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Sustainability and the Social Representation of the COVID-19 Pandemic: A Missing Link

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Abstract: The COVID-19 pandemic highlighted the importance for countries to preserve a sustainable health system. Unfortunately, the emergency nature of the COVID-19 pandemic has led to economic and social disasters, putting global health at risk. Thus, through the Social Representation Theory, our aim is to replicate a previous study carried out in Brazil in mid-2020 on how Brazilian society has perceived the significance of the COVID-19 pandemic in order to investigate whether this perception changed almost a year after the publication of the former study. The results show that the perception of Brazilian society about the COVID-19 pandemic in Brazil was, at the end of 2021, mainly shaped by the political polarization that existed at the time in the country. Thus, politics and government, social distancing, death, and fear were the categories that composed the central nucleus of the social representation of the COVID-19 pandemic. On the other hand, categories such as economy and employment and changes and the new normal were mentioned less. Surprisingly, the sustainability category was practically disregarded by Brazilians, thus constituting a missing link. In this way, with this research, we hope to contribute to a better understanding of this scenario, expanding the understanding of how society's interpretation of the COVID-19 pandemic in an emerging country such as Brazil has changed over time. Finally, understanding the dynamics of society's perception of the COVID-19 pandemic can contribute to better planning of local initiatives, both at a managerial and public levels, with the aim of mitigating this and other possible future pandemics in a sustainable way.

Keywords: COVID-19 pandemic; social representation; public policy; sustainability; political polarization; replication studies; Brazil

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1. Introduction

Researchers have long sought to explore empirically and philosophically how common sense comes to light [1–4], mainly when society deals with a new phenomenon, such as the COVID-19 pandemic. In this case, social representations arise as a collective coping mechanism to understand this unique and unpredictable reality [5]. In fact, this new disease, which has paralyzed the world since March 2020 [6], creating a huge global health crisis, seems to be a concept far from consensus [7]. In addition, the COVID-19 pandemic has reinforced the urgency of adopting a critical perspective on the concept of sustainability, given the enormous challenges of achieving the 2030 Agenda and the Sustainable Development Goals (SDGs) [8]. Indeed, when sustainability and its multiple dimensions are not considered, there is no public health security [9]. Thus, the sustainable health security agenda must be reinforced and "COVID-19 can be seen as a 'late lesson' from an early warning" [10], as environmental degradation increases the likelihood of pandemics [11].

Although recent research has offered some answers for the challenges and consequences of the COVID-19 pandemic [12], studying this phenomenon from a social perspective can offer valuable insights of this sanitary crisis. To achieve this, we apply the Social Representation Theory (SRT) developed by Serge Moscovici [13] as the theoretical lens

to gain a deeper understanding of how society has made sense of this unexpected new phenomenon. According to Páez and Pérez [7], the social representation of the COVID-19 pandemic has been generated in the context of conflict and social controversy, in which society has not thought homogeneously. This issue ends up generating a polemic social representation that is not shared by society as a whole [14].

In this way, COVID-19 has become a highly politicized issue worldwide, leading citizens' political orientations to influence COVID-19 risk perception directly [15–18]. In Brazil, for example, the guidelines on pandemic prevention practices have also been embedded in a political polarization context [19]. In this context, evidence has pointed to a polarization sponsored by the Brazilian government in establishing a dilemma between "save lives" or "save the economy" [20]. Furthermore, issues like mask use [21] and vaccination [22] have been notably politicized worldwide, with people being for or against them. Interestingly, according to Adida et al. [23], past diseases such as H1N1 flu, AIDS, and Ebola were also politicized.

All in all, in this research, we investigate the social representation of the COVID-19 pandemic. In other words, we aim to analyze the perception of Brazilian society about the meaning of the COVID-19 pandemic at two different points in time to allow a longitudinal perspective of this fast-moving phenomenon and the main changes in its recent but extremely challenging existence. As such, we conducted the first survey in June 2020 at the beginning of the pandemic, when we observed a high-speed spread of COVID-19 cases around the world, as it was too early for science to have scientific answers about potential treatments and vaccines against this disease [14]. Approximately a year later, in July 2021, we carried out a second survey on the same topic, which gave rise to this article. Thus, this article aims to answer the following research question: how has people's sensemaking about the COVID-19 pandemic changed over time in Brazil?

In this article, the social representation in question was obtained through open coding analysis followed by structural analysis to obtain the core-peripheral structure (central core and periphery) as well as the similarity tree of the referred social representation. The focus in Brazil lies on the very fact that the country has been significantly affected by the COVID-19 pandemic, with a high number of casualties and an alarming economic crisis [24]. In addition, Brazil is a prominent emerging market, being one of the members of the BRICS and playing an important role in the global food supply and world environmental preservation. Furthermore, Brazil has faced intense political polarization of "left" versus "right" [19] since the 2013 protests—also known as the "20 centavos movement" [25]—and the impeachment of former President Dilma Roussef after the worsening of the economy combined with a political destabilization resulting from a major corruption scandal revealed by the Lava Jato operation from 2014 onward [26,27]. This ongoing polarization in Brazil has unleashed activism and radicalism between members of the left and right political orientations [28]. The election of President Bolsonaro in 2018 was "seen as a facet of the global trend towards a form of authoritarian populism" [29], as well as the result of widespread popular dissatisfaction with the traditional Brazilian political model that preceded these elections [29,30].

2. Literature Review

This study is the second round on the perception of Brazilian citizens about the COVID-19 pandemic obtained via Social Representation Theory. In other words, this is a replication study [31]. In the first investigation held in mid-2020, we gathered the Brazilian society's impressions on the pandemic [14]. Now, in this research, we aim to update the former study by taking into account the significant changes in the COVID-19 pandemic scenario, namely the evolution of the disease throughout time and the implementation of public policies related to the arrival of COVID-19 vaccines in January 2021.

