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SWOT ANALYSIS OF THE COVID-19 PANDEMIC IN BRAZIL: A SYSTEMATIC REVIEW

ANÁLISE SWOT DA PANDÊMICA COVID-19 NO BRASIL: UMA REVISÃO SISTEMÁTICA

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Antonio Carlos Franco
francoancf@hotmail.com
http://orcid.org/0000-0003-1616-2648
Universidade Estadual de Maringá
Mestrado em Bionergia pela Universidade Estadual de Maringá e Engenheiro Mecânico pela Universidade Positivo.

Luciane Silva Franco
lu05-franco@hotmail.com
http://orcid.org/0000-0003-1913-9275
Federal University of Technology - Parana (UTFPR).
Postgraduate Program in Industrial Engineering (PPGEP).

Abstract
Coronavirus is a family of viruses that has resulted in a worldwide pandemic. Covid-19 appeared in the city of Wuhan in China and reached Brazil. In European territory, Spain and Italy were the first countries affected, before the entire continent. The progression of the COVID-19 circulation continues in several areas. The COVID-19 pandemic has had an unprecedented impact on the lives of many people. This study aims to understand the strengths and weaknesses, opportunities and threats related to the current epidemic of COVID-19 in Brazil in the development of strategies for the prevention and control of the new coronavirus. This is a scenario study of the COVID-19 epidemic in Brazil using the SWOT matrix analysis instruments. In the research method, a systematic literature review was carried out, using the Web of Science, Science Direct and Scopus databases, which resulted in the complete analysis of 17 articles. The conclusions for theory, practice and society point out the strengths, weaknesses, opportunities and threats considering the particular context. This analysis allows a holistic assessment of the problem and can contribute to the development and direction of strategies for the prevention and control of the disease.
Key-words: Pandemic; Coronavirus; SARS-CoV-2; SWOT Matrix

Resumo
Coronavirus é uma família de vírus que resultou em uma pandemia mundial. A Covid-19 surgiu na cidade de Wuhan na China e chegou ao Brasil. Em território europeu, Espanha e Itália foram os primeiros países afetados, antes de todo o continente. A progressão da

circulação COVID-19 continua em várias áreas. A pandemia COVID-19 teve um impacto sem precedentes na vida de muitas pessoas. Este é um estudo de cenário da epidemia de COVID-19 no Brasil utilizando os instrumentos de análise de matriz SWOT. Foi realizada uma revisão sistemática da literatura, nas bases de dados Web of Science, Science Direct e Scopus, que resultou na análise completa de 17 artigos. Os resultados apontam os pontos fortes, fracos, oportunidades e ameaças considerando o contexto particular. Essa análise permite uma avaliação holística do problema e pode contribuir para o desenvolvimento e direcionamento de estratégias de prevenção e controle da doença.
Palavras-chave: Pandemia; Coronavírus; SARS-CoV-2; Matriz SWOT

1. Introduction

Coronaviruses belong to a family of respiratory viruses (Coronaviridae) and are often associated with one of the causes of the common cold. The first reports of its manifestation in humans date from the mid-1960s, however, in recent decades, they have been linked to more severe outbreaks with high lethality such as the 2002 Severe Acute Respiratory Syndrome (SARS) that emerged in Hong Kong, China (lethality ~10%) and the Middle East Respiratory Syndrome (MERS) of 2012 occurred in Saudi Arabia, whose lethality reached a level of ~30% (Bastos, Morato, Cajueiro, & Normey-Rico, 2021).

At the end of 2019, a new coronavirus, called SARS-CoV-2, appeared in Wuhan China, causing an epidemic of acute respiratory syndrome in humans, called COVID-19 (*Coronavírus Disease* 2019) (Rosa, Silva, Pacheco, Diogenes, Millett, Gadelha, & Santos, 2021). Confirmation of the circulation of the new coronavirus and the first sequence of SARS-CoV-2 was published by Chinese researchers in February 2020. At the end of the same month, the United States reported its first case and, subsequently, several countries such as Canada, Australia, Italy, Ecuador, Spain and Brazil confirm the virus has been imported. In 2020 in Brazil, the pandemic caused by COVID-19 influenced several sectors, resulting in sanitary measures of social distance and an economic crisis (Senna and Souza, 2021).

