

[https://doi.org/10.52326/jss.utm.2024.7\(3\).14](https://doi.org/10.52326/jss.utm.2024.7(3).14)  
UDC [902/903+008]:614.4



## UNPACKING THE PLACE OF ARCHAEOLOGY AND HERITAGE IN PANDEMIC STUDIES

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Received: 06. 15. 2024

Accepted: 07. 22. 2024

**Abstract.** Archaeology offers a 3.5 million-year-long scientific record of human and earlier hominine problem-solving and thus has the potential to research very deep into the past human solutions to pandemics and epidemics. Heritage on the other hand acts as a positive enabler for the complex, multi-vector challenges of today's world, such as cultural and environmental sustainability, economic inequalities, conflict resolution, social cohesion and the future of cities among others. In this way, the remote past has the capacity to educate the present world on how to cope with pandemic diseases and similar challenges in the contemporary era. Therefore, this essay seeks to open a discourse on the ways in which archaeology and heritage can contribute to the prevention and control of the present COVID-19 pandemic and similar others in the present and future. Therefore, the government and other agencies funding research pertaining to the discovery of the ways through which pandemics can be treated, controlled and prevented, need also to explore the option of archaeology and heritage studies, so as to trace the root causes of pandemic diseases. This will lead to the discovery of traditional means of treating, controlling and preventing pandemic outbreaks. This underscores the argument that almost everything that exists in the present day has some historical antecedence.

**Keywords:** *Archaeology, Heritage, Epidemics, Pandemics, Traditional remedy, Historical connection.*

**Rezumat.** Arheologia oferă o înregistrare științifică de 3,5 milioane de ani a rezolvării problemelor umane și anterioare ale hominilor și, prin urmare, are potențialul de a cerceta foarte profund soluțiile umane din trecut la pandemii și epidemii. Patrimoniul, pe de altă parte, acționează ca un factor pozitiv pentru provocările complexe, multi-vectorale ale lumii de astăzi, cum ar fi sustenabilitatea culturală și de mediu, inegalitățile economice, soluționarea conflictelor, coeziunea socială și viitorul orașelor, printre altele. În acest fel, trecutul îndepărtat are capacitatea de a educa lumea prezentă despre cum să facă față bolilor pandemice și provocărilor similare din epoca contemporană. Această lucrare încearcă să deschidă un discurs asupra modalităților în care arheologia și patrimoniul pot contribui la prevenirea și controlul actualei pandemii de COVID-19 și a altora similare în prezent și viitor. Prin urmare, guvernul și alte agenții care finanțează cercetările legate de descoperirea

modalităților prin care pandemiile pot fi tratate, controlate și prevenite, trebuie să exploreze, de asemenea, opțiunea studiilor de arheologie și patrimoniu pentru a urmări cauzele fundamentale ale bolilor pandemice. Acest lucru va conduce la descoperirea mijloacelor tradiționale de tratare, control și prevenire a focarelor pandemice. Studiul subliniază argumentul, că aproape tot ceea ce există în zilele noastre are antecedente istorice.

**Cuvinte cheie:** *arheologie, patrimoniu, epidemii, pandemii, remediu tradițional, legătură istorică.*

## 1. Introduction

Throughout the course of history, the intermittent outbreaks of pandemic diseases have had a profound impact on human societies, influencing their demographic structures, economic indicators, political landscapes, and social standings. One of the most noteworthy instances of such a transformative impact is the emergence of the Coronavirus (COVID-19) in late 2019. This virus, which originated in Wuhan, a relatively small city in Hebei Province, China, swiftly threw the global community into an unprecedented state of disarray. The COVID-19 pandemic is considered one of the most devastating in recorded history [1]. Recent updates from the World Health Organization (WHO) indicate that as of 4:22 pm CET on March 14, 2022, there were 456,797,217 confirmed cases globally, resulting in 6,043,094 deaths. The widespread effects of this pandemic have been felt in virtually all aspects of life, from public health and healthcare systems to global trade and international relations.

The aforementioned example serves as evidence that the occurrence of a pandemic leads to substantial shifts in the demographic landscape, economic metrics, and political and social dynamics of societies. Furthermore, the processes employed by humans to achieve various forms of civilization and cultural progress are significantly influenced during a pandemic outbreak. These effects can persist for an extended period, often spanning as long as a century.