Indeed, understanding the COVID-19 pandemic is still a work in progress due to the extent of the phenomenon and its continued spread. Therefore, the use of Social Representation Theory becomes a reliable and comprehensive way of tracking the evolution

of society's perceptions of the pandemic in order to better understand and define the COVID-19 pandemic's construct.

Constructs are not just simple observations but also abstract statements of categories of observations [32]. Thus, proposing the definition of a construct is paramount for its clarity, as in this way, its essential properties and characteristics are captured and shared in a consensual way [33]. Indeed, constructs are the bedrock of any theory [33–35]. To accomplish this, we present a review of the main issues related to this investigation, namely Social Representation Theory, the Central Nucleus Theory, and the Brazilian context associated with the COVID-19 pandemic, as shown below.

2.1. Social Representation Theory

Social representations investigate individuals' perceptions about a given social phenomenon, enabling the overall understanding of how social identity is formed [36]. In this study, we seek to understand how society perceives the COVID-19 pandemic in Brazil. Social representation is a growing field, attracting new researchers from Europe, South America, Australasia, and the US over the past few decades [37]. Serge Moscovici, the founder of SRT, claims that it is pivotal to ask what the aim of the scientific community is: "Is it to support or to criticize the social order? Is it to consolidate it or transform it?" ([38], p. 23). This way, this widely applied theory—rooted in the psychoanalysis field—disentangles the links between psychology and contemporary social and cultural questions or problems by means of a "practical engagement" approach [13].

SRT is a theory of social change and social knowledge that comprises and defines the reality experienced by a social group, setting its boundaries, meanings, and relationships [13,39–41]. In other words, social representations are the common-sense knowledge about the social reality that is shared by a group [42]. Social representations also influence our actions and social practices [13,43]. As such, social representations reveal the fear of the new or strange and the motivation to transform something threatening and challenging to understand into something familiar and comforting [44]. In this way, SRT has arisen to make the unknown familiar [38]. As has been said, "the relationship between social representations, symbolic systems, practices and sensemaking is a circular process of co-construction and elaboration developing along a time axis, in the constant tension between individual and collective, through the communication processes" ([45], p. 58).

Moreover, SRT allows the understanding and organization of reality at the societal level [46]. According to Moscovici [13], the emergence of social representation always coincides with the emergence of an unprecedented situation, an unknown phenomenon, or an unusual event [47]. This way, contemporary social issues such as gender [48], AIDS [49], social media in government [50], or smart cities [47] can be better understood and conceptualized through the lens of SRT. In addition, social representations can be considered "thoughts in movement", constantly changing through communication [43].

The unpredictability of the COVID-19 pandemic generated a new social phenomenon already analyzed in the Brazilian context [14]. About a year later, SRT was used again to develop a new social representation of the COVID-19 pandemic according to Brazilian society. The objective was to obtain the dynamics of the perception of Brazilian society on this subject, which is the focus of this work.

Central Nucleus Theory

Drawing on both Moscovici's theory [38] and Asch's [51] work on social perception, Abric and Flament proposed an approach called Central Nucleus Theory (CNT) [52,53]. CNT contributes to enlightening some fundamental socio-cognitive logics to the organization of social representations [54]. The theory draws on statistical procedures and a structural approach to distinguish central and peripheral elements in a representational state [55], as explained below.

Abric [53] argues that any social representation of a construct can be obtained through the words evoked by people when confronted with it. In this way, all social representation

can be organized around a central nucleus, which determines its meaning, determines its structure, and strongly links it to the collective memory and history of a social group. Therefore, the central core is constituted by the fundamental meanings that give identity to the social representation. This core comprises the words with the highest frequency of evocation, which are thus perceived as the most important for understanding the focused concept [56]. In this way, this kernel represents the permanent and stable part of social representation [57]. Another part of social representation is called the peripheral system, comprising schemas that are subject to variations, depending on the conditions in which they operate [58]. This constitutes the flexible part of the structure—not necessarily shared within the group—with one of its functions being to protect the central nucleus against contradictions [59,60]. The dynamism of social representations is therefore produced by the peripheral system [61]. Table 1 presents the main characteristics of the central nucleus and peripheral system of social representation.

Table 1. Central nucleus vs. peripheral system. Adapted from Abric [59].

Central Nucleus	Peripheral System
Linked to collective memory and group history	Integrates individual experiences and stories
Defines the homogeneity of the group	Tolerates group heterogeneity
Stable, consistent, rigid, change-resistant	Flexible, allows contradictions, evolutionary
Less sensitive to the immediate context	More sensitive to the immediate context
Generates the meaning of the representation, determines one's organization	Allows adaptation to concrete reality, protects the central core

Social representation can be organized in a graphic scheme for easy visualization, namely the Vergès' quadrant (see Figure 1), a frame within which the evoked words are organized into four quadrants that allow analysis of the social representation [53,62]. The first quadrant is the central nucleus. The second quadrant, also named the first periphery, refers to words with high frequencies of evocation, although they do not have high degrees of importance [63]. The third quadrant or zone of contrast comprises words cited less but with higher rankings [63], including elements that might be relevant to specific groups or minorities [64]. Finally, the fourth quadrant, also known as the second periphery or peripheral system, has a remote link with the central nucleus [65], as their elements have a lower degree of importance and lower frequency of evocation [63]. While the central nucleus is essentially normative, rigid, and prescriptive, the peripheral system is adaptable, flexible, and determined by the context characteristics in such a way that without it, the representation would not reflect the reality of the moment [59].

