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Original Article

# Africa at the Crossroads: An Overview of the Covid-19 Pandemic and its Drama in Tanzania

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The outbreak of the Covid-19 pandemic in Wuhan, China, in early 2019 has *13 February 2023* massively changed global lives. Diverse strategies led by WHO were put in place promptly for dealing with the situation at different global and individual Keywords: levels. Africa as an integral part of the world, was not side-lined, despite the impact of the pandemic was not seriously felt compared to other continents. Crossroads. Since the Covid-19 declaration as one of the world's most deadly diseases, the Pandemic, Tanzania government has taken paradoxical and exclusively apparent tactics Drama, to curb the disease, deviating from the scientific approach. The country relied Tanzania, on and insisted on traditional herbs as the best approach to tackle the situation Covid-19 where the political class led by example. This move was championed by late Tanzania's president John Pombe Magufuli and his entire government officials before his departure despite some standing opposition. This piece of writing was produced to respond to the prompt change in trajectory, perceptions, and approaches towards the disease by the political class of the same government after Magufuli's absence. Data deduced from speeches of government officials, published and unpublished records on the pandemic justify massive confusion to Tanzanians of different calibres. Both medical and nonmedical practitioners were at a crossroads with only the political class running the changing show. The findings concluded that the change of position of the government officials of the same incumbent political party had affected the current scientific approach insisted on by the government machines in Tanzania, which in turn created a divided community.

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## INTRODUCTION

Africans have not been isolated from the rest of the world since the dawn of history. Regardless of the magnitudes, there has been no global political, social, or economic phenomenon that has not stretched its repercussions on the continent. History teaches that all huge world events, such as the First and Second world wars and the world economic depression affected Africa in different dimensions (Byfield et al., 2015; Kufakurinani & Koke, 2016; Strachan, 2010). Throughout the ages, the continent opted for some measures to combat superimposed situations. However, never in the history of our species - not since the Almighty demolished the Tower of Babel – has the entire race been so fixated on a single topic of discussion about the Corona Virus (Hutchison, 2020). We have been following the same discussions, investigating the efficacy of the same drugs, and typing the same term into our search engines repeatedly. The Covid-19 coronavirus has brought humanity closer together than ever (Hutchison, 2020).

In addition to affecting the global scale and the Africans, Covid-19 lives of triggered socioeconomic changes (Lone & Ahmad, 2020). The fighting had been against the same adversary, but the crisis has also served as a tremendous source of divisiveness. Even though the same minuscule adversary threatens everyone in the same way, UN members have launched 193 individual campaigns by 2021, as if each country had a different kind of human being (Hutchison, 2020). Curfews, blockades, and closures have been imposed throughout the world, and nations have resisted in a panicked and fearful manner (Islam et al., 2021; Vellingiri et al., 2020). Tanzania, as a participant in the performance, joined the dance despite taking diverse ways from the rest of the world before settling on the common global restricting measures that the government currently emphasises. In this paper, we argue that the Tanzania government has taken paradoxical and exclusively apparent tactics to curb the disease, deviating from the scientific approach. The country leaned on and insisted on traditional herbs as the best way to deal with a scenario in which the political elite set the tone. This move was championed by late Tanzania's president John Pombe Magufuli and his entire government officials before his death despite some standing opposition. This paper was written in response to the political class of the same government's rapid shift in trajectory, views, and approaches to the disease following Magufuli's death.

## Historicity of World Pandemics and their Impact on Global Lives

Human beings have often been characterised by migration since the beginning of time, pushing individuals to leave their homelands and disperse elsewhere under varieties of complex circumstances. It has been discovered that many infectious diseases have spread across the world as a result of such large-scale human movements (Findlater & Bogoch, 2018). Many devastating and pandemics have occurred epidemics throughout human history, wreaking havoc on native people and claiming many lives. Epidemics, according to Diamond (2018), have affected the course of civilisations in the past and continue to do so today. This idea is similarly touched on by Hays (2018), where his work stressed that cholera, measles, and smallpox outbreaks were regarded as the main limiting forces of population increase before the Industrial Revolution in Europe. As such, this justifies that pandemics are not an uncommon occurrence globally, and they are among humanity's most dangerous disasters, wreaking havoc on socioeconomic and political systems throughout human history.

