From historical pandemics to the COVID-19 crisis: lessons learned, challenges faced, and future directions in global health

Das pandemias históricas à crise da COVID-19: lições aprendidas, desafios enfrentados e direções futuras na saúde global

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ABSTRACT
This study aims to assess the coping strategies employed during major historical pandemics and their implications for mental health. An integrative literature review was conducted, encompassing the following databases: SciELO, PubMed, Lilacs, and Google Scholar. Scientific studies were identified using relevant Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) combined with Boolean operators AND and OR. Seventeen publications that met the eligibility criteria and were published between 2003 and January 2023 were selected for analysis. The findings revealed that 9 articles (52.94%) focused on COVID-19, 2 articles (11.76%) discussed the Black Death, 3 articles (17.64%) explored the Spanish flu, 4 articles (23.52%) addressed H1N1, 1 article (5.88%) examined Perinthus cough, and 6 articles (35.29%) investigated mental health in pandemic scenarios. The study demonstrates that coping strategies have significantly improved with advancements in scientific and technological knowledge, leading to a better understanding of the transmission and prevention of pandemics, as well as the promotion of mental well-being.

Keywords: pandemic, coping strategies, mental health.

1 INTRODUCTION
Throughout history, certain events have had a profound impact on human development, and among these, pandemics stand out as both devastating and instructive, shaping various fields...
from medicine to technological advancements (Celuppi et al., 2021). Notably, scientific progress has been remarkable, exemplified by the rapid development of vaccines and efficient diagnostic tools, such as rapid tests, in response to the COVID-19 pandemic, representing crucial instruments in the fight against the disease (Peeling et al., 2021; Kumari et al., 2021).

A pandemic is characterized as a disease that spreads widely, affecting countries and continents around the world. The adverse effects of a pandemic are comprehensive and encompass various dimensions, including epidemiological, social, psychological, and cultural aspects on a global scale (Faro et al., 2020; Brazil, 2022).

The documented history of pandemics dates back to 430 BC, with the Plague of Egypt characterized by a deadly typhoid fever that claimed lives at an alarming rate. Another significant mention is the Antonine Plague (165-180), likely caused by smallpox, resulting in the death of approximately 5 million people. The Plague of Cyprian (250-271), possibly caused by smallpox or measles, first emerged in the Eastern Provinces and spread throughout the Roman Empire, claiming an estimated 5,000 lives per day. The Plague of Justinian (541 AD) marked the first recorded instance of the Black Death, originating in Egypt and reaching Constantinople, devastating a quarter of the Middle Eastern population (Brazil, 2022; Huremović, 2019; Piret; Boivin, 2021).

Throughout history, humanity has faced various diseases, highlighting the importance of assessing contemporary society's preparedness for such events. Unlike the past, modern society has the ability to detect the causative agents of diseases in a short period, enabling the development of strategies to combat and prevent their spread. This includes the production of vaccines, medications, the implementation of preventive measures, and social distancing to contain highly transmissible diseases (Massetti et al., 2022).

Moreover, pandemics have a direct impact on the social sphere and personal relationships, introducing significant disruptions to daily routines. The effects of infections and deaths, economic instability, population upheavals, and enforced confinement evoke feelings of fear and hopelessness amidst precariousness and losses (Alizadeh et al., 2023; Brazil, 2020).

Studies indicate that quarantine and social isolation can exacerbate stress levels, fear, and anxiety within the population. The psychological pressure imposed during such circumstances can lead to a range of health issues, including distress, fear, depression, and insomnia, which may
contribute to the development of long-term consequences such as Post-Traumatic Stress Disorder (PTSD) (Rios; Sousa, 2022; Moreira; Sousa; Nóbrega, 2020).

Consequently, the presence of mental disorders, combined with uncertainties about the future, psychological distress, and sleep deprivation, negatively impact not only the lives of individuals in isolation but also frontline healthcare professionals (Barros, 2019). Additionally, mental illness serves as an exacerbating factor regarding the risks associated with the development of chronic diseases and viral infections (Coughlin, 2012).

In light of these considerations, this study aims to explore the coping strategies employed during significant pandemics throughout history and their implications for mental health.

2 METHODOLOGY

This study adopts an Integrative Literature Review approach, aiming to synthesize research findings on the topic of interest in a systematic, comprehensive, and organized manner (Ercole et al., 2014). The following databases were utilized for the literature search: SciELO (Scientific Electronic Library Online), PubMed, Lilacs, and Google Scholar.