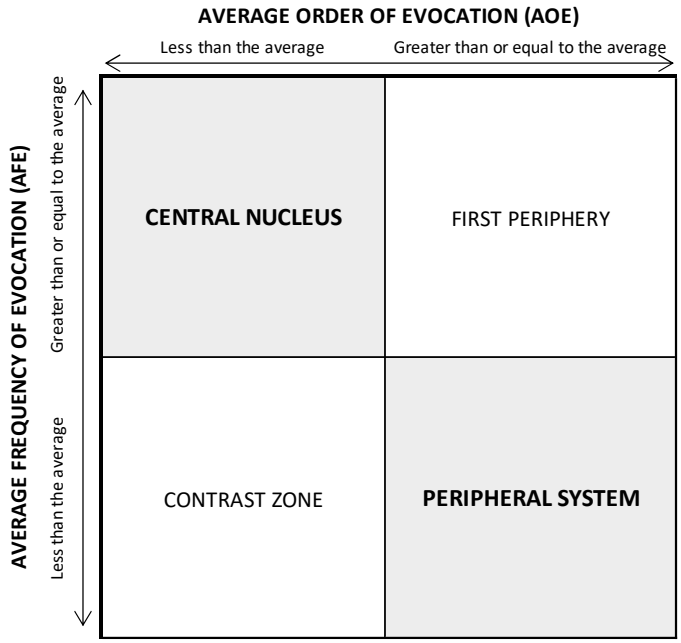

Figure 1. Vergès' four-quadrant technique. Adapted from Joia and Marchisotti [66].

2.2. COVID-19 Pandemic: The Brazilian Context

The COVID-19 surge was first identified as mysterious pneumonia in Wuhan, China in November 2019, and on 11 March 2020, it was declared a pandemic by the World Health Organization [6]. In Brazil, the pandemic cases started a few days after the Carnival of 2020, a massive and popular celebration that lasts 5 days and unites thousands of people in the streets, including locals and tourists from all over the world. The federal government tried to restrict some celebrations with the state of emergency enacted on 3 February 2020 [67] and decreed Law 13.979/2020 on 6 February 2020, which prescribed measures to deal with the public health emergency [68]. Nevertheless, the first case was confirmed on 26 February 2020 [69], with the first death occurring on 17 March 2020 [70]. The COVID-19 arrival was quickly followed by disagreements between the Ministry of Health and the federal government, reflecting the country's polarization regarding preventative measures and the disease's severity [70]. Brazilian President Bolsonaro was deeply criticized by one part of the population for the way he dealt with the crisis, such as calling it a "little flu" in April 2020 [71]. Since then, Brazil has had four health ministers, including an army general between May 2020 and March 2021 [72].

To face the challenges imposed by the virus, the World Health Organization (WHO) recommended public health actions, such as social distancing. In that context, questions about the adequate strategy to face the pandemic emerged, especially whether Brazil should follow "vertical isolation" or "horizontal isolation" [14]. In other words, there was a fierce debate between the defenders of a utilitarian and universalist approach in dealing with the pandemic [14]. According to Joia and Michelotto [14], at the beginning of the pandemic, the universalist paradigm triumphed over the utilitarian one, with Brazilian society associating the pandemic primarily with health issues rather than economic ones.

The COVID-19 pandemic's second wave emerged at the beginning of 2021, with an explosive number of cases across different country regions which put tremendous pressure on the already strained health system [73]. Manaus, the capital of the state of Amazonas with approximately 2.2 million habitants, was badly hit by both waves of COVID-19, with more than 10,000 severe acute respiratory syndrome deaths by the end of February 2021 [74]. The explosion of cases and mortality in Manaus revealed the severity of the crisis in the contexts of heavy social inequality and weak effectiveness of government policies [75], putting aside the idea of herd immunity [76]. At that time, the government of Amazonas was accused of embezzling public money intended to combat the pandemic [77].

On 17 January 2020, Anvisa (the Brazilian Health Regulatory Agency) authorized the emergency use of Coronavac and the Oxford University and AstraZeneca vaccines against COVID-19, and the first person in Brazil got vaccinated [78]. In April 2021, a parliamentary commission of inquiry was set up in the Brazilian Senate to investigate the federal government's response to the pandemic. In October 2021, senators recommended criminal charges against President Bolsonaro and others over COVID-19's handling [79].

The debates surrounding lockdowns persisted over the year 2021. There is a growing divide in political responses and public perceptions across political and ideological lines, specifically between President Bolsonaro's supporters and critics, which seems to be the new axis of polarization in the country [80]. Political polarization has been increasing since the impeachment of President Dilma Roussef in 2016 [19], reaching its peak in the 2018 presidential elections [81]. According to Hart et al. [16], the high degree of politicization in the initial media coverage may have contributed to the polarization of attitudes toward COVID-19, as observed later [16].

As of December 2021, more than 600,000 people have died in Brazil due to the virus [82], representing 0.28% of the 212.6 million population [83]. Additionally, at that time, the share of the population that had been fully vaccinated against COVID-19 was approximately 63%, and 77% had received at least one dose [84].

Finally, Brazil faces serious problems of inequality and poverty, what with not offering universal access to education, health, and sanitation [85], issues that were exacerbated by the COVID-19 pandemic. Moreover, "even before the crisis, the world was off track to ensuring healthcare for everybody by 2030" [8], which calls into question the future of the implementation of the Sustainable Development Goals (SDG) in Brazil in due course.

3. Methodological Procedure

This is a replication study [31], as was already said. "A replication study assesses whether the results of a particular prior study can be reproduced, including in new contexts with different data" [86]. Thus, replication studies are critical for building a cumulative body of research knowledge [86]. A high-quality replication moves in stages [86]. In this way, in this research, we want to understand whether (and how) Brazilian society's perception about the COVID-19 pandemic evolved over time. To accomplish this, in this work, we kept the same theoretical foundation and methodological procedure used in a previous study on the perception of Brazilian society concerning the COVID-19 pandemic [14] while only changing the time frame, as this research was carried out in mid-2021, almost a year after the previous study. Therefore, our main interest is to verify how the perception of Brazilian society about COVID-19 has evolved over time (i.e., its dynamics).