In various regions of the world where the outbreaks occurred, millions of people were killed in a short period. Several historical sources also provided information on the spread of several epidemics during antiquity. Detailed information on the spread of diseases and epidemics can be found in old Egyptian and Greek texts. Studies from the past have demonstrated the global impact caused by different pandemics. Primary source research combined with plague ecology could reveal more about how the North American outbreak differed from those in Europe and the Middle East (Shefer-Mossensohn & Varlık, 2017).

Ibn Khaldun once claimed that the black death disease was a serious catastrophic and a threat disease "devastated nations and caused populations to vanish" (Khaldun, 1967, p.64.) and recorded in his autobiography that it killed his parents and almost all scholars in Tunis (Rosenthal, 1986). In his philosophy, he presented additional proof of the pandemic's devastation. Ibn Khaldun's scholars say that witnessing the Black Death as a youngster had a profound impact on his thinking, attributing his pessimism, dislike for urban life, and suspicion of dynasty stability to his memories of the epidemic and its aftermath in the Muqaddimah. They claim that Ibn Khaldun believed that Black Death transformed 'the entire inhabited earth' and that this idea inspired him to compose Muqaddimah, a new history for a new world (Fromherz, 2011). Ibn Battuta, a 14<sup>th</sup>century explorer, also wrote about his mother's death from plague in Fez, while Ibn Khatima, an Al-Andalusia thinker, stated in his plague treatise that 1,202 people died in Tunis in a single day and over 700 people died in Tlemcen (Singer, 2020).

Therefore, disease outbreaks such as cholera, plague, typhoid, and smallpox, as well as subsequent droughts and famines, have resulted in millions of fatalities and the extinction of numerous communities throughout history. According to historical records, the plague was an early acute infectious disease caused by the bacillus Yersinia pestis. Although the virus is considered to be transferred by the bite of an urban black rat or a brown sewer rat, the disease is conveyed by a type of flea, and mice are also affected (Centers for Disease Control and Prevention, 2020). In 541 AD, 1347 AD, and 1894 AD, three major plague epidemics happened in history. These plague epidemics all propagated in different ways and at different times in different geographical regions (Frith, 2012). In the year 541, the Justinian Plague broke out in Central Africa, spreading to Egypt and the Mediterranean (Sussman, 2016; Wagner et al., 2014). The second epidemic often called "bubonic plague" began in Continental Asia in 1347 and eventually travelled to Crimea, Europe, and Russia. In 1894, the third plague epidemic began in Yunnan, China, and quickly spread to Hong Kong, India, and the rest of the world (Achtman, 1999).

Therefore, it can be concluded that, before the outbreak of Covid-19, Africa like the rest of the world, tested the race of the pandemic in many justifiable cases. Just like Covid-19, the discoveries of the Ebola pandemic in Guinea, Liberia, and Sierra Leone in West Africa from 2013 to 2016 provided several cases of Africa and the world submitting to nature (Benton & Dionne, 2015). Ebola is an infectious virus that causes mortality and is no vaccine; it was originally identified by scientists in 1976, and outbreaks have occurred regularly since then, usually within the borders of a single country. According to Dionne and Turkmen (2020), the World Health Organization (WHO) recorded 28,600 Ebola cases between 2013 and 2016, with 11,235 persons dying. The above discussions prove the familiarity of pandemics outbreaks worldwide and their impact on people's lives.

## The Historicity of Covid-19 as the Threat to the World Prosperity

The experience of past pandemics took longer to become pandemics than the current situation. This was virtually caused by, among other things, a lack of modern transportation and communication technology which are keys to contemporary quick dispersions (Vrabac et al., 2021). As a result, travellers, traders and soldiers were blamed for the spread of diseases during the period. While AIDS

and malaria continue to be important impediments to social and economic development in certain parts of the world, particularly in Africa, the Covid-19 Pandemic has recently arisen as a global problem with serious economic and political consequences on people's lives (Çınar, 2020).