In his publication titled "A Brief History of Pandemics (Pandemics Throughout History)," Huremović [2] underscores the profound and far-reaching impact that infectious disease outbreaks have exerted on societies and cultures throughout the course of human history. Despite the immense significance of these events, there has been a surprising lack of attention to them in behavioural social science and related medical fields such as psychiatry. This neglect is particularly perplexing when considering that pandemics stand amongst the most monumental catastrophes in human history. They have not only wrought devastation upon societies, influenced the outcomes of wars, and led to the extinction of entire populations, but have also paradoxically paved the way for substantial innovations and advancements in various domains, including medicine, public health, the economy, and political systems.

The recent sporadic occurrences of pandemics have sparked a significant surge of interest in the fields of humanities and social sciences. However, the majority of this research has primarily focused on examining the historical context, geographical spread, duration, and profound societal implications of these pandemics in the past [2]. Unfortunately, there has been a notable lack of substantial attention directed towards investigating the root causes of these pandemics.

Understanding the historical approaches of early human societies to pandemics can offer invaluable insights for contemporary scientists in devising more effective strategies for addressing future outbreaks. It is within the domain of archaeology, among other disciplines, to unravel the underlying causes of historical pandemics. Therefore, this paper seeks to

encourage archaeologists to actively delve into the investigation of the root causes of pandemics and epidemics, fostering intellectual engagement and contributing to our understanding of these complex phenomena.

## **2. Conceptual clarification**

For us to meaningfully discuss the subject matter at hand it is paramount to have a good knowledge of what archaeology, heritage and pandemic entails.

### **2.1. Archaeology**

Archaeology is a multifaceted discipline that serves as the gateway to understanding the rich tapestry of human history. It is the study of humanity and its past [3], delving into the lives of people in bygone eras. This field meticulously examines and interprets various aspects of ancient societies, including their daily activities, cultural practices, use of tools, technological advancements, and the intricacies of their superstitious and religious beliefs. By piecing together fragments of the past, archaeology offers a profound insight into how ancient humans expressed their cultural identities and beliefs, providing a window into their world. As a result, archaeology plays a vital role in unravelling the complexities of human history and shedding light on the diverse and dynamic nature of ancient societies.

As a means of reconstructing history, archaeology complements oral and written records, enriching our understanding of past human cultures. The data derived from archaeological findings are invaluable to scholars across various disciplines, supporting a wide array of arguments, including those related to human health and medicine. The material artefacts unearthed through archaeological investigations provide vital insights into early traditions, civilizations, and cultural accomplishments. These artefacts, ranging from everyday tools to monumental structures, paint a vivid picture of the societies that created them [4].

The fundamental aim of archaeology is to gain insight into the evolution and progression of human cultures and civilizations across diverse temporal and geographical contexts. This often entails the meticulous examination of specific cultures through the tangible remnants they have left behind. By scrutinizing these remnants, archaeologists are able to compare different cultures and establish connections between them [5]. This is achieved through the systematic surveying and excavation of sites to uncover cultural artefacts, followed by the thorough analysis and categorization of these artefacts, and the subsequent interpretation of their cultural and historical significance. Ultimately, through this comprehensive process, archaeologists seek to reconstruct past human cultural advancements and make these reconstructions accessible and engaging to the public.

The field of archaeology is characterized by its interdisciplinary nature, drawing on methodologies and research approaches from a wide range of other disciplines. In particular, many of the methods employed in laboratory analyses within archaeology have been adapted from the fields of geology, chemistry, and biological sciences [6]. This multidisciplinary approach not only enriches the precision and depth of archaeological investigations but also facilitates more thorough analyses of artefacts and sites, ultimately contributing to a more comprehensive understanding of the past.

The field of archaeology is quite diverse, encompassing a wide array of sub-disciplines, each focusing on different aspects of the past. These sub-disciplines include archaeozoology (the study of animal remains found at archaeological sites), archaeobotany (the study of plant remains), archaeoastronomy (the study of how ancient cultures understood the sky and