Tsang and Kwan [31] proposed a taxonomy for replication studies, which was adapted by Dau et al. [87], to make the proposed categories more intuitive. According to Tsang and Kwan [31], we adopted an exact replication named direct replication by Schmidt [88], Walker et al. [89], and Dau et al. [87]. The purpose of this replication is to keep the contingent conditions as similar as possible to those of a previous study. In our case, we adopted the same theoretical basis and methodological procedure used in the aforementioned previous study, collecting data from another sample of the same population after a period of time. As the samples of both studies were very large, we used the central limit theorem of statistics [90] to infer that both samples had equivalent statistics. In this form, we could consider that time was the changed sensitivity variable in our replication study, enabling the dynamic analysis of the evolution of Brazilian society's perception of the meaning of the COVID-19 pandemic.

As this research followed the same methodology used in the previous study conducted by Joia and Michelotto [14], we were able to compare and discuss the results of both studies. A qualitative-quantitative approach was thus used in this work, with the following techniques employed to catch the social representation in the questionnaire: the free words evocation and the Vergès' quadrant techniques. We used also implicative and content analyses to confirm (or not) the results obtained [52,57,62].

Data collection occurred from 10 July to 15 August 2021 by means of an online questionnaire sent mostly via direct messages on social networks, such as WhatsApp and LinkedIn. The questionnaire had two parts to collect: (1) the words evoked and ancillary information about the COVID-19 pandemic to be compared to the year before and (2) the respondents' sociodemographic profiles, such as age, gender, educational background, and political preference. The final sample included 382 participants who fully responded to the questionnaire. Additionally, two specialists in Social Representation Theory validated the questionnaire before it was applied. The complete questionnaire (translated from Portuguese to English) is available in the "Supplementary Materials" section.

The word evocation technique consists of collecting responses from people when they are asked to list the five words that immediately come to mind when faced with an expression [57,66] (in this case, "COVID-19 pandemic"). The evoked words were then grouped into semantic categories according to their similarities in meaning by two researchers separately to avoid errors in the categorization process.

This first categorization process was held in a spreadsheet. The words were listed in alphabetical order after spelling and grammar corrections and by using just one version for each word, usually the most cited one (e.g., politics, political, or politicized). Then, we tried to allocate the words into the 18 major categories that were determined in the 2020 study [14] according to their semantics. To comply with the social representation technique, the respondents had to assign a hierarchical order of importance to the evoked words. This allowed the calculation of the necessary variables for the categories to compose the central nucleus, namely their frequency of evocation and average order of evocation [61]. Accordingly, the ensuing step was to organize the categories into the Vergès' quadrant.

The Vergès quadrant determines the central nucleus and the peripheral system, as it crosses the evocation frequencies of the categories with their average orders of evocation [91]. The upper left quadrant (central core) houses the most important perceptions of the group, which are characterized by their permanent and immutable nature [92]. The upper right quadrant (first periphery) and the lower left quadrant (contrast zone) point out an ancillary interpretation of the social representation, having a close connection to the core, whereas the lower right quadrant (second periphery or peripheral system) has a distant connection to the central core [93]. Therefore, for the construction of the four squares of the Vergès' quadrant, we needed to calculate the average frequency of evocation (AFE) and the mean value of the average order of evocation (AOE) so that we could arrange the words correctly in each of the four quadrants [57,94]. The calculation of the AFE involved verifying the sum of the citations of each category mentioned and furthermore checking the median frequency of the entire list of categories, which would determine the cutoff point for the categories to join the quadrant. In particular, those having a frequency of evocation equal to or above the median were placed in the Vergès' quadrant. The same method was used to determine the AOE; the calculation of the mean value of the AOE was held by means of the weighted average of the AOE of each category in order to identify the optimal point for the distribution of the categories into the quadrants [91,94]. The decision of which category to place in each quadrant depended on its frequency and average order of evocation, as detailed in Figure 1.

Then, we performed an implicative analysis to confirm the Vergès' quadrant obtained. First, using the Iramuteq software (Iramuteq is textual analysis software which works anchored to the R statistical program [95].) with the same evocation file that we applied to compose the Vergès quadrant, we obtained a similarity tree. Then, through this tree, we evaluated the level of connection of the evoked words through the levels of connectivity between the categories [60,96]. Finally, we used an open-ended question, in which the respondents freely answered the reasons for the five words evoked to generate a word cloud. This allowed a direct and organized visualization of the importance of the words according to their evocation frequencies, with this importance being depicted through the font size [14].

4. Results

In this section, the results are depicted in a concise and objective manner. First, we present the characteristics of the sample, as well as the Vergès' quadrant, similitude tree, and word cloud. Then, we compare the results obtained with the ones obtained in the former study [14].

4.1. Sample

The dataset comprised a total of 1910 observations collected from 382 individuals through an online questionnaire sent mainly via direct messages made available on social networks, namely WhatsApp and LinkedIn. Some observations were not able to be considered in any category due to the use of meaningless words or expressions that did not fit to the theme. Thus, the final number of evocations used was 1855. The demographic characteristics of the respondents are shown in Table 2. Of the 382 respondents, 53% were female, and 47% were male. The average age was 46.6 years old. Concerning education, 67% had a graduate degree or higher, 26% had a college degree, and 7% graduated from high school. According to the religious profile, the majority (48%) were Catholic, the major religion in the country [97]. Considering political preference, 39% declared right or center-right, and 31% declared left or center-left. In terms of the professional profile, 84% of the professionals did not work in anything related to COVID-19. As for the geographic location, from the 27 Brazilian states, there were respondents from 19 states, but the majority (47%) were from Rio de Janeiro. São Paulo and Rio de Janeiro are the states with the largest populations in Brazil [97].

Table 2. Characteristics of the sample.

Sample Summary Profile	
Total participants	382
Gender	53% female, 47% male
Average age	46.6 years old
Education	67% MBA, MSc, or PhD, 26% university or college, 7% high school
Religion	48% Catholic, 15% spiritist, 13% agnostic or atheist, 9% Protestant
Political preference	39% right or center-right, 10% center, 31% center-left or left
Professional profile	84% not related to COVID-19, 10% medical or government related to COVID-19, 7% academic related to COVID-19
# Brazilian states	19 total: 47% Rio de Janeiro, 20% Bahia, 17% São Paulo, 16% Other

4.2. The Vergès' Quadrant

To properly design the Vergès' quadrant, a preliminary step was performed to determine the categories' frequencies of evocation and average orders of evocation. We first used a spreadsheet to rank the frequency of evocation of the categories, as detailed in Table 3, and then used the Excel software to proceed with the calculations. In this work, in comparison with the previous study undertaken [14], a new category—"vaccine"—was included, due to its frequency of evocation.