Over decades, nuclear proliferation, terrorism, and climate change were widely viewed as the greatest threats to world peace and international security before the outbreak of Covid-19 in early 2020. It is believed that there have been no acute outbreaks of infectious diseases on the global security radar before in the history of public health than the threat posed by COVID-19. The technical name for a recently discovered coronavirus. The disease is caused by SARS coronavirus 2, a zoonotic virus that has never been seen in humans (Hasöksüz et al., 2020). COVID-19 has been declared a global pandemic and a public health emergency by the World Health Organization. The coronavirus epidemic reached 199 nations and territories around the world, affecting more than 556,141 people who tested positive for the virus. The total number of people who have died has risen to 25,237 in a span of three months (World meter, March 27, 2020; 14.36 GMT). In a short period, the pandemic spread rapidly across the world. The fatality rate was higher at 2-3%, compared to SARS (2003) and MERS (2012) (Gupta, 2020).

In December 2019, the corona outbreak broke out in Wuhan, China, and quickly spread to nearly all the country's main cities (Gupta, 2020). Even though the world was caught off guard by this invisible miasma, the world responded to the epidemic with a variety of widely agreed-upon and acceptable tactics, such as lockdown while deciding what to do (Verma et al., 2020). Unfortunately, there was no medical cure or vaccine for coronavirus infection at the time and because of that, the epidemic curve flattened and blunted (Harris, 2020). There were few tried-andtrue public health practices that helped stop the virus from spreading. It included the containment of the infectious source, blocking transmission channels, and safeguarding the vulnerable population. In the key public health sector, there were a number of interventions that involved the isolation of test-positive cases / clinically manifest patients and quarantine of contacts for a minimum of 14 days (Adhikari et al., 2020). As coronavirus is transmitted through droplets and physical contact, and at a time, there was no airborne transmission that was reported; the only measure was to prevent contact with the affected people. People were encouraged to practice hand washing with soap and water and observe social distancing. These messages went far and wide through an effective communication strategy to encourage proper and frequent hand washing and social distancing practices. In such times, the role of the community was quintessential in containment and preventing the spread of the virus (Lotfi et al., 2020).

By March 2020, more than 50 countries and 40% of the world's population were under lockdown and confined to their homes to prevent the transmission of the virus in the community (Gupta, 2020). Lockdown resulted in the closure of businesses, factories, schools, offices, religious and social gatherings, and construction work. Although this was important in stopping community transmission of infection, it has led to mass disruption due to an unprecedented mass exodus of labourers to their homes (Auray & Evquem, 2020). Oxfam warned that, in many countries, thousands of labourers left cities on foot to their homes in villages, leading to crowding on national highways. This has not only increased the risk of transmission of coronavirus to the distant population in rural areas but also subjected themselves and their families including infants and young children, to hardships and hunger (Gore, 2020).

In the early days of the eruption of Covid-19, the global economy was on the edge of imploding, and almost every country's economy was taking a beating. The epidemic resulted in the loss of jobs and livelihoods, particularly among the poor. The GDP growth was declining over the world and the poorest countries were facing the brunt of the slowdown, which harmed health and development

over the next four to five years. It was hard to foresee the impact of this dreadful disease in the 21st century (Maital & Barzani, 2020, p.5). The International Labour Organization of the United Nations estimated in March 2020 that the pandemic would cause 35 million more people to enter working poverty than before the epidemic. The coronavirus pandemic would result in between 420 million and 580 million more people, or 8% of the global population, living in poverty, a study by the United Nations University discovered. The researchers based their calculations on the most extreme scenario of a 20% decline in income or consumption around the world. This looked at people who fall below the three international poverty lines of living on less than \$1.90, \$3.20 or \$5.50 a day (Sumner et al., 2020).

## **COVID-19 PANDEMIC IN AFRICA**

## Africa At the Crossroads on Covid-19 Pandemic and Its Spread Within the Continent

The persistence of tension and disagreement over the pandemic led by the United States, China, and WHO resulted in the division of the world. The disagreement was extensively caused by the genesis, measures to be taken, and, currently, the vaccination towards the disease (Jaworsky & Qiaoan, 2021). This has severely affected the world in terms of the path to be taken to combat the disease. Africa as part of the world was taken away by these misunderstandings in terms of all facets regarded the pandemic to maintain its people's lives. Regardless of all tensions among the big powers, common measures to deal with the disease were proclaimed; lockdown, giving out daily patients statistics, contact tracings and closing most of the cities and airports, and closure of all social gatherings places which were considered could trigger the widely spread of the disease. These were considered potentials combating the pandemic matter and commonly agreed mechanisms toward the situation which were argued to be followed throughout the world. Africa as part of the struggle, followed suit where governments took measures to protect its people and the global generally. During this time, African presidents addressed several speeches to cement the WHO and so do East African presidents (Maeda & Nkengasong, 2021).