A comprehensive literature review necessitates clear standards for data collection, analysis, and presentation of results. The following steps were undertaken: problem identification, literature search, data evaluation, and analysis.

To conduct the search for relevant scientific studies aligned with the objectives of this review, the following search terms were employed in Portuguese, English, and Spanish: "Historical Pandemics," "Swine Flu," "H1N1," "COVID-19," "Coronavirus," "Black Death," "Bubonic Plague," "Pandemics AND Psychological Impacts," "Pandemics AND Mental Health Impacts," "Pandemics AND Coping Strategies," "Pandemics AND Mental Health," "Pandemics AND Coronavirus," "Pandemics AND COVID-19," "Pandemics AND H1N1," "Pandemics AND Spanish Flu," "Pandemics OR Coronavirus," "Pandemics OR COVID-19," "Pandemics OR Black Death," "Pandemics OR Perinthus Cough," "Pandemics OR H1N1," and "Pandemics OR Spanish Flu." These descriptors were selected based on the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH /PubMed) systems. The descriptors were combined using Boolean operators AND and OR.
The inclusion criteria for articles were as follows: complete articles available in the aforementioned databases, written in Portuguese, English, or Spanish, published between 2003 and 2023, and deemed relevant to the study and capable of addressing the guiding question.

Articles that did not meet the established criteria or failed to address the guiding question, as well as duplicate articles, were excluded. The title and abstract of each publication were independently reviewed by two reviewers, considering the predefined inclusion and exclusion criteria. Subsequently, the selected publications were thoroughly read to identify the main ideas and contribute to the research's interpretation and data extraction. This step facilitated the categorization of information to be extracted from the publications.

3 RESULTS

The sample of this study consisted of 17 articles, selected from previously clarified criteria. Among these, 6 (35.29%) were taken from the SciELO platform, 4 (23.52%) were found in PubMed, 3 (17.64%) were taken from LILACS and 4 (23.52%) from Google Scholar. Of the articles selected to compose the study, 6 (35.29%) portray mental health in pandemic times.

In what if COVID-19, 9 (52.94%) articles were selected; 2 (11.76%) on Black Death; 3 (17.64%) about the Spanish flu; 4 (23.52%) on H1N1; and 1 (5.88%) on Perinthus Cough. Subsequently, the table below demonstrates the details of these findings.

The results of the 17 mentioned articles provide valuable information on the psychological, social, and historical impacts of quarantines, pandemics, and health emergencies. Here are the main findings, including the article title, year of publication, and a brief description of the content:

Brooks et al. (2020) "The psychological impact of quarantine and how to reduce it: quick review of the evidence" - This review addresses the psychological impacts of quarantines and presents strategies to mitigate their effects.

Radusin (2012) - "The Spanish flu -- part II: the second and third wave"- The article discusses the effects of the Spanish flu during World War I.

Lima et al. (2020) - "The emotional impact of Coronavirus 2019-nCoV (new Coronavirus disease)"- This study examines the psychological impacts of COVID-19 on the population and identifies the most affected groups.

Vommaro (2021) - "The world in times of pandemic: certainties, dilemmas and perspectives"- The article addresses the crises brought about by the COVID-19 pandemic worldwide.

Toapanta (2021) - "Pandemics in their history: the black plague and the Spanish flu, COVID-19 and the capitalist crisis"- This article aims to analyze the consequences that a pandemic can bring to humanity, comparing different historical events.

Temporao (2009)- "Brazil's confrontation with the risk of an influenza A (H1N1) pandemic" - Open letter from the Minister of Health regarding the measures adopted to combat the A (H1N1) virus (n.d.) - The author discusses the measures taken by Brazil in response to the risk of an influenza A(H1N1) pandemic.

Ledermann (2003) - "The man and his epidemics through its history"- The article discusses how humanity has faced pandemics throughout history.

Ramírez et al. (2020) - "Mental health consequences of the COVID-19 pandemic associated with social isolation"- This research demonstrates the relationship between symptoms of mental disorders and social isolation during the COVID-19 pandemic.

Stephen (2020) - "COVID-19" - This article is a personal opinion of the author, reporting aspects of COVID-19.

Zou et al. (2023) - "Associations between sedentary behavior and negative emotions in teenagers during home confinement: Mediating role of social support and sleep quality"- The study seeks to establish a relationship between sedentary behavior and negative emotions in teenagers during home confinement, highlighting the role of social support and sleep quality.

