 2002.
- Kriesi, H., Lorenzini, J., Wüest, B., & Hausermann, S. (Eds.). (2020). *Contention in times of crisis: recession and political protest in thirty European countries*. Cambridge University Press. <https://doi.org/10.1017/9781108891660>
- McAdam, D., Tarrow, S., & Tilly, C. (2009). Para mapear o confronto político. *Lua Nova*, 76, 11-48. <https://doi.org/10.1590/S0102-64452009000100002>
- Marques, N., & Mendes, J. M. (2023). Movimentos sociais e pandemia: lições de anos em turbulência. *Revista Internacional de Língua Portuguesa*, 44, 43-56. <https://doi.org/10.1590/1984-73302023222345>
- Mendonça, R. F., & Domingues, L. B. (2022). Protestos contemporâneos e a crise da democracia. *Revista Brasileira de Ciência Política*, 37, 1-38. <https://doi.org/10.1590/1981-38212022v37a1>
- Oliveira, P.; Fernandes, A.; Almeida, L.; Silveira, R. (2021). Ciclo de protestos no Rio Grande do Norte entre os anos de 2013 e 2019. *NAU Social*, 12(23), 786-800. <https://doi.org/10.1590/1981-5387v12n23a6>
- Olsak, S. (1989). Analysis of events in the study of collective action. *Annual Review of Sociology*, 15, 119–141.
- Osmo, C., & Fanti, F. (2021). ADPF das Favelas: mobilização do direito no encontro da pandemia com a violência policial e o racismo. *Revista Direito e Práxis*, 12(3), 925-947. <https://doi.org/10.1590/1982-02592021v12n3a8>
- Paiva, R., & Martins, G. (2023). FRENTE MARÉ: A força dos novos coletivos no contexto da sociedade incivil e da Covid-19. *Media & Jornalismo*, 23(42), 53-70. <https://doi.org/10.1590/1982-015620232342a7>

- Quintains, M. T. D., Silva, R. de L. G. da, & Sobrinho, T. de C. (2022). Despejos e luta pelo direito à moradia na pandemia: resistências femininas na experiência da Ocupação Novo Horizonte. *Revista Direito e Práxis*, 13(3), 287-310. <https://doi.org/10.1590/1982-02592022v13n3a5>
- Rennó, L., Avritzer, L., & Carvalho, P. D. D. (2021). Entrenching right-wing populism under covid-19: Denialism, social mobility, and government evaluation in Brazil. *Revista Brasileira de Ciência Política*, 36, e247120. <https://doi.org/10.1590/0103-3352.2021.36.247120>
- Rios, F. (2012). O protesto negro no Brasil contemporâneo (1978-2010). *Lua Nova*, 85, 41-79. <https://doi.org/10.1590/1981-38212012v85a3>
- Silva, M. K., Araújo, G. O., & Pereira, M. M. (2016). Análise de eventos de protestos no estudo de repertórios associativos. In P. Robertt et al. (Eds.), *Metodologia em Ciências Sociais hoje* (Vol. 2, pp. 311-330). Jundiaí, SP: Paco Editorial.
- Silva, C. F. D., & Fernandes, E. G. (2023). Imagem e contestação: Regimes emocionais no enquadramento midiático a eventos de protesto. *Opinião Pública*, 29(1), 69–101. <https://doi.org/10.1590/1807-0191202329169>
- Solano, E., Manso, B., & Novaes, W. (2014). *Mascarados: A verdadeira história dos adeptos da tática black bloc*. São Paulo: Geração Editorial.
- Sordi, D., & Moraes, S. P. (2016). “Os estudantes ainda estão famintos!”: ousadis, ocupação e resistência dos estudantes secundaristas no Brasil. *Religacion - Revista de Ciencias Sociales y Humanidades*, 1(2), 129-145. <https://doi.org/10.5555/religacion.2016v1n2a6>
- Tatagiba, L., & Galvão, A. (2019). Os protestos no Brasil em tempos de crise (2011-2016). *Opinião Pública*, 25(1), 75-98. <https://doi.org/10.1590/1981-38212019v25n1a4>
- Tatagiba, L., & Carvalho, P. (2022). *Livro de Código do Banco de Dados “La Protesta: Brasil”*. Campinas/Belo Horizonte.
- Tatagiba, L., & Carvalho, P. (2024). ¿Quiénes protestan en el Cono Sur? La pluralización de la protesta y los desafíos a la democracia. Em Carvalho Priscila, A. Natalucci, & N. Somma, *Protestas, democracia y desigualdades en el Cono Sur* (p. 71–105). Prometeo.
- Tarrow, S. (2009). *Poder em movimento: movimentos sociais e confronto político*. Petrópolis, RJ: Vozes.
- Trópia, P. V. (2021). Nem deuses nem heróis: a ação sindical dos trabalhadores da saúde durante a pandemia de Covid-19. *Política & Sociedade*, 20(48), 41-77. DOI: <https://doi.org/10.5007/2175-7984.2021.82767>
- Vazquez, M., & Cozachcow, A. (2021). Entre las redes y las calles: organizaciones y acciones colectivas juveniles durante la pandemia (2020-2021). *Última Década*, 57, 159-196. <https://doi.org/10.1590/1982-02592021v57a7>
- Zolberg, A. (1972). Moments of madness. *Politics Society*, 2(2), 183-207. <https://doi.org/10.1177/003232927200200203>

ACKNOWLEDGMENTS

We would like to thank the research team, especially the fellow professors and Scientific Initiation scholarship holders from all the universities involved in the project, for their work in collecting and reviewing the data, as well as the team responsible for supervising data collection and coding. The authors are also grateful for the comments received on a previous version of this text during GT43, Social Movements, Conflicts, and Dynamics of Collective Action, held at the 2024 ANPOCS Annual Meeting.

FUNDING

INCT Instituto da Democracia (CNPQ Project: 465535/2014-3 FAPEMIG: APQ-03612-17) and CNPq (Process No. 164701/2022-2). We also thank the national and state funding agencies for Scientific Initiation grants that made data collection and processing possible.

CONFLICTS OF INTEREST

The authors have no conflict of interest to report.

AUTHOR CONTRIBUTION

Priscila Delgado de Carvalho: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; writing – original draft; writing – review & editing.

Marcos Aurélio Freire da Silva Júnior: Conceptualization; formal analysis; investigation; visualization; writing – original draft; writing – review and editing.