## Tanzania under Magufuli's Drama on his Approaches to Corona Pandemic

Tanzania's COVID-19 response was disturbing, and the government dramatically reported the Covid-19 cases under Magufuli's watch. In the early months of the pandemic, between February and April 2020, the Tanzanian Government quickly implemented various WHOrecommended measures, and as of Feb 27, 2021, the Ministry of Health has issued 15 guidelines (Makoni, 2021). On 16 March 2020, the first COVID-19 case was reported at the governmentrun Mount Meru Hospital in Arusha, a small town in northern Tanzania. Tanzanian Prime Minister Kassim Majaliwa ordered the closure of all schools and universities the next day, as well as the prohibition of all public gatherings except churches and mosques. Tanzania, on the other hand, stopped publishing COVID-19 numbers by April 2020. There were 509 positive cases, 21 deaths, and 183 recoveries, a figure that had remained consistent from the beginning of the investigation (Makoni, 2021).

The drama began when President John Magufuli removed the head of the country's national health laboratory in charge of coronavirus testing and requested an investigation just one day after questioning the accuracy of the tests. Magufuli said the imported test kits were flawed, claiming they had produced positive readings on a goat and pawpaw among many non-human samples submitted for testing, with technicians kept in the dark about the items' provenance. He did not specify where the kits came from or why the results had concerned the authorities (Obulutsa, 2020). He then fired the country's deputy health minister, Faustine Ndugulile, a trained medical doctor who became the country's fifth highranking public health official to be fired since the first instance of Covid-19 in Tanzania. Ndugulile went against government advice, such as advising against using steam therapy to prevent or cure the virus, a measure championed by Magufuli, who

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claimed that home remedies such as steam therapy and ginger-lemon tea had cured one of his children who had self-isolated after contracting the virus. As the new minister took an oath, Magufuli ordered the reopening of universities and the resumption of sporting activities the following week, dismissing accusations that his administration mishandling the coronavirus response by asserting that faith, not fear, will fight the pandemic (Kew, 2021).

The new minister was tasked with the unusual responsibility of looking into the national laboratory's activities and its handling of Covid-19 testing. These nominations conveyed the idea that in Tanzania, devotion to the president is extremely important. Dissidents will not be tolerated. It is no surprise that when the official head of the opposition in parliament offered to assist with the administration to combat the virus, he was turned down. Civil society groups have also been marginalised. The government's decision to keep places of worship open, however, has won over faith-based organisations. Religion has been framed as a more appropriate response to COVID-19 than science (Kwayu, 2020).

Despite the world's and Africa's collaborative efforts, the late President Magufuli continued to defy the prescribed procedures and precautions. Covid-19 has been presented by him as a covert economic battle rather than a public health emergency that necessitates scientific consultation. He even sent a plane to Madagascar to acquire the virus's traditional cure. The health minister's daily briefings on the country's COVID-19 response ended with a presidential announcement in June 2020 when he publicly said that God was responding to Tanzanians' prayers to stop the pandemic. Following the untimely death of his predecessor, who supposedly died of Covid-19, the president had chosen a new Minister of Constitutional and Legal Affairs two weeks prior (Kwayu, 2020). No further updates on COVID-19 were made since Magufuli stated his concerns about the national laboratory's professionalism. It was no longer clear whether the government's statistics were based on science or whether the

president merely desired lower results to be reported. As a result, the country disregarded all previously agreed-upon ways in favour of traditional herbs and prayers as the only cure for the ailment. As a result, the president's decision on how to handle the pandemic has been arbitrary (Kwayu, 2020).

The actual number of cases and deaths in Tanzania were unknown as the second wave of Covid-19 ravaged Africa, with a third wave seeming likely.

'You should maintain your composure. Vaccinations are risky. If the White man could come up with vaccines, he should have found a vaccine for AIDS by now; he should have found a vaccine [for] tuberculosis by now; he should have found a vaccine for malaria by now; he should have found a vaccine for cancer by now." Magufuli claimed at the end of January 2021 (Makoni, 2021, p. 1).