A characteristic of the virus is its high transmissibility, which occurs from person to person, through small respiratory droplets in the air or on surfaces or through close contact (about 1 meter) with an infected person. Symptoms range from fever, cough, dyspnea and fatigue, affecting, to a greater degree, individuals who already have other comorbidities. In addition, there are asymptomatic cases that make it difficult to identify the disease and the consequent control of its transmission (De Siqueira, De Oliveira, Duarte, & Das Chagas Moura, 2021).

Given the speed of dissemination, on February 20, 2020, the World Health Organization (WHO) classified the epidemic as a public health emergency of international

interest, later, declared it as a pandemic, in December 20, 2021, with about 574.822.377 cases in 114 countries and territories (Johns Hopkins, 2021). Because of this, and considering that the approach of individuals increases the risk of spreading the disease (Neves, 2021), several prevention and treatment measures have been adopted by the governments of different countries.

Preventive procedures included restricting people's mobility and mandatory quarantine, in order to avoid overloading the existing health care system (De Siqueira *et al*., 2021). In Brazil, the divergences around the adoption of these prevention measures have given rise to a series of political controversies, engendering deep contradictions in the governance of the problem and making it impossible to have a consistent direction to prevent, in a few months, the country from recording a hundred deaths resulting from contamination by SARS-CoV-2.

Even with the containment measures, the numbers denote the wide spread and the serious consequences of the spread of the virus, translated into thousands of deaths. According to Johns Hopkins, (2021), 5.356.751 deaths were registered worldwide. Specifically, in Brazil, up to the same date, 22.213.762 cases and 617.803 deaths from the disease had been confirmed, according to the same database.

Several mathematical models denote that the virus will be circulating by mid-September in Brazil (De Siqueira *et al*., 2021). It is noteworthy that, in the country, the virus has contaminated the middle and upper classes, however the most vulnerable populations who live without minimum sanitary conditions are heavily punished by the fact that they live in crowded conditions and by the difficulty in acquiring personal hygiene products, such as soap, alcohol gel, among others (Cunha, Antunes, Martins, Petti, & Hugo, 2021).

Accordingly WHO (2020), there is still no vaccine or effective antiviral therapies specific to coronaviruses in general, so there is an urgent need for surveillance, care and other protocols that must be followed, as well as the joining of efforts to obtain a positive response to combat the virus.

Other problems highlighted are the lack of personal protective equipment (PPE), diagnostic tests, intensive care units (ICU), mechanical ventilators and other items necessary for the prevention and treatment of the new coronavirus, as a result of the significant increase in demand (Costa, Bonatto, Pereira, & Silva, 2021). In addition, due to the greater demand for financial and human resources, there is a tendency for a collateral increase in mortality from other causes (Tarrataca, Dias, Haddad, & De Arruda, 2021).

Many questions still need answers regarding the new coronavirus and each country, given its particularities, acts in a specific way in its fight. The medical community is still aware of their behavior and the consequences of contagion. Information is still very dynamic and, therefore, some knowledge is not well established (Neves, 2021). What can be said is that the world is experiencing a pandemic that cannot be ignored, given its potential to change the way of life of an entire society (Brandao, & Foroutan, 2021).

Based on this discussion and considering the specific Brazilian context, this study aims to understand the strengths and weaknesses, opportunities and threats related to the current epidemic of COVID-19 in Brazil in the development of strategies for the prevention and control of the new coronavirus.. Therefore, a systematic literature review was carried out in order to raise the main studies that encompass the subject in a particular context. Afterwards, the evidence presented was evaluated from the perspective of the SWOT matrix, which analyzes the internal environment, looking at its strengths and weaknesses and at external factors considered as opportunities and threats. This mapping is justified, as it can be used to describe the scenario, identify favorable and unfavorable factors, formulate strategies, solve problems in a targeted way and also guide scientific decisions (Künzli, 2012).

Next, the details of the methodology used in the research are presented, followed by the main results and discussions which led to the study's conclusions.

2. Methodology

In the research method, the data in this research come from a systematic review of the literature on coronaviruses in Brazil, which sought to locate existing studies to answer a clearly specified research question. Data analysis and synthesis reveal evidence that allows inferences and conclusions (Denyer & Tranfild, 2009). Its conduction requires rigorously defined, reproducible and impartial research procedures, basically divided into 9 steps: I. Definition of the research question; II. Preparation of the research protocol; III. Selection of inclusion and exclusion criteria; IV. Development of search strategy in databases; V. Selection of studies; VI. Quality assessment of studies; VII. Data extraction; VIII. Data synthesis; and IX. Disclosure of results (Okoli, 2015; Donato & Donato, 2019).