The social representation of the COVID-19 pandemic comprises the categories that presented frequencies equal to or higher than the median frequency of evocation of 87 (cut-off). Hence, 9 categories fulfilled this condition, namely politics and government (294), social distancing (185), health and prophylaxis (162), death (136), fear (130), changes and new normal (115), vaccine (114), sadness (110), and negative feelings (91). Furthermore, to allocate the categories within the Vergès' quadrant, we used the categories' average order of evocation (AOE). Thus, categories with AOEs lower than 3.06 were placed in the left quadrants, while the ones with AOEs equal to or higher than 3.06 were located in the right quadrants (see Figure 2). The four quadrants were then determined by the median of the

frequency of the 9 categories found in the social representation, which equaled 130. Thus, categories with smaller frequencies (91–115) were placed in the lower quadrants, and those with higher frequencies (130–294) were located in the upper quadrants. Excel software was used to analyze the data and provide the calculations.

Table 3. Frequency and average order of evocation.

	1st Evoc	2nd Evoc	3rd Evoc	4th Evoc	5th Evoc	Frequency	
	*f*1	*f*2	*f*3	*f*4	*f*5	∑*f*	AOE
Politics and Government	60	52	56	64	62	294	3.05
Social Distancing	46	44	36	37	22	185	2.70
Health and Prophylaxis	29	35	31	32	35	162	3.06
Death	42	37	26	10	21	136	2.49
Fear	58	22	21	15	14	130	2.27
Changes and New Normal	12	26	17	34	26	115	3.31
Vaccine	25	13	26	30	20	114	3.06
Sadness	7	30	23	29	21	110	3.25
Negative Feelings	17	22	18	12	22	91	3.00
Anxiety and Preoccupation	19	17	19	14	13	82	2.82
Economy and Employment	8	12	24	20	16	80	3.30
Disease	17	15	20	12	7	71	2.68
Health Care System and Cure	5	12	13	23	18	71	3.52
Hope and Positivity	2	4	13	20	32	71	4.07
Information and Media	6	13	9	14	16	58	3.36
Uncertainty	13	13	13	6	10	55	2.76
Family and People	2	3	5	3	8	21	3.57
Faith and Spirituality	2		3	1	3	9	3.33
					median	87	3.06

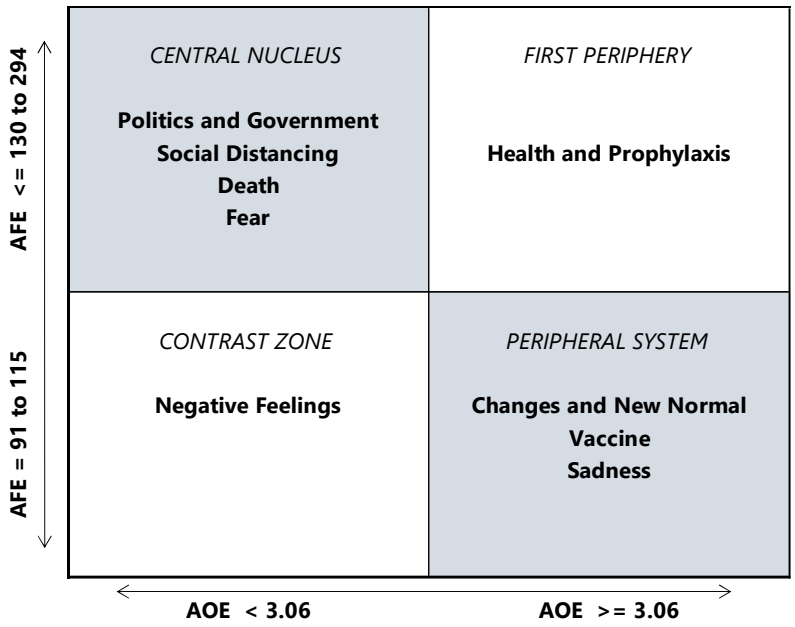

Figure 2. COVID-19 Vergès' quadrant.

Politics and government, social distancing, death, and fear comprised the central nucleus, representing the core perceptions of the respondents on the pandemic, while the peripheral system was composed of changes and new normal, vaccine, and sadness.

4.3. Similitude Tree

Similitude analysis was then developed using Iramuteq software to measure the associations and connectivity levels between the categories. The similitude tree (Figure 3) was generated with the nine categories that reached the minimum value to be in the quadrants. The main categories with greater relevance in the number of co-occurrences (connections), edges (lines), and frequency (circle size) were politics and government, social distancing, death, and health and prophylaxis. Vaccine, the new category, was featured as a link between the two most important categories: politics and government and social distancing.