However, the consequences of Magufuli's inaction were more obvious by the day. According to reports, the number of hospital patients suffering from respiratory distress was on the rise. Residents noticed a rash of pneumonia-related deaths on social media and were mentioned during parliamentary sessions. The footage of then finance minister Philip Mpango, who was not wearing a mask and was coughing uncontrollably, surrounded by physicians and suffering from an undisclosed disease, raised eyebrows (Skopeliti, 2021). Seif Sharif Hamad, the first vice president of Zanzibar's semiautonomous island, died on 17 February 2021 after his party claimed that he had contracted Covid-19. In February 2021, WHO Director-General Tedros Adhanom Ghebreyesus called Tanzania's situation "extremely alarming" and urged the government to begin reporting Covid-19 cases, share data, implement public health measures, and prepare for the vaccine. The World Health Organization said that it had yet to receive any information on Tanzania's pandemic response plans, but evidence of Tanzanians testing positive abroad highlighted the need for action (WHO, 2021).

## Government Officials' Responses on President Magufuli's COVID-19 Philosophy in Tanzania

As the country's supreme leader, all government officials backed the President's measures and kept all pandemic information hidden. This could be supported by their public statements and behaviour. For example, Tanzanian Health Minister Dorothy Gwajima appeared on several Tanzanian television channels, where she was seen making herbal medications that she said would help prevent the spread of infections. During a press conference in Dodoma on February 1st, 2021, the minister said the ministry has no plans to obtain vaccines for Covid-19. Although Tanzania was eligible for the COVAX global project focused on sending doses to low- and middle-income nations, it was unclear when any vaccines would arrive, and the government's position was that any vaccines must be approved by the government. Tanzania, according to the health minister, was safe. She advised the public to improve hygiene habits, including the use of sanitisers, but also steam inhalation, which has been criticised by health authorities elsewhere as a way to kill the coronavirus, during a presentation in which she and others did not wear face masks (Oyinloye, 2021).

The above impressions of Covid-19 could be bolstered by his position as speaker of the United Republic of Tanzania's parliament at the time. Speaker Job Ndugai made his statement during a televised speech at the commencement of the budget session in Parliament in Dodoma, the country's capital.

"As things are, we will not be able to replicate and implement the measures taken by European states. It is extremely difficult... we are going to kill our people. Some people live every day; therefore, we must consider our surroundings and act following it," He explained (BBC, 2021, p.1).

Ndugai was responding to calls from opposition MPs for the government to be more transparent in its handling of the coronavirus outbreak and to take proper measures to control it. Halima Mdee, the then-opposition MP, demanded that the government explain its budget strategy for the outbreak. Mdee also advised that all members of parliament be screened to identify individuals who have become infected (BBC, 2020).

The aforementioned explanations indicated the government's position on the pandemic, which was emphasised at the time and was expected to be followed by all Tanzanians. Government officials, specially trained medical specialists, were regarded as sinful and unethical for opposing this position. As a result, all Tanzanians, regardless of their professional orientation, are following suit, except for a few activists and opposition politicians who pressed the president to follow scientific means to combat the pandemic. These individuals urged the government to implement the WHO rules, which are widely followed and agreed upon around the world.

## Assessment of the Late President Magufuli's Approaches and the State of Covid-19 in Tanzania during Magufuli's Reign

People were suspected of dying in numerous parts of the country despite the government's refusal to publicly and formally reveal Covid-19cases. Opposition politicians and activists leaked unofficial data on illnesses and fatalities related to the epidemic on multiple occasions. The government officials who declared the country Covid-19free vigorously refuted these assertions. Regardless of the government's denial, certain lawmakers publicly denounced President Magufuli and urged residents not to listen to the government. After three parliamentarians died of unknown causes in April, Tanzania's largest opposition party called for the suspension of Parliament on May 2, 2020. The chairman of the opposition Chadema party, Freeman Mbowe, accused the government of concealing the true scope of the coronavirus pandemic, implying that the lawmakers died from Covid-19. Mbowe requested that his party's legislators go on selfquarantine for at least two weeks and refrain from attending legislative sessions. Augustine Mahiga,

the then minister of the constitution and legal affairs, died on May 1st with no declared cause of death. His death followed that of Gertrude Rwakatare on April 20th and Richard Ndassa on April 29th (Aljazeera, 2020). On May 1st, fifteen MPs went into quarantine in response to Mbowe's request to stop attending parliamentary sessions. They were released two weeks later. The Chadema MPs received a notice from the Speaker's Office on 13 May stating that they had absconded duty due to their failure to attend parliament. The Speaker's Office imposed several requirements, including a demand that they return the allowances they had received over the two weeks. Before they could return, they had to show proof that they had been tested for coronavirus and were not infected (Aljazeera, 2020).