From the guiding question that encompasses the understanding of the current scenario of the coronavirus epidemic in Brazil, this study extracted data from the Web of Science (WoS), ScienceDirect and Scopus databases, which have multidisciplinary content. Accordingly Donato e Donato (2019), bibliographic databases are a favorable option when searching for studies, due to the indexing of a large number of scientific journals and their

accessibility for search queries. Furthermore, to carry out the systematic review, they highlight the need to use several databases, with at least three, in order to include all the content of interest. This is confirmed by Alexander (2020) when inferring that the choice of database can shape the research result differently, as some are broader and more comprehensive than others, which can impact the quality of the study.

In addition, in order to increase the research sensitivity, filters for title, abstract and keywords were used, considering only articles and reviews published in journals, due to their more rigorous processing and publication processes (see Table 1).

Table 1 - Search syntax according to databases

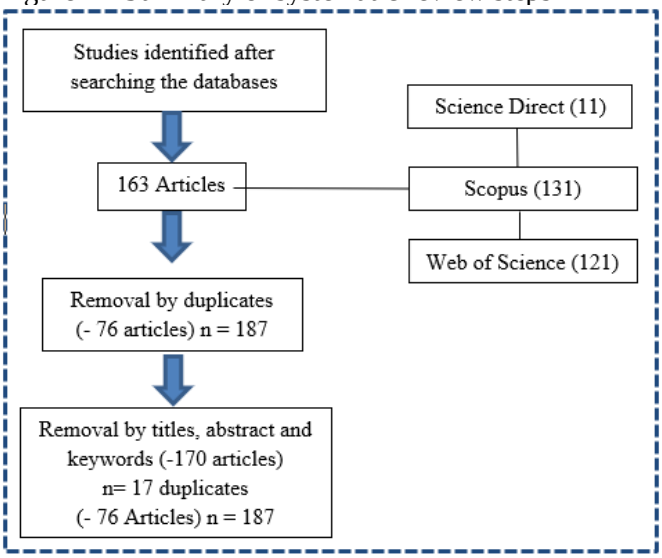
DATA BASE	**SEARCH SYNTAX**
Web of Science	Results for (coronavirus OR COVID-19) AND brazil, (Topics (title, abstract, keywords)), (SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.), 11 years
ScienceDirect	Year: 2010-2020; Title, abstract, keywords: (coronavirus OR COVID-19) AND brazil; Article type: Review, Research articles
Scopus	TITLE-ABS-KEY ((coronavirus OR COVID-19) AND brazil) AND DOCTYPE (ar OR re) AND PUBYEAR > 2009

Source: Own Authorship (2021)

Given the selected boundary conditions, a total of 263 articles were found in the databases (Web of Science ‘121’; ScienceDirect ‘11’; Scopus ‘131’). After this step, 76 duplicate articles were eliminated, leaving 187 studies which were submitted to title, abstract and keywords evaluation, according to the following criteria: Inclusion criteria: 1) Articles directly related to the discussion of the respiratory virus family Coronaviridae ; 2) Works covering the defined territorial delimitation (Brazil); 3) Complete studies published in indexed journals. Exclusion criteria; 1) Articles that focus on the action of the virus in non-human animals or other aspects related to virology; 2) Articles whose emphasis is on the discussion of other types of viruses; 3) Any document that does not correspond to the form and structure of a scientific article. With the application of filters, 170 studies that do not fit the proposed theme were identified and, therefore, eliminated. Consequently, 17 articles remained in the final portfolio, where the full reading was carried out in order to correspond to the proposals of this study. About the quality of the selected articles, it was decided to follow the guidelines of Alexander (2020), who states that it is extremely challenging to judge whether the studies have quality or not, as they follow patterns and trends. In this sense, the author mentioned

above recommends being guided by his criticisms, questions and what is really trying to extract from the literature to answer the study's problematic. To facilitate understanding, the methodological path can be viewed from Figure 1:

Figure 1 - Summary of systematic review steps



Source: Own Authorship (2021)

After reading the studies, information was extracted considering the parameters presented by the SWOT Matrix, highlighting the Strengths (Strengths) and Weaknesses (Weaknesses), Opportunities (Opportunities) and Threats (Threats) applicable to the context covered. The method therefore encompasses the evaluation of internal factors that refer both to positive points that add value and negative points that hinder good performance, and the evaluation of non-controllable external factors that can translate into future benefits or losses (Künzli, 2012). Finally, the selected variables are discussed in order to better understand the proposed study problem.