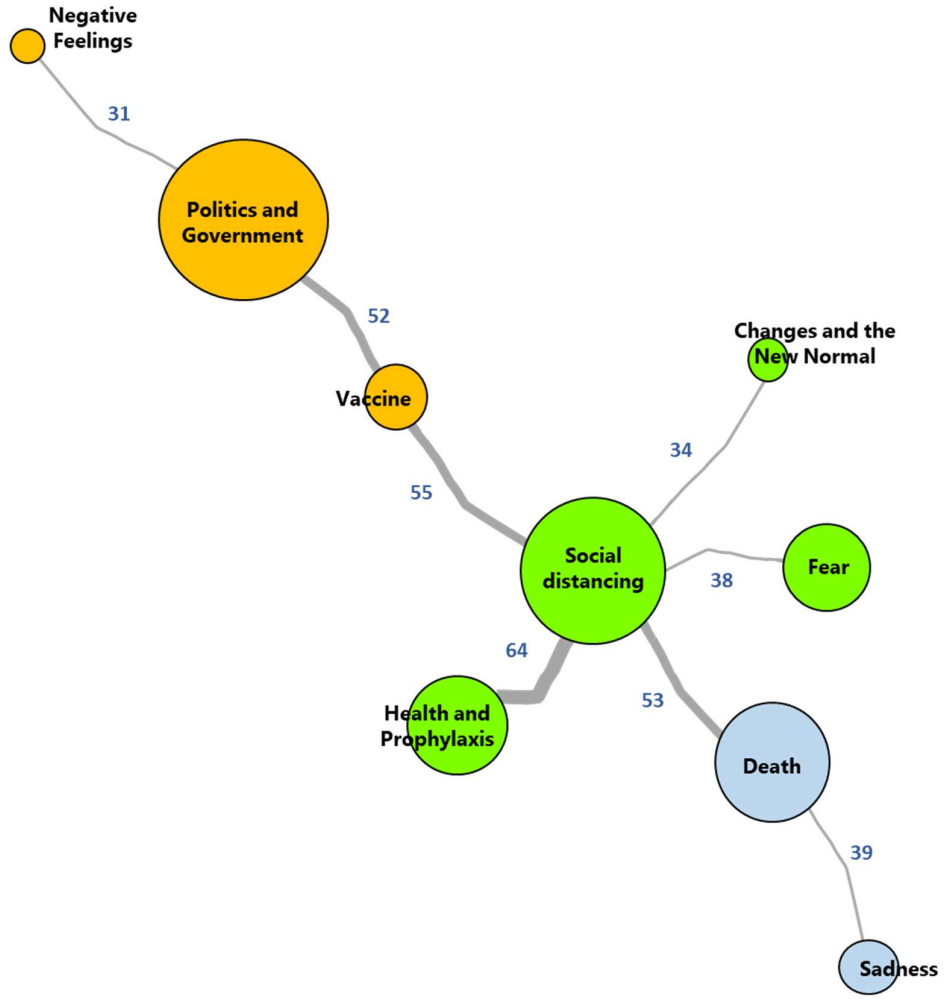

Figure 3. Similitude tree of the COVID-19 pandemic.

4.4. Word Cloud

Content analysis was performed to confirm the results by means of methodological triangulation [98]. After the five words evoked, the respondents answered the following question: "Why did you choose those five words?" The textual corpus with their answers was applied to build a word cloud (see Figure 4), in which the words that were cited more often in the respondents' explanations were presented according to the font size in the graphical scheme. The word cloud was built on Wordclouds.com (accessed on 21 January 2022).

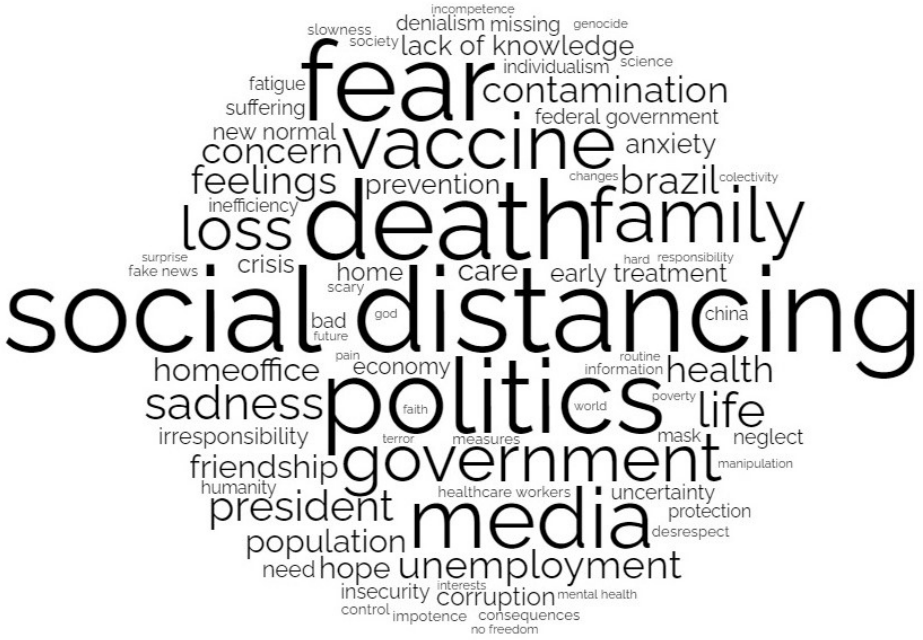

Figure 4. Word cloud related to COVID-19 pandemic.

In this way, social distance, death, fear, politics, government, and vaccine were in the top list, confirming the results found via Verges' quadrant (Figure 2). In addition, family, media, and loss also featured heavily in the responses. Figure 4 contains all the words that appeared at least five times in the sentences.

4.5. COVID-19 Social Representation (2021)

In the COVID-19 social representation developed in 2021, one year after the first study developed on this issue [14], the category "vaccine" stood out because of its considerable frequency demonstrated by the evocation technique. Indeed, in addition to being close to the limit of the AFE and the mean value of the AOE, this category was also highlighted by the similitude tree and content analysis. As such, vaccine was moved from the peripheral system to the contrast zone [93], thereby leading to the final social representation of the COVID-19 pandemic in 2021, as presented in Figure 5. This representation indicates that one specific group viewed vaccines as closely linked to the COVID-19 pandemic.

4.6. Longitudinal Comparison

The 2021 social representation of COVID-19 was structured around fear and death, which represented the shared emotions that revolved around the risk of contagion and its possible consequences. Moreover, politics and government and social distancing were also in the central nucleus of the social representation. Alongside these elements that comprised the central nucleus, the representation was enriched with further terms located in the near peripheries shared by certain subgroups and related to their daily situation of quarantine and knowledge about the virus. These categories were negative feelings, vaccine, health and prophylaxis, changes and new normal, and sadness.