Due to the government's imposition of strict rules on Covid-19information, Tanzanians turned to social media and public forums to post about a sudden increase in pneumonia cases in the country. The local media and government officials were aware of the development. Tanzanian newspapers published information on how to avoid contracting the disease. The Ministry of Health issued a notice on treating pneumonia in mid-January. Tanzanian legislator Zacharia Issay testified in parliament about the high number of pneumonia cases and deaths due to respiratory disorders. He complained that he was "wary of attending funerals" and that "all the ventilators were in use" when he visited a friend in the hospital (Sippy, 2021).

At the end of January 2021, Weston Ndomba, a 45-year-old project manager from Dar es Salaam, was diagnosed with pneumonia. He was admitted to the hospital shortly after and spent the following two weeks on a ventilator in intensive care. He stated that he felt it was a 50/50 chance that he would survive or die. Ndomba says he started feeling ill about a week before his diagnosis, with fever, joint and muscle discomfort, loss of smell and taste, and shortness of breath. These symptoms were linked to Covid-19, but Ndomba had no idea he was infected with the virus at the time:

"We thought that there was no coronavirus in Tanzania. Ι was comfortable going to work and socialising without a mask. I believed I had malaria or a blood infection. So, I went to the hospital and underwent a series of tests. I was diagnosed with pneumonia, but no one offered me a coronavirus test," He said (Sippy, 2021, p.1).

The situation in hospitals was critical for people on the front lines during Magufuli's reign. People were "dying helplessly" due to a lack of medical supplies, according to a doctor at Muhimbili National Hospital, the country's largest healthcare facility. Healthcare staff were not permitted to mention Covid-19, according to the doctor, who did not want his name to be exposed. 'We call it viral pneumonia, or atypical pneumonia because patients don't have any symptoms of bacterial pneumonia when they come in', says the doctor. "We do know it is a coronavirus, however. Shortness of breath, fever, a persistent cough, and a lack of taste or appetite are some of the symptoms that patients present with" (Sippy, 2021, p.1.). Patient numbers were quickly growing by January 2021, according to the doctor, which could be due to new, more contagious virus strains discovered in South Africa and the United Kingdom. Due to the overcrowding in the isolation units, some patients had to wait up to 12 hours in the emergency room for oxygen. The government is held responsible for the virus's refusal to be recognised. 'When a pandemic strikes, you must be organised in every way', he stated. "At the hospitals, we are doing our best, but we cannot manage the situation unless we are properly informed and guided. If we had a wellcoordinated reaction, more people could survive" (Sippy, 2021, p.1.).

Besides, one medical consultant in Dar es Salaam, who also requested anonymity due to political pressures, indicated that the closest diagnosis doctors could make is pneumonia. Healthcare personnel were unable to confirm whether a patient had been infected by a coronavirus since no Covid-19 testing was accessible in hospitals. "The National Laboratory is the only laboratory

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testing. We were the only ones with the mandate and the true Covid-19 numbers", he explained. He notes that the increase in pneumonia cases was remarkable because "it is not as common among adults, primarily among those who are immune compromised. It was unusual to see hospitals crammed with patients suffering from this infection" (Sippy, 2021. p.1.). The problem of misdiagnosis was causing major problems. Healthcare personnel was unsure of what medication to give and how to best handle isolation because there was no national guidance. According to the medical consultant, this made it harder to reduce the current infection rates. According to Ndomba,

"We were told there is no Covid-19 in Tanzania. As a result, when I fell ill, I went about my business as usual. I planned to pick up my children from school, head to work, and meet up with friends. I would have safeguarded myself and others if I had known coronavirus was present. Tanzanians were speaking up as the government keeps silent. People were sharing information on their social networks on how to stay safe, pneumonia was our code word,' Ndomba said (Sippy, 2021, p.1.)