3. Results

3.1 Characteristics evidenced in the selected studies

Table 2 presents the classification of the selected articles, denoting the characteristics between theory, practice and society highlighted in each study.

Table 2 – Characterization of selected articles

Article	SWOT Analysis			
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Addressing the COVID-19 transmission in inner Brazil by a mathematical model.	Collection of epidemiological data via questionnaire and medical records.	Due to its similarity to flu symptoms, diagnostic confusion may occur.	Clinical diagnosis.	Weather seasonality (higher incidence in autumn and winter).
The COVID-19 (SARS-CoV-2) uncertainty tripod in Brazil: Assessments on model-based predictions with large under-reporting.	Low transmission risk in South America.	Dynamic situation that is constantly changing.	New Traffic Prevention Policies of 2019-nCoV (SARS-COV-2) at airports.	Air transport and movement of people.
Air quality in Southeast Brazil during COVID-19 lockdown: A combined satellite and ground-based data analysis.	Speed in obtaining data and information on public health.	Accessibility of these technologies to all physicians.	Increase public health surveillance.	Communication between doctors, system and patient.
Predictive analysis of COVID-19 eradication with vaccination in India, Brazil, and U.S.A.	There is no evidence of an outbreak of transmission disease.	New disease, the susceptibility to COVID-19 is 100%.	Validate an objective approach method in an isolation situation.	Vessel passage through Chinese ports and risk of introducing the disease in Brazil.
Endodontic treatments in the Brazilian Public Health System: influence of COVID-19 pandemic.	Use of simple Personal Protective Equipment.	Knowledge is extremely dynamic. Start of the COVID-19 pandemic.	Use of telemedicine.	Scarce and incomplete scientific evidence.
Analysis of the impact of COVID-19 pandemic on the Brazilian distribution electricity market based on a socioeconomic regulatory model.	Platform for the dissemination of suspected cases.	Early stage of evolution and few clinical records.	Advances in epidemiological surveillance; Investments in national vaccine production.	Elderly patients or the presence of comorbidities that affect the immune system.
The impact of the COVID-19 pandemic on hospitalizations for oral and oropharyngeal cancer in Brazil.	Rapid tests for detecting antibodies.	Tests performed only on symptomatic people.	Estimate the proportion of infected people with or without symptoms.	Asymptomatic disease and rapid transmission; misinformation.

Brazil's response to COVID-19: commercial determinants of health and regional inequities matter.	Analysis of epidemiological data, Decentralized network of central laboratories in each state (LACENs).	Availability of Intensive Care Units (ICU), mechanical ventilators and specific diagnostic tests.	Promote control measures and quick actions and responses for COVID-19.	Culture of the population (resistance to wearing a mask); economic impact.
Development of a probabilistic model for quantitative risk assessment of COVID-19 in Brazil.	Social distance, maintenance of essential activities and border control.	Social inequality; difficulty in getting more accurate data.	Create new diagnostic and control mechanisms.	Spreading speed of COVID-19.
Altitude conditions seem to determine the evolution of COVID-19 in Brazil.	Study of various drugs for treatment. Low mortality of COVID-19.	Public health policies still deficient. Contact with people and agglomerations.	Improvements in health systems. Develop a virus vaccine.	Weak and unprepared health system; virus with high transmission rate.
Addressing the impact of COVID-19 lockdown on energy use in municipal buildings: A case study in Florianópolis, Brazil.	Public records of research protocols.	Analyzed data is variable. Not all protocols are available.	Creation of a solidarity protocol where everyone can access.	Clinical, popular and media pressure; selection error; diagnostic error.
Visual analytics of COVID-19 dissemination in São Paulo state, Brazil.	Sharing the benefits of fishing resources among the community. Sustainable use of resources.	Fall artisanal fishing. Unhealthy working conditions. Deregulation of commercial relations.	Create actions to safeguard the way of life of fishing communities.	Food security and inequalities in power relations.
The impact of the COVID-19 pandemic on maternal mortality in Brazil: 523 maternal deaths by acute respiratory distress syndrome potentially associated with SARS-CoV-2.	Collect the sample in an area that is difficult to access. Combination of clinical and virological data.	Crowding in favelas; infections; poor sanitation systems.	Improve public health policies.	Respiratory virus.
Correlation of the rise and fall in COVID-19 cases with the social isolation index and early outpatient treatment with hydroxychloroquine and chloroquine in the state of Santa Catarina, southern Brazil: A retrospective analysis.	National laboratory and clinical surveillance. Few reports on the prevalence of these viruses.	Viruses associated with the common cold. Greater involvement of vulnerable people.	Detailed virus investigation. Adoption of new molecular methods for research.	Severe acute respiratory problems. Death.