celestial bodies), aerial archaeology (the study of archaeological sites from the air), computational archaeology (using computer-based methods to analyse archaeological data), experimental archaeology (recreating and testing ancient techniques), environmental archaeology (studying the interaction between past human societies and the environment), geoarchaeology (the study of the earth's processes and how they affect archaeological sites), public archaeology (engaging with the public in archaeological research and preservation), ethnoarchaeology (studying modern societies to better understand past societies), urban archaeology (the study of ancient and historical cities), forensic archaeology (applying archaeological techniques to modern crime scenes), landscape archaeology (studying the ways in which people in the past have shaped and been shaped by the landscape), maritime archaeology (the study of human interaction with the sea), biblical archaeology (the study of archaeological sites and artefacts that are related to the Bible), settlement archaeology (the study of past human settlements), museum studies (the curation and presentation of archaeological findings), heritage studies (the management and interpretation of the cultural heritage), bioarchaeology (the study of human remains from archaeological sites), and battlefield archaeology (the study of past battlefields and military activity), among others. Each sub-discipline employs specific methodologies and focuses on particular types of evidence to uncover different facets of human history.

One of these sub-disciplines is bioarchaeology, which delves into the anatomical examination of human skeletal remains. This unique area of study empowers archaeologists to gain insights into various aspects of past populations, such as diseases, health, nutrition, migration, gender status, and kinship [7]. By meticulously analysing skeletal remains, bioarchaeologists are able to reveal detailed information about the physical features and health conditions of individuals from ancient societies. This in-depth analysis not only provides a window into the lives of these ancient people but also significantly contributes to the historical reconstruction of their societies. Through its diverse methodologies and interdisciplinary nature, archaeology continues to be an indispensable field of study, offering profound insights into the human past and playing a pivotal role in illuminating the complexities of ancient cultures and civilizations.

## **2.2. Heritage Studies**

Heritage as it pertains to identity, transmission and collectiveness is as old as humanity itself [8]. The concept of cultural heritage has its roots in the Western world and has evolved in parallel with the broader changes of Western modernity. As defined by the International Council on Monuments and Sites (ICOMOS) in 2002, cultural heritage encompasses the tangible and intangible manifestations of community-developed ways of life that have been passed down through generations. This includes traditions, physical locations, objects, artistic expressions, and values. Cultural heritage serves as a repository of accumulated knowledge derived from human experiences and practices, encompassing spatial, social, and cultural elements often referred to as "memory." [9].

In the past, the concept of cultural heritage was primarily focused on monuments and significant works of art, with aesthetic and historical values serving as the main criteria for determining cultural significance. This meant that anything with high aesthetic value or a connection to an important person or historic event was regarded as having substantial cultural importance [10]. However, in the contemporary era, there has been a broadening of the criteria used to assess cultural heritage. In addition to aesthetic and historical values,

social values such as traditional practices and beliefs are now considered essential in determining the cultural significance of heritage sites. This expanded perspective allows for a more comprehensive understanding of cultural heritage, recognizing the importance of intangible elements in addition to tangible artefacts [10].

In 2008, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) introduced a significant classification of heritage, distinguishing it into two main forms: 'tangible' and 'intangible' heritage. Tangible heritage specifically refers to the physical and material manifestations or symbols that represent the cultural expressions and traditions of societies that have inhabited or currently inhabit a particular area. This includes a diverse array of physical entities such as monuments, archaeological sites, traditional buildings, temples, historic cities, and various other physical manifestations that bear immense cultural and historical significance. These tangible elements serve as crucial links to the past and present, providing insight into the rich cultural heritage of the societies that created them [10].

Intangible heritage, as a concept, encompasses a diverse range of cultural elements including practices, representations, expressions, knowledge, and skills, as well as the tools, objects, artefacts, and cultural spaces that are associated with them. What makes these elements unique is that they are recognised and valued by communities, groups, and at times, individuals, as integral components of their cultural heritage. This intangible cultural heritage is not static; rather, it is transmitted from generation to generation and is constantly reinterpreted and reinvigorated by communities and groups in response to their environment, their interactions with nature, and their historical experiences. This continual recreation of intangible heritage provides these communities with a deep sense of identity and continuity, ultimately fostering respect for cultural diversity and human creativity [11].

The understanding of heritage has experienced a significant evolution, positioning itself as a crucial stakeholder capable of driving positive change in addressing the multifaceted challenges of our times. These challenges encompass a broad spectrum of issues, such as the sustainable utilisation of cultural and environmental resources, the mitigation of economic disparities, the resolution of conflicts, the promotion of social cohesion, and the guidance of urban development [8]. Furthermore, heritage now has the potential to critically examine and address contemporary problems related to human health, particularly in responding to the recurring and disruptive pandemic outbreaks that have a profound impact on the global community.