Nonetheless, certain institutions, such as the US embassy in Tanzania and the Catholic Church, had spoken out to warn of looming hazards. The Catholic Church had recorded an exceptionally large increase in the number of funeral services. 'Covid-19 is not done yet; he is still here. "Let us not be hasty", stated Bishop Yuda Thadei Ruwaichi. Tanzania's government spokesperson Hassan Abbas told the BBC in a rare interview: "We are not saying Tanzania is Covid-free because we are part of the global community... What the president insists on is that we have it under control" (BBC Swahili, 2020, p.1.). Her Excellency President Samia's new Trajectory on COVID-19 and the Creation of Mass Confusion over the Pandemic among Tanzanians

President Magufuli's death on March 17th, 2021, transformed the entire COVID-19 scenario in Tanzania. The status of state authorities completely changed because they embraced scientific approaches to pandemics. Tanzania's leadership's change of heart on the coronavirus has been backed by the World Health Organization and Africa Centres for Disease Control and Prevention, which might help the country obtain vaccines and catch up with other African countries. The country's new president, Samia Suluhu Hassan, declared earlier after her inauguration that she would appoint a committee of experts to assist her on how to best prevent the virus's spread. The committee formed a national task force that recommends that the country purchase vaccines and cooperate with the World Health Organization (WHO) by publishing statistics and taking other measures. O

n Monday, 17 May 2021, the task force's chair, Professor Said Aboud, presented a report to President Hassan at the State House in Dar es Salaam. The committee recommends that the government employ WHO-approved vaccines in its report. It recommended that the government take further steps to combat the third wave of Covid-19. 'The committee has advised and urged Tanzania to publish information on the presence of the disease, as well as to make efforts to reinforce all preventive measures to avert the threat of the third wave of the virus', Aboud said in a live televised address from the state broadcaster TBC (Abdul, 2021, p.1). Frontline health professionals, security personnel, elderly and religious leaders, according to the group, should be among the first to receive vaccinations. The committee also urged the administration to begin disclosing information about Covid-19 cases. 'People should acquire data from the government and the authority should publish those data to the WHO according to international agreements,' Aboud added (Abdul, 2021, p.1).

The government last released data in May 2020, and Tanzania had already recorded 509 cases by that time.

The committee, on the other hand, did not endorse lockdowns. According to the report, the government must fight the pandemic while considering the environment of Tanzania and be innovative in defending the economy. The task force report is a complete 180-degree shift from Magufuli's anti-vaccine stance during the pandemic. Shadrack Mwaibambe, the president of the Tanzania Medical Association, told 'The Africa Report' that he is pleased with the new direction taken by the government. "Data release is critical not only now but also in the future. We should share data to better assess the scope of any pandemic sickness. 'It's critical', he emphasises. Reacting to the proposal of the committee for vaccines for health workers, Mwaibambe says: 'This is a report that the President will read and address the nation on the directions of this issue. I committee has made believe the good recommendations" (Abdul, 2021, p.1).

Following the government's U-turn on Covid-19, Tanzania has been taking incremental steps (in terms of complying with WHO regulations). President Samia and other high-ranking government officials, for example, started to wear face masks and use sanitisers when attending public events. When the President travels outside of the country, she wears a mask, as she did when she went to Kenya and then Uganda to have longtime leader Yoweri Museveni sworn in. However, the people of Dar es Salaam, Tanzania's economic capital, went about their daily lives without following Covid-19 health measures, such as hand washing and maintaining social distancing. Only a few people wear face masks (Buguzi, 2021). Despite this breakthrough, Covid-19 tests were not being done for the general public, according to officials at Muhimbili National Hospital, the country's only testing facility. 'We do not do testing here, and the authorities have not given us any signs that we should start testing people' (Sippy, 2021, p.1). On the condition of anonymity, a doctor at the facility told The Africa

Report that they only examine those who are leaving the country. This suggests that, despite the government's decision to intervene, it was unclear whether the pandemic was being fought in secrecy. When Magufuli's administration stopped providing Covid-19 data, it made it harder for Tanzanians and the rest of the world to see how the country is coping with the global health problem (Kew, 2021).

## Tanzanians at the Crossroads on the new Government Standing Emphasising Scientific Approaches to Covid-19Pandemic

The late President Magufuli's and his entire government's long-term presence on the Covid-19 reality created many paradoxes for Tanzanians, prompting modern shifts in perspectives and approaches by his successor, who served in the same government. President Hassan, who supports a global scientific consensus against the disease, said vaccines are safe and urged Tanzanians to get vaccinated. According to the Ministry of Health, 105,745 persons were vaccinated, with another 164,500 set to receive the vaccine by August 2021 which accounted for only 0.18 of the world population having been vaccinated in Tanzania (Makoye, 2021).

The consequences of this consternation were amply demonstrated by the government's abrupt formal and informal shifts in posture following Magufuli's departure. The following interviewees cement this allegation and show unwillingness to be vaccinated:

"Personally, I will not be vaccinated for whatsoever reason. The late president explicitly told us about the conspiracy of this matter, what has made the instant change to the newly sworn president who served the same government. I think the government has hidden agenda on this matter and I am not going to be vaccinated". One citizen interviewed in the media claimed.

Similar consternation was reported on social media in a primary school in Kigoma's Kasulu area, where parents went to school to inquire about the reasons for their children's vaccination compulsion. This was reported by the school's principal, who added:

"Yesterday we had guests from Tanzania Agricultural Institute (TARI) who paid a visit to our school's farm, their arrival shocked the students and finally made parents question for that, parents thought that these people came purposely to vaccinate their children" (Azam News, 2021)

Apart from those parents, the aforementioned information reflects a quagmire for many Tanzanians. Many factors have contributed to the situation, including the adoption of the late Magufuli's views on Covid-19, a lack of awareness and education, a drastic shift in government officials' approaches to the same disease, and a loss of faith in medical experts who have changed their positions on the same issue. This has influenced the current stated immunisation exercise, which is seeing low turnover. For example, the government initially stated that in the first phase, one million vaccines would be acquired for particular populations such as the elderly, persons with chronic conditions, and those who were sensitive to Covid-19. However, due to the resulting confusion, only about 200 shots were administered to the patients who had been identified in all vaccination centres. As a result, starting August 12, 2021, the government let everyone who wished to be vaccinated do so, regardless of any particular criteria (Ministry of health, 2021)

Misinformation was another concern, as many people appeared to have poor knowledge of vaccines and had been misled. Agatha Masawe, a Dar Es Salaam hairdresser, is in a quandary after reading on social media that the vaccine may cause infertility. 'People say too much about COVID-19 vaccinations. 'It's difficult to know who is telling the truth,' he explained. Hanifa Twelve, a second-year Institute of Social Welfare student, is undecided because she is concerned about the long-term consequences. "I have not chosen to or not to vaccinate my children yet. I do not want to make a mistake I will live to regret", she explained. Immunisations are safe and effective, according to Deus Kitapondya, a public health expert now working at the Amelda hospital in Dar Es Salaam. He believes that the greatest way to remove vaccine scepticism is for the government to fully embrace a scientific approach based on international norms in topics of public health and communications. "The health minister and her deputy should quit for publicly deceiving the public. He stated, "It is not an easy decision, but it is a permanent answer." According to Kitapondya, the government should reveal data on the genuine situation, such as the number of patients, deaths, and treatment. 'Religious leaders and other powerful individuals should mobilise people to take the vaccine', he urged (Makoye, 2021, p.1).

Similarly, religious leaders have swayed public opinion and have a role to play. Although Christians' religious beliefs differ, the desire to avoid vaccination has grown as quickly as the virus, leaving officials scrambling to keep up with the influx of individuals who want to get vaccinated. Women in beautiful gowns, men in gleaming suits, and wide-eyed children flood into the church on a hot Sunday to hear the word from the man they call the bishop. 'Jesus will overcome evil institutions and take the lives of those who deliver vaccines', yelled Josephat Gwajima, a selfdeclared bishop, amid thunderous applause. Gwajima, a wealthy Tanzanian pastor turned politician who runs the Church of Revival and Life, has refused to be vaccinated and advised his followers not to get the vaccine because he believed that God is the ultimate healer and deliverer. "In the name of Jesus Christ, we shall not vaccinate." Let us come together as a nation to reject these vaccines", Gwajima stated during one of his Sunday sermons (