A guide to conducting a standalone systematic literature review.	Increased research on the virus.	Clinical diagnosis can be confused with flu.	Create new diagnostic and control mechanisms.	Respiratory tract infections.
Direct from the COVID-19 crisis: research and innovation sparks in Brazil.	Early diagnosis. Social isolation. Constant surveillance of symptoms.	Seasonal Infections. Little information on the impact of the virus. Late implementation of control strategies.	Create new epidemic control strategies.	Mortality. Wrong diagnosis. Displacement of people.
Teaching surgery during COVID-19: The experience of Albert Einstein Medical School, Brazil.	Worldwide attention. Increased search.	Lack of information sharing. Flu-like symptoms.	New virus analysis.	Respiratory infections. Hospitalization.

Source: Own Authorship (2021)

It is noticed that the analyzed publications have different perspectives, confirming what is reported in the studies by Tarrataca et al. (2021) and Geraldi et al. (2021), that researchers adopt broad approaches. The 17 articles were published in 14 different journals, with PreprintScielo being the only one that registered more than one publication.

Literature records point to the existence of Community-Acquired Respiratory Viruses (CRVs), including influenza A virus (FLUA), influenza B virus (FLUB), adenovirus (AdV) and coronavirus (HK1 and NL63) (Bastos et al., 2021), highlighting as representative causes of morbidity and mortality in pediatric, elderly and immunosuppressed patients. Sars-CoV-2, also called the new coronavirus, appears on December 31, 2019 in China (Tarrataca et al., 2021). For a better understanding, it should be noted that coronavirus is the virus family, Sars-CoV-2 is the virus and COVID-19 refers to the disease caused by contracting the virus (Brandao et al., 2021).

3.2 Swot matrix application

SWOT analysis refers to the analysis and assessment of strengths (S), weaknesses (W), opportunities (O), threats (T) and other factors that influence a specific topic, proving to be important for the formulation of strategies, plans and corresponding countermeasures (Künzli, 2012). Based on the summary of the considerations of the articles evaluated, according to theory, practice and society with the following points were structured in the matrix for analysis, as shown in Table 3:

Table 3 - SWOT matrix applied to the analysis of COVID-19 in the Brazilian context

	Positive Factors	**Negative Factors**
Internal Factors	Possibility of clinical diagnosis	Diagnosis can be confused with flu
	Low degree of lethality	High degree of transmission
	Integrated platform for healthcare professionals and patients	Accessibility of Technologies
	Unified Health System	to be a new disease
	Use of simple PPE	Scarce and incomplete scientific evidence
	Use of social media as a means of information	Lack of population awareness
	Quick viewing platform for disclosing suspected cases	Few clinical records
	quick tests	Tests are only performed on people with symptoms.
	Decentralized network of central laboratories in each state (LACENs)	Few intensive care units (ICU)

External factors	Collection of epidemiological data	Weather seasonality
	New Virus Prevention Policies	movement of people
	Database with information on public health	Users' personal information to be disclosed for other purposes
	Develop new methods for containing the virus	There are no specific drugs and vaccines
	Use of telemedicine	dynamic virus
	Advances in epidemiological surveillance	Incorrect data on forms
	Investments in national vaccine production	Elderly patients are more susceptible to disease
	Estimate the proportion of infected people who do or do not have symptoms	Asymptomatic disease
	Implement disease control and eradication measures	Economic impact

Source: Own Authorship (2021)

3.2.1 Analysis of forces

The growing increase in research on the coronavirus has mobilized the scientific community in search of new allopathic treatments, vaccines and rapid tests to detect the virus and also brought a series of information and guidelines to society on the prevention of COVID-19 (Bastos et al., 2021).