Barbosa (2020) - "Spanish flu: linked flows of memory and the polishing of memories" - The author analyzes the Spanish flu, drawing parallels with the COVID-19 pandemic and showing the similarity between these events.

Acioli et al. (2022) - "Impacts of the COVID-19 pandemic on the health of nurses" - The study reports how the COVID-19 pandemic affected the mental health of nurses who experienced it.
Oliveira et al. (2013) - "H1N1 literary review regarding the history of the existence of the virus and its impact today" - The article provides a historical context of the H1N1 virus, from its dissemination to the present moment, including its impact on society.

Auerbach et al. (2013) - "Historical Review of Influenza in the World and the New H7N9" - This article proposes a historical review of the fight against the influenza virus, highlighting the similarities between the H7N9 virus and the 1918 Spanish flu strain.

Kasznar (2009) - "Administration of emergency health policies. The case of Argentina and Brazil and the Swine Flu (H1N1) pandemic" - The study examines the implementation of emergency health policies during the Swine Flu (H1N1) pandemic in Argentina and Brazil.

Cruz et al. (2020) - "COVID-19: Emergency and Impacts on Health and Work" (2020) - This research examines the emergency impacts of COVID-19 on health and work, with a focus primarily on worker health.

These results provide comprehensive insights into the psychological, social, historical, and health impacts related to pandemics, quarantines, and health emergencies, contributing to a broader understanding of these phenomena and the necessary measures to address them.

4 DISCUSSION

Throughout history, the world has faced numerous pandemics, presenting a devastating scenario, with political, social, and economic consequences (Toapanta, 2021). A very common way for governments and leaders to face a pandemic at first is denial. It is denied that there is an unknown virus emerging, later there is a denial regarding its aggressiveness and potential for transmissibility (Vommaro, 2021).

Within this context, it is possible to make a timeline, highlighting some pandemics that have proved to be relevant throughout history. According to Spinney (2017), the Perinthus Cough in 412 BC was the first historical documentation of a pandemic. Subsequently, it is possible to highlight the Black Death pandemic in 1300, as well as the Spanish Flu pandemic in 1918, in addition to the H1N1 pandemic (2009), and, finally, the most recent one ever documented, the COVID-19 pandemic.

Analyzing the available data on ways of coping with the Perinthus Cough pandemic, it is clear that ancient medicine was still being practiced, and Hippocrates believed that the body existed under the balance of the "Four humours," which were made up of four fluids: blood,
phlegm, yellow bile, and black bile (Rezende, 2009). Thus, according to the thoughts of Hippocrates, the process of illness occurred through the imbalance of these four humours.

Bringing it into current terms, people at that time probably suffered from the flu, diphtheria, and whooping cough, in addition to a possible vitamin A deficiency. Measures taken were praying to deities, sacrifices, and spells performed by healers (Spinney, 2017). However, as it is a pandemic with a very limited amount of information, it is not possible to say what were the effects of this disease on the mental health of that population (Auerbach et al., 2013).

There was also the great pandemic of the Black Death, which was responsible for devastating Europe in the 14th century, which occurred within a period of seven years and later resulted in an epidemic, as its cause was still unknown to the people of that time, having its transmission through the rats. About five centuries passed before the rodent's role in the transmissibility of the disease could be understood, which mainly affected the poorest part of society, leading to the death of around 50 million people (Ledermann, 2003).

Therefore, one of the first measures adopted by the government at the time in Portugal was urban, public, and private sanitation. Later, there are also records of Évora, in the years 1375-1395, which, in addition to removing garbage from the streets, adopted measures such as the prohibition of pigs in the streets. Such measures were not necessarily related to personal hygiene and disease conditions, but were precautions relevant to conditions in cities. Despite this, the state warned about the imminent danger in the air, the danger of contagion, as well as the importance of isolation, seclusion, and confinement (Bastos, 2019).

Continuing with the Spanish flu, which was a type of influenza virus, which had a high level of transmissibility, and its spread was accelerated within the military context of the First World War. Having an unknown pathological agent that led to ineffective prevention and poor coping with the pandemic (Radusin, 2012).

According to Barbosa (2020), during the Spanish flu pandemic, the media were not as advanced as they are today, but misinformation was disseminated similarly to the COVID-19 pandemic. There was a deficit of medical support due to the high demand of patients, and promises of miraculous medications without proven effectiveness. It was common to see people wearing masks on the street, hospitals did not support the demand, therefore health care was precarious, and prisoners in the House of Detention were forced to work as gravediggers due to the large number of dead.
Following the timeline, on June 11, 2009, the H1N1 pandemic was decreed, being transmitted primarily from pigs to humans, this virus spread quickly, bringing devastating effects (Kasznar, 2009).