Table 4 shows the comparison between the social representation of the COVID-19 pandemic in 2020 (see [14]) and in 2021 via this work. Politics and government moved from the first periphery to the central nucleus, and death moved from the contrast zone to the central nucleus, showing that these two elements became more important over time. Social distancing was in the central nucleus in both years, but in the open questions, we observed that its meaning changed a little. In 2020, the concept was more related to a concern with contagion, more specifically isolation and lockdowns. One year later, most people seemed tired of the social distancing rules and associated them with negative feelings (which ended up being positioned in the contrast zone in 2021), such as feeling

alone and isolated or not having the freedom of coming and going. Fear was another category that in both 2020 and 2021 remained in the central nucleus, as people seemed to remain concerned about being infected or infecting relatives, especially the elderly. With ongoing vaccination, the discussion about vaccines has become paramount, which made it appear in the contrast zone. In particular, there was a group of respondents that gave great importance to vaccination and very much associated it with the COVID-19 pandemic. In addition, changes and new normal maintained its position at the peripheral system in both years. Finally, economy and employment, which was at the peripheral system in 2020, left the social representation of the COVID-19 pandemic; in other words, it seems that people have not directly linked the economic crisis to the pandemic.

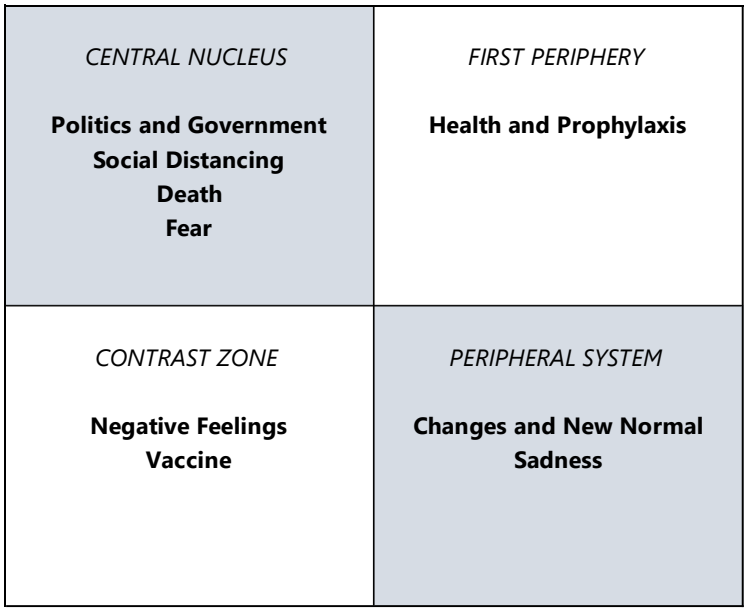

Figure 5. Social representation of COVID-19 pandemic (2021).

Table 4. Social representation of COVID-19 pandemic in 2020 and 2021.

Longitudinal Comparison		
Categories	**2020**	**2021**
Politics and Government	First Periphery	Central Nucleus
Social Distancing	Central Nucleus	Central Nucleus
Death	Contrast Zone	Central Nucleus
Fear	Central Nucleus	Central Nucleus
Health and Prophylaxis	Central Nucleus	First Periphery
Negative Feelings	-	Contrast Zone
Vaccine	-	Contrast Zone
Changes and New Normal	Peripheral System	Peripheral System
Sadness	-	Peripheral System
Economy and Employment	Peripheral System	-

5. Discussion

Sensemaking or "meaning making" was a concept introduced in organizational studies by Karl Weick in the 1970s [99]. Weick ([100], as cited by Whittle and Mueller ([101], p. 6) defined it as "the process by which people interpret themselves and the world around them through production of meaning". It reflects the concern with identity in the social

context and involves the rationalization and justification of actions [3,102,103]. As can be seen from the Vergès' quadrant (Figure 2) and the longitudinal comparison (Table 4), the main findings regarding sensemaking of the COVID-19 pandemic in Brazil are detailed as follows:

1. COVID-19 pandemic as a political issue: Our study suggests that COVID-19 has been a highly politicized issue in Brazil. The COVID-19 pandemic is intrinsically linked with politics and puts governments worldwide under pressure to react quickly [104]. Via the Brazilian social representation of the COVID-19 pandemic, we observed two opposite political discourses. Words such as "China", "globalism", "communism", and "fraud" versus words such as "Bolsonaro", "genocide", and "denialism" evidence the political bias of the debate. Moreover, we observed significant heterogeneity in Brazilian government approval by respondents during the COVID-19 crisis. Regrettably, that scenario is supposed to worsen, as Brazil will hold presidential elections in 2022.
2. COVID-19 vaccine as a strongly polarized issue: Although we observed in the past years vaccine hesitancy around the world [105], which was especially strengthened by partisanship during the current pandemic [106], Brazil has long had successful vaccination campaigns, with expressive population adherence [107]. In the open sentences, we observed two opposite views on the vaccines. A first group believed vaccines saved lives and celebrated SUS (*Sistema Único de Saúde* (in Portuguese, which is the Brazilian public health system) and the beginning of vaccination. Conversely, a second group has been resistant to vaccination. There are some reasons for that, such as (1) the very fact that the vaccines were approved in a considerably short period of trials and development compared with other vaccines under the so-called "emergency basis" approval and (2) concerns about requirements imposed by Big Pharma related to accountability and liability for possible adverse effects from their vaccines. That scenario seems to be different from what has happened in countries such the US, where the anti-COVID19 vaccine movement seems to be linked to citizens who have usually been positioned against other types of vaccines over the years [108]. This is in contrast with Brazil's previous successful experiences with mass vaccination campaigns [109].
3. People are tired of feeling alone: Since the beginning of the pandemic, we have observed an ideological divide related to the acceptance of social distancing measures. According to Rothgerber et al. [17], political conservatism has sought to challenge behaviors aimed at preventing the spread of COVID-19. Nevertheless, social distancing appeared in the central core in both years (2020 and 2021). In 2020, the responses seemed to be related to social isolation, as people were concerned about the spread of the virus and the consequences of getting sick. As of 2021, we observed that people were having negative feelings such as anxiety and tiredness as a consequence of having to be isolated for so long. Finally, issues related to the loss of freedom were also noticed in the open questions.
4. COVID-19 has not been directly associated with its economic consequences: The pandemic had a huge impact on the economy, similar to the Great Recession of 2008 [110]. The consequences of this will likely last until the economy recovers, reaching mainly the poorest people. However, the category economy and employment, which was in the peripheral system (in 2020), disappeared from the Verges' quadrant (in 2021). This fact suggests that Brazilians have not directly linked the pandemic to an ensuing economic recession, which is a problem to be further investigated.
5. Back to the old normal: Changes and the new normal positioned itself in the peripheral system in both years, showing that this category is not so relevant as was previously thought. Thus, people do not perceive substantial future changes in their lives, opposite to some predictions that had pointed to a new way of life (or "new normal") in a pandemic and post-pandemic world [111,112]. Thus, although the digital transformation of Brazilian society has been predicted by some scholars [113]