To contain the virus, some measures were adopted such as the use of masks, quarantines, social distancing, patient monitoring, in addition to promising studies on the efficiency of chloroquine and hydroxychloroquine in the treatment of the disease (Tarrataca et al., 2021). It is noteworthy that the rapid actions developed by the Ministry of Health of Brazil, based on experience with the H1N1 virus, allowed for better control of the epidemic, in addition to the decentralized network of central public health laboratories in each state (LACENs) that are a reference in function of excellence in performing diagnoses (Chisini, Costa, Salvi, & Demarco, 2021). Furthermore, the speed in obtaining data and information on public health draws attention to the value of the technologies used, which lies in their punctuality, sensitivity, competitiveness, specificity, predictive value and accessibility (Neves, 2021). Fernandes, Silva, Silva, Villela, Mendonca, & Lacerda (2021) indicate the importance of partnership between the various surveillance entities such as the National Health Surveillance Agency (ANVISA) and the municipalities, mainly in the collection of epidemiological data via questionnaire and medical records (Bastos et al., 2021).

This is also supported by Chisini et al. (2021) by pointing out that advances in epidemiological surveillance can result in the development of new contingency plans for the pandemic, priority notification channels, a quick view platform for the dissemination of suspected cases and the use of social media as a means of information.

Finally, public records of previous research protocols on respiratory viruses already on the market, combined with quick and effective cooperation can help prevent and control COVID-19 (Stiegelmeier & Bressan, 2021).

3.2.2 Weakness analysis

The virus transmission occurs quickly and the initial symptoms can be easily confused and diagnosed as common flu (Tarrataca et al., 2021). As it is a newly discovered disease, there are few clinical records and the side effects of the drugs used are not precisely known, not all medical protocols are available. In addition, scientific evidence is sparse and incomplete and data validation may differ, as the situation is dynamic and constantly changing (Nakamura, Knobel, Menezes, Andreucci, & Takemoto, 2021).

Stiegelmeier and Bressan, (2021) observed that there is little information about the impact of the virus, however they warn that the implementation of control strategies cannot be delayed. Bastos et al. (2021) noted that, in some patients, the virus is asymptomatic, but tests are performed only in people with symptoms, which results in a lack of information on the prevalence of virus infection in the population. The deficiency in the health system with reduced intensive care units (ICU), few mechanical ventilators and specific diagnostic tests, as well as the overcrowding in the slums, poor sanitation systems, lack of education, nutritional status, family income, population awareness and the lack of information from online data stored on the internet are also pointed out by Brandao et al., (2021) as factors that can lead to the collapse of the public health system.

In this sense, Neves (2021) already warned about the importance of the accessibility of information technologies for all physicians and health professionals. The sharing and analysis of epidemiological data, transparency policies such as the Electronic System of the Citizen Information Service (e-SIC) and especially the reliability of online information would certainly enhance COVID-19's prevention and control actions (Viezzer & Biondi, 2021).

3.2.3 Opportunity Analysis

The pandemic scenario allowed for an improvement in public health policies and in the detailed investigation of the virus, as it created new diagnostic and control mechanisms, among which the use of telemedicine stands out (Almeida, Vilches, Ferreira, & Fortaleza, 2021). It also generated new actions to combat the spread of the epidemic and alternative measures, such as home office work, to safeguard the way of life of individuals (Marcílio Jr, *et al*., 2021).

In order to investigate and respond to health issues related to the pandemic, vaccines and medicines are being developed, as well as a solidarity protocol where everyone can have access to information quickly and accurately (Viezzer & Biondi, 2021). De Siqueira et al. (2021) mention that several methods of containing the disease were applied and the use of virtual platforms has helped to guide the population about the necessary care. Neves, (2021), in turn, state that, with the increase in traditional surveillance, it is possible to document health events, possible risk scenarios, improve services and thus validate the care system regarding the early detection of the disease. Incentives and investments in national vaccine production, as well as the improvement in laboratories to verify the typing of viral subtypes and the expansion of tests carried out, in addition to the expansion of the surveillance network in the country, provide opportunities for disease control (Brandao et al ., 2021).

De Siqueira *et al*., (2021) sees the possibility of estimating the proportion of infected people who present or present symptoms in order to quickly document the infection data and also estimate the low, medium and high complexity hospital resources needed to face the pandemic. Dall'Alba and Rocha (2021) argues that these practices aim to promote rapid actions and responses to control and eradicate the COVID-19 disease.

3.2.4 Threat analysis

The virus transmission mechanism is unknown, however it is known that it is highly contagious and dynamic and that, so far, there is no specific treatment available, such as drugs and vaccines (Almeida *et al*., 2021; De Siqueira *et al*., (2021).