### **2.3. Pandemic**

The term 'Pandemic' is derived from the Greek words *pan*, meaning 'all,' and *demos*, meaning 'the people' [12]. It refers to an epidemic that spreads worldwide or across a vast area, crossing borders of multiple countries and typically affecting a significant number of individuals [13]. The International Federation of Red Cross and Red Crescent Societies (2018) further defines a pandemic as an epidemic of an infectious disease that spreads through human populations across a large region, multiple continents, or globally.

Morens et al. [14] note that during the 17th and 18th centuries, the terms epidemic and pandemic were employed ambiguously and often interchangeably in various social and medical contexts. The first recorded instance of the term pandemic, in 1666, described "a *Pandemick*, or *Endemick*, or rather a *Vernacular Disease* (*a disease always reigning in a Country*)" (Harvey, 1666, p. 3). By 1828, epidemiologist and lexicographer Noah Webster, having experienced the influenza pandemic of 1789–1790, listed epidemic and pandemic as

synonymous in his first edition of *Webster's Dictionary*. Interestingly, Webster's dictionary mentions epidemic influenza but not pandemic influenza, suggesting that by the early 19th century, epidemic, when used as a noun, had become the accepted term for what today encompasses both an epidemic and a pandemic.

Pandemics are widespread outbreaks of infectious diseases that impact large populations, posing significant threats to public health and safety. These events can lead to a high number of fatalities, widespread illness, and substantial social and economic consequences. The global community is particularly concerned about the recurring emergence of pandemic diseases, including new strains of severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), and the recent coronavirus (COVID-19) outbreak, which has emerged as one of the most severe pandemics in recent history. Throughout history, pandemics have included diseases such as cholera, smallpox, leprosy, measles, polio, and yellow fever, among others.

The International Federation of Red Cross and Red Crescent Societies [15] states that pandemics or epidemics can spread through various means:

- i. Airborne transmissions, such as flu, measles, SARS, MERS, and COVID-19 (WHO, 2022), are carried through air and droplets;
- ii. Transmission through blood and body fluids, including blood transfusion, mother-to-child during pregnancy, and sexual activity, for example, Ebola virus and HIV;
- iii. Waterborne transmission, as seen in cholera;
- iv. Zoonotic transmission occurs between animals and humans through direct or indirect contact with viruses, bacteria, parasites, and fungi;
- v. Vector-borne transmission, when bitten by mosquitoes, fleas, ticks, etc., leads to diseases like malaria, dengue, and plague; and
- vi. Food-borne transmission, which happens during food preparation and consumption, results in diseases like salmonella, listeria, and hepatitis A.

### **3. Research methodology**

The current body of scholarly work addressing pandemics from archaeological and heritage perspectives is notably lacking. This knowledge gap hinders our ability to comprehend the underlying causes of historical pandemics, which is crucial for gaining insights into the origins of contemporary pandemics. Consequently, there is a pressing need for comprehensive research that employs archaeological and heritage methodologies to investigate the impact of pandemic diseases. This paper advocates for a rigorous examination of pandemics through these interdisciplinary approaches, aiming to shed light on their historical and cultural dimensions. Notably, the information presented in this paper is primarily derived from secondary sources. The researcher meticulously reviewed pertinent documents from various health-related institutions and organizations to inform the content of this paper.

This paper has thoroughly reviewed recent reports on the COVID-19 pandemic and other pandemics/epidemics to gain insights into the current situation and historical context. In addition to this, it has extensively examined a range of articles that delve into pandemic-related issues within the fields of humanities and social sciences. Furthermore, the study has delved into ground-breaking research that emphasizes the crucial role of archaeology and heritage in understanding and addressing pandemics. This comprehensive review has not only provided valuable direction to my research but has also facilitated the identification of specific gaps that my current research aims to fill.

#### 4. Pandemic Diseases in the Face of Archaeology and Heritage

Pandemic outbreaks, which encompass diseases such as cholera, smallpox, leprosy, measles, polio, yellow fever, HIV, Ebola virus, and the more recent Novel Coronavirus (COVID-19), have spurred scholars in the humanities and social sciences to collaborate with their counterparts in the medical and health fields. This collaboration aims to conduct comprehensive research that delves into various aspects of pandemics, including their modes of transmission, societal impact, disaster management, and the significant human toll they exact. This interdisciplinary approach seeks to shed light on the multifaceted challenges posed by pandemics and to contribute to the development of effective strategies for mitigating their devastating effects.