and consultancies [114,115], it seems that people do not necessarily see these changes coming yet.

6. People are still fearing death; however, health is out: Fear and death were at the central nucleus. However, health and prophylaxis moved from the central nucleus to the first periphery from 2020 to 2021; that is, expressions such as "mask", "health care", "health", "prevention", and "protection" were considered less relevant in 2021 (according to the order of evocation). In fact, people seemed to be afraid, especially in relation to the high death tolls in the previous year [24]. However, we observed relaxation in health protocols, since the population is already vaccinated and tired of prevention protocols.
7. The role of media during the COVID-19 global outbreak: Finally, media played a critical role in informing and shaping the public's perception of the pandemic [19,116]. According to Zhang [117], politics defeated science in the journalistic coverage of the COVID-19 pandemic. The information and media category was not in the social representation of the COVID-19 pandemic. However, words such as "media" and "fake news" were frequently mentioned in the open-ended questions about the reasons for evoking the five words or expressions. Some of the respondents shared that they no longer trusted traditional media. In fact, with the rise of the internet and cell phones, people can now access information from anywhere directly from government sources, official bodies, scientific communities, and social media. The danger of this lies in the potential proliferation of fake news, with some naming this pandemic a "disinformation pandemic" [118].
8. People do not associate the COVID-19 pandemic with sustainability: People have not associated the COVID-19 pandemic with sustainability, although scientists have warned for years that unrestricted deforestation could trigger an uncontrollable pandemic [11]. For example, "sustainability" and "environmental impact" were mentioned only once each by the respondents. In short, more attention has been paid to issues associated with public health and policy than sustainability issues and environmental degradation. Finally, the COVID-19 pandemic has triggered rapid action on the part of governments, but so far, the challenges associated with sustainability have not generated the necessary actions [10].

6. Conclusions

Using Social Representation Theory as a primary lens, we investigated the COVID-19 pandemic in Brazil. Data were extracted from the word evocation technique, involving a group of Brazilian citizens at two different times to ascertain the understanding of the pandemic over time. The study revealed that the social representation of the COVID-19 pandemic in 2021 was closely linked to politics and government, social distancing, death, and fear. Adida et al. [23] emphasized that diseases and disease responses are always politicized, which often leads to unpredictable political consequences. Surprisingly, neither the foreseen new normal nor economic issues were as important as expected in the 2020 and 2021 studies. Aside from that, sustainability issues were totally neglected by Brazilian society in both studies.

This work is intended to have three main contributions. First, it investigated and compared the same social representation in two different moments via a longitudinal study. Second, it contributed to public policies by allowing the interpretation of COVID-19 social representations to properly address attitudes and effective communication toward prevention and protection policies. Living through an event such as a pandemic can be a traumatic experience for individuals, thereby affecting people's risk perception [119]. Consequently, as individuals represent and assess risk and its consequences differently, governments' actions and communication shall be carefully designed. Third, as a managerial contribution, we can mention that the scenario predicted by different companies regarding the emergence of a "new normal" and the establishment of an accelerated digital transformation in Brazil is more of a possibility than a certainty in the country.

In addition, this study aims to contribute to the conceptualization of a complex phenomenon that has impacted the world population. Thus, when studying an emerging country as affected by the pandemic as Brazil, we intend to broaden the academic perspective on the subject, offering perspectives from the Global South instead of just mimicking without question the actions and public policies proposed by developed countries for this issue.

As with all research, this study has some limitations. First, although the grouping of the evoked words was performed by two researchers, the process of categorizing the words can bring some interpretation biases, which we sought to mitigate by applying implicative and content analyses. Second, the research carried out did not cover all socioeconomic sectors and states in Brazil; the lowest income class and those with less education were not properly represented in the sample. Finally, this second survey had a smaller sample than the first, probably due to the fact that in 2021, some people were returning to their professional and social activities, in contrast to the lockdown scenario that the country had to face in 2020 when the first study was carried out.

In conclusion, this research sought to contribute to a better understanding of how a large emerging country severely affected by the pandemic, such as Brazil, made sense of it. This pandemic in Brazil has undoubtedly been highly politicized from its inception by politicians and the media. At the time of writing this conclusion, the pandemic is still ongoing, with new variants emerging in different countries, new rounds of vaccines being needed, and new cases of vaccinated and unvaccinated people having COVID-19. In this way, complex decision-making processes are necessary, especially with regard to vaccination, social distancing, the use of masks, and vaccination passports. This study sheds light on the conceptualization and organization of some of these complex issues, hoping to help governments and society get through these difficult times.

Finally, we also propose that more longitudinal studies using social representation can be carried out to monitor and deepen the evolution of the perception of the COVID-19 pandemic so that better public health policies can be proposed and a greater awareness of the importance of sustainability can be attained.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su141710527/s1, COVID-19 Social Representation Theory 2021 Questionnaire.

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