In view of the worsening of the swine flu pandemic, measures were adopted to reduce such impacts, mainly for the most affected countries. Among the precautions adopted, the following can be mentioned: Monitoring and surveillance actions, notification of suspected cases, monitoring of ports, borders, and airports, assistance and guidance for confirmed cases and contacts, dissemination through the media, improvement of the health network, improvement of inputs and treatments, in addition to encouraging research to produce a vaccine for the H1N1 virus (Temporao, 2009).

The virus spread rapidly around the globe, making it necessary to take emergency measures to contain its proliferation as much as possible and minimize the impact on the health of the population. Governments, health professionals, and companies worked together to ensure the safety of the population. On the other hand, health policies and damage prevention did not reach the most needy and deprived, which led to high rates of COVID-19 in the peripheries (Cruz, et al., 2020).

With regard to developments in mental health, there is still a shortage of materials that bring this approach. With regard to COVID-19, the main issues highlighted are the fear of the unknown and the report by health professionals related to the fear of transmitting it to their loved ones since they did not have enough PPE due to the high demand, in addition to speculation about the forms of transmission. Another issue was linked to the emotions of these professionals, dealing with grief, since the number of deaths was exorbitant, generating negative feelings such as helplessness and uncertainty (Acioli et al., 2022).

In the context of the population, with the rapid progression of the disease and the excess of available and easily accessible information, which can often be controversial and discordant, a situation is created that is prone to behavioral changes that favor psychological illness (Lima et al., 2020). Therefore, in the midst of so many uncertainties and losses, fear intensifies, and levels of stress and anxiety in healthy people increase, triggering mental disorders (Ramírez et al., 2020).

According to Brooks (2020), in situations of social distancing, the mental health of the population can be exposed to periods of irritability, fear of the unknown, and insomnia. Faced
with a pandemic scenario, people tend to react in two ways: There are skeptics who defend the thesis that everything is a conspiracy or media hype, and, on the other hand, there is the hypochondriacal horror where people are taken by momentary fear of an imminent apocalypse (Vommaro, 2021).

In addition, a sedentary routine, such as home confinement, has negative consequences for mental health, increasing negative emotions. Within a context of health, economic, political, and social crisis, it is necessary to understand history to understand the current reality (Toapanta, 2021).

People diagnosed with COVID-19 or suspected of having the disease experience intense emotions of fear, anxiety, loneliness, anger, insomnia, and even guilt. Such scenarios trigger panic attacks and become favorable for PTSD (Post Traumatic Stress Disorder). Moreover, risk for suicide have also increased (Moreira; Sousa; Nóbrega, 2020; Shigemura et al., 2020).

According to Brook (2020), some measures can be adopted to reduce the psychological effects caused by social distancing and the pandemic scenario. These measures include protecting oneself and one's family, providing adequate supplies that meet basic needs, and finding ways to reduce boredom and improve communication, as boredom and isolation tend to increase feelings of distress.

In view of the above, it is notable that quarantine has lasted over the centuries and proved to be effective in controlling the spread of diseases. However, it also has negative effects in terms of social relations that directly impact the well-being of individuals and their mental health. Additionally, it is worth observing the evolution of preventive measures over the years, which came thanks to scientific and technological advances, such as vaccines.

5 CONCLUSION

In conclusion, the study highlights the importance of understanding the past to navigate the future effectively. The historical analysis of pandemics reveals the efficacy of certain measures, such as the use of masks and social isolation, in mitigating the spread of diseases. It also showcases humanity's remarkable adaptability and resilience in the face of challenging circumstances.

The advancements in coping with and managing crises are noteworthy, with significant progress in emergency response and crisis management. However, the discussion also sheds light
on the negative impacts on mental health, including stress, anxiety, depression, and post-traumatic stress disorder. Confinement, lack of reliable information, and the proliferation of misinformation contribute to these psychological challenges.

To address these issues, it is essential to establish strategies that prioritize mental health during pandemics. This includes providing accurate information, combating the spread of fake news, and implementing measures to minimize the negative effects on the population's well-being. Supporting healthcare professionals who face immense pressure and grief is also crucial.

By acknowledging the lessons from the past and proactively addressing mental health concerns, societies can better prepare for future crises and safeguard the overall well-being of individuals and communities.
REFERENCES