Consequently, the scholarly environment has begun looking at questions about pandemic diseases that can best be answered through archaeological research. Prominent among these questions are those asked in relation to the coronavirus pandemic by Ogundiran [16] in his publication "The COVID-19 Pandemic: Perspectives for Reimagining and Reimagining Archaeological Practice". These include:

- i. How does the coronavirus pandemic influence your understanding of the African past, particularly regarding your interest in the study of social formations and emergence?
- ii. In what ways are you reconsidering cultural change, processes, bio-cultural evolution, social stability, mobility, disturbances, resilience, collapse, and revival based on your research in various areas, time periods, and archaeological sites?
- iii. How does this global pandemic impact your approach, study, and interpretation of archaeological contexts and issues related to heritage and human development?
- iv. What connections do you observe between this pandemic and past epidemic events in Africa?
- v. How can archaeology and heritage offer insights to improve the management of the current pandemic on the continent?
- vi. What lessons can African archaeology and heritage draw from the social, political, economic, and ecological aspects of the COVID-19 pandemic?
- vii. What are the physical manifestations of COVID-19 in different parts of Africa today, and what do they reveal about public fears, coping mechanisms, and the socio-political dynamics of the pandemic?
- viii. What are the materialities of COVID-19 in different parts of Africa today, and what do they tell us about public anxieties, coping strategies, and socio-politics of the pandemic? The present author has added the following;
- ix. How can research in African archaeology and heritage contribute to the fight against pandemic diseases?
- x. Can archaeology and heritage studies provide information on how the world can prepare against any future outbreak of pandemic diseases?

The answers to these questions can be found via the application of archaeological methods, approaches and techniques. Most of the data archaeologists acquire during research are about past human evolution, cultural development, migration, war, and the diet of past people and groups among other things. Archaeologists face a significant knowledge gap when it comes to preparing for pandemic diseases and other potential disasters [17]. While they are more focused on geological disasters like volcanoes, floods, and earthquakes, they have largely overlooked quieter disasters such as famines, refugee crises, and pandemics [17].

This is kindly inadequate for an extensively equipped profession like archaeology and heritage studies, and because these challenges keep coming, the need to concisely address the above questions in a heritage context becomes sacrosanct. The fact that contemporary pandemics and outbreaks of diseases, such as the current COVID-19 pandemic, as well as the Ebola virus, Polio, and Severe Acute Respiratory Syndrome (SARS), *inter alia*; are poignant reminders of our global vulnerability to emergent threats to human health [18]. Therefore, our current inability to predict or prevent such events has made it compulsory for archaeologists to begin to look for ways of contributing to solving major challenges confronting contemporary human health and safety.

For instance, research into the COVID-19 pandemic using African Indigenous Knowledge Systems (AIKS) indicates that many of the symptoms commonly associated with COVID-19, such as fever, shortness of breath, fatigue, confusion, drowsiness, pneumonia, and others, have long been recognized within these systems [1]. Akinwumi asserts that studies have identified over 30 plant species and recipes, as well as additional ingredients like rock salts, salt, hot water, mentholated ointment, honey, olive oil, bicarbonate, and even urine extracts from humans, which have been traditionally used. Selected plant extracts, along with other substances, are derived from various sources such as tree bark, herbs, shrubs, trunks, flowers, leaves, and bulbs. Furthermore, fruits like pawpaw, mango, avocado, ginger, and garlic, among others, have been found to be effective in treating symptoms associated with COVID-19 infection, such as fever and gastrointestinal disorders.

Ethnographic research into traditional knowledge can yield valuable insights into herbal remedies and practices historically used to treat various diseases. Many of these traditional medicines may possess antimicrobial properties that could be harnessed for modern medical applications. Furthermore, understanding traditional rituals and social customs enables public health officials to design culturally sensitive interventions, increasing the likelihood of acceptance and effectiveness within local communities.

In addition to ethnographic studies, historical and archaeological records offer critical data on past pandemics and epidemics, such as the Black Death, the 1918 influenza pandemic, and various outbreaks of smallpox and cholera. These records document the spread of diseases, their societal impacts, and the effectiveness of historical responses. By examining how different cultures managed diseases in the past, we can derive valuable lessons for contemporary public health practices. For instance, the use of quarantine during the Black Death has influenced modern practices of isolation and social distancing.