Researchers such as Bastos et al. (2021) and Marcílio Jr, et al., (2021) concluded that the seasonality of the climate interferes with the spread of the virus, especially in the autumn and winter period, where there is an increase in respiratory diseases. Neves (2021), in turn, corroborates that COVID-19 is an asymptomatic disease, of rapid transmission and that the lack of adequate PPE and information on disease prevention methods essentially affects the most

vulnerable population that lives in an agglomerate. It should be noted that the virus causes severe acute respiratory problems and can lead to death, and elderly patients or those with comorbidities that affect the immune system are part of the risk group (Rosa et al., 2021). In addition, the wrong diagnosis can compromise the patient's life, since the treatment with chloroquine has greater effect when administered at the beginning of the treatment (Marcílio Jr, et al., 2021).

Other factors are highlighted by Costa et al., (2021), including the displacement of people who exert great force in the circulation of the virus and the possible access to personal information of users for use and dissemination for other purposes. Nevertheless, the pandemic resulted in extended school holidays, most companies suspended or drastically reduced their production, some railroads and flights were cancelled, which negatively impacts the economy (Rosa et al., 2021). In this sense, the Brazilian economy should enter a recession, which will increase the number of unemployed and the population in extreme poverty (Neves, 2021).

4. Final Considerations

The present study aimed to analyze, from the SWOT matrix, the current scenario of the coronavirus epidemic in Brazil, also using as support, productions that report the history of studies on human coronaviruses in the country. For this, a systematic review was performed that used a rigorous method to select the final portfolio, evaluating a total of 17 articles. Several factors are presented in an integrated way with theory, practice and society, aiming to contribute to the strategic planning for the prevention and control of the disease in Brazil. It is noticed that, even with a weakened health system, public health policies show great concern in containing the virus. It is also observed the process of adaptation of society to survive this chaotic period and insecurities that haunt the country.

It was also pointed out that, in this moment of crisis, some improvements emerged, such as telemedicine and rapid tests for COVID-19. However, it should be considered that the results do not occur immediately and that the public health system still lacks improvements and greater investments. It is noteworthy that the economy was also and should be strongly affected and the poorest population will feel this reflex with greater intensity with the lack of PPE to prevent the disease, difficulty in practicing social isolation and, mainly, unemployment. In this sense, the present investigation provides a perspective on the importance of strategic planning, in order to obtain positive results in the fight against the epidemic, through well-planned and properly executed Public Policies that include the needs of the entire society.

The present work does not exhaust the theme and much less reflects an immediate solution for COVID-19, being subject to future investigations. It is suggested, for example, for future studies to analyze the investment made in preventing the disease and the effectiveness of the results obtained. However, this research analyzes the various possibilities in which important and effective prevention and control actions that bring improvements to society can take place. In an increasingly complex context, which demands unusual solutions, effective results are essential to achieve control of the epidemic.

References

Alexander, P. A. (2020). Methodological guidance paper: the art and science of quality systematic reviews. *Review of Educational Research*, v. 90, n. 1, p. 6-23.

Almeida, G. B., Vilches, T. N., Ferreira, C. P., & Fortaleza, C. M. C. B. (2021). Addressing the COVID-19 transmission in inner Brazil by a mathematical model. *Scientific Reports*, 11(1).

Bastos, S. B., Morato, M. M., Cajueiro, D. O., & Normey-Rico, J. E. (2021). The COVID-19 (SARS-CoV-2) uncertainty tripod in Brazil: Assessments on model-based predictions with large under-reporting. *Alexandria Engineering Journal*, 60(5), p. 4363-4380.

Brandao, R., & Foroutan, H. (2021). Air quality in Southeast Brazil during COVID-19 lockdown: A combined satellite and ground-based data analysis. *Atmosphere*, 12(5).

Chaturvedi, D., & Chakravarty, U. (2021). Predictive analysis of COVID-19 eradication with vaccination in India, Brazil, and U.S.A. *Infection, Genetics and Evolution*, 92.

Chisini, L. A., Costa, F. D. S., Salvi, L. C., & Demarco, F. F. (2021). Endodontic treatments in the Brazilian Public Health System: influence of COVID-19 pandemic. *Health Policy and Technology*, 10(2).

Costa, V. B. F., Bonatto, B. D., Pereira, L. C., & Silva, P. F. (2021). Analysis of the impact of COVID-19 pandemic on the Brazilian distribution electricity market based on a socioeconomic regulatory model. *International Journal of Electrical Power and Energy Systems*, 132.

Cunha, A. R., Antunes, J. L. F., Martins, M. D., Petti, S., & Hugo, F. N. (2021). The impact of the COVID-19 pandemic on hospitalizations for oral and oropharyngeal cancer in Brazil. *Community Dentistry and Oral Epidemiology*, 49(3), p. 211-215.

Dall'Alba, R., & Rocha, D. G. (2021). Brazil's response to COVID-19: commercial determinants of health and regional inequities matter. *The Lancet Global Health*, 9(6).

De Siqueira, P. G. S. C., De Oliveira, A. C. A., Duarte, H. O., & DAS Chagas Moura, M (2021). Development of a probabilistic model for quantitative risk assessment of COVID-19 in Brazil. *International Journal of Modern Physics,* 32(5).

Denyer, D., & Tranfield, D. (2009). *Producing a systematic review.* In: Buchanan, D. A; Bryman, A. (Eds.). *The Sage handbook of organizational research methods,* Sage Publications Ltd, p. 671-689.

Donato, H.; & Donato, M. (2019). Etapas na condução de uma revisão sistemática. *Acta Médica Portuguesa***,** v. 32, n. 3, p. 227-235.

Fernandes, J. S. C., Silva R. S., Silva A. C., Villela D. C., Mendonca V. A., Lacerda A. C. R. (2021). Altitude conditions seem to determine the evolution of COVID-19 in Brazil. *Scientific Reports,* 11 (1).

Geraldi, M. S., Bavaresco, M. V., Triana, M. A., Melo, A. P., & Lamberts, R. (2021). Addressing the impact of COVID-19 lockdown on energy use in municipal buildings: A case study in Florianópolis, Brazil. *International Journal of Infectious Diseases,* 107, p. 252-253.

Künzli, B. (2012). SWOT-Analyse: Ein klassisches Instrument der Strategieentwicklung mit viel ungenutztem Potenzial. *Zeit-schrift Füh-rung + Organisation*. n. 81, p. 126-129.

Johns Hopkins. (2021). *COVID-19 Dashboard.* 2021. Disponível em: <https://gisanddata.maps.arcgis.com/apps/dashboards/bda7594740fd40299423467b48e9ecf6> Acesso em: 20 dez., 2021.

Marcílio Jr, W. E., Eler, D. M., Garcia, R. E., Correia, R. C. M., & Rodrigues, R. M. B. (2021). Visual analytics of COVID-19 dissemination in São Paulo state, Brazil. *Journal of Biomedical Informatics.*

Nakamura P., M., Knobel, R., Menezes, M. O., Andreucci, C. B., & Takemoto, M. L. S. (2021). The impact of the COVID-19 pandemic on maternal mortality in Brazil: 523 maternal deaths by acute respiratory distress syndrome potentially associated with SARS-CoV-2. *International Journal of Gynecology and Obstetrics,* 153(2).

Neves, F. S. (2021). Correlation of the rise and fall in COVID-19 cases with the social isolation index and early outpatient treatment with hydroxychloroquine and chloroquine in the state of Santa Catarina, southern Brazil: A retrospective analysis. *Travel Medicine and Infectious Disease,* 41.

Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems,* v. 37, n. 43, p. 879–910.

Rosa M. F. F., Silva E. N., Pacheco, C., Diogenes, M. V. P., Millett, C., Gadelha, C. A. G., & Santos L. M. P. (2021). Direct from the COVID-19 crisis: research and innovation sparks in Brazil. *Health Research Policy and Systems*, 19(1),10.

Senna, V., & Souza, A. M. (2021). Consequências da pandemia de covid-19 para a aviação civil no Brasil. Exacta. DOI: https://doi.org/10.5585/exactaep.2021.19744

Stiegelmeier, E. W., & Bressan, G. M. (2021). A fuzzy approach in the study of COVID-19 pandemic in Brazil. *Research on Biomedical Engineering*, 37(2), p. 263-271.

Tarrataca, L., Dias, C. M., Haddad, D. B., & De Arruda, E. F. (2021). Flattening the curves: on-off lock-down strategies for COVID-19 with an application to Brazil**.** *Journal of Mathematics in Industry*, *11*(1),2.

Vieira, J. E., De Matos, L. L., De Paula, E. G., & Carrera, R. M. (2021). Teaching surgery during COVID-19: The experience of Albert Einstein Medical School, Brazil. *Medical Education*, 55(5), p. 628-629.

Viezzer, J., & Biondi, D. (2021). The influence of urban, socio-economic, and eco-environmental aspects on COVID-19 cases, deaths and mortality: A multi-city case in the Atlantic Forest, Brazil. *Sustainable Cities and Society*, 60.