Bioarchaeologists contribute to this understanding by studying human remains to identify evidence of diseases, nutritional deficiencies, and overall health. This information reveals how ancient populations were affected by and responded to infectious diseases. Complementing this, the analysis of ancient DNA (aDNA) from human remains helps identify pathogens responsible for past epidemics, enhancing our understanding of disease evolution and human vulnerabilities.

Cultural heritage also plays a significant role in maintaining the mental well-being of communities impacted by pandemics. Engaging with cultural heritage, whether through virtual or physical visits to heritage sites, participating in traditional practices, or storytelling, can provide comfort and continuity. Heritage sites and practices strengthen community identity and cohesion, which are crucial for collective action during health crises. Shared cultural heritage fosters a sense of belonging and mutual support, essential during times of social isolation caused by pandemics.



Cultural heritage sites serve as community hubs, fostering reconciliation and unity, which is especially important during the mental and emotional strain of pandemics. Allowing citizens to engage in dialogues about history and tradition, share experiences, and visit national memorials with appropriate safety measures can help mitigate the psychological toll of pandemics. These sites instil a sense of history, community, and solidarity, serving as sources of inspiration, resilience, courage, and artistic innovation needed during crises. Efforts to raise awareness about the benefits of cultural heritage sites and ensure they remain accessible are crucial, as nearly 90% of World Heritage sites were closed or partially closed due to COVID-19.

Intangible cultural heritage also plays a role in recovery processes and building resilience in the face of disasters and crises like pandemics. Webinars have highlighted the vulnerabilities of intangible heritage in such contexts and strategies to manage them effectively.

This comprehensive approach illustrates how thorough archaeological and heritage research on pandemics can contribute significantly to pandemic prevention, treatment, and overall control.

## **5. Conclusion**

Emerging research regarding the contribution of archaeology and heritage towards combating pandemic diseases has increasingly shown confidence in the potential of archaeological findings to address issues related to pandemic outbreaks. Archaeology presents a vast 3.5 million-year-old scientific record of human and earlier hominid problem-solving, offering profound insights into past human responses to pandemics and epidemics. This extensive record can inform us about how to prevent, control, and cope with pandemic diseases as well as similar challenges.

Archaeologists and heritage experts possess a unique ability to analyse shifts in material culture resulting from widespread disease outbreaks. Material culture, such as the varied styles of masks used during present-day pandemics, often reflects social group membership and shared beliefs. These professionals are therefore well-equipped to offer guidance based on historical responses to pandemics. By studying how past societies managed, controlled, or prevented disease outbreaks, archaeologists and heritage experts can provide valuable insights into the origins of pandemics, their impact on populations, and effective mitigation strategies.

This historical perspective offers valuable lessons for addressing current and future challenges related to pandemics, allowing us to better navigate these complex issues in the contemporary world. The lessons drawn from archaeology and heritage are not merely academic; they have practical implications for public health policy and community resilience. For instance, understanding how ancient societies developed and implemented public health measures, quarantines, and social distancing can inform modern strategies to curb the spread of diseases. Also, the study of historical pandemics can reveal how cultural practices and societal structures either facilitated or hindered the spread of disease, offering a nuanced understanding of the interplay between human behaviour and health outcomes.

Moreover, the role of heritage experts extends beyond the analysis of artefacts to include the preservation and interpretation of historical sites that bear witness to past pandemics. These sites serve as educational resources, reminding us of the enduring human struggle against disease and the innovative solutions that have emerged over millennia. They

provide a tangible connection to the past, fostering a deeper appreciation of our shared history and the resilience of human societies in the face of existential threats.

In conclusion, the integration of archaeological and heritage insights into the fight against pandemic diseases offers a comprehensive approach that bridges the gap between past and present. By leveraging the rich scientific record of human problem-solving, archaeologists and heritage experts can contribute to a more informed and effective response to contemporary health crises. Their work underscores the importance of historical knowledge in shaping future strategies for pandemic preparedness and response, ultimately enhancing our ability to safeguard public health and wellbeing.

**Conflict of interest:** The author declares no conflict of interest.

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**Citation:** Nomishan, T. S. Unpacking the place of archaeology and heritage in pandemic studies. *Journal of Social Sciences* 2024, 7 (3), pp. 209-219. [https://doi.org/10.52326/jss.utm.2024.7\(3\).14](https://doi.org/10.52326/jss.utm.2024.7(3).14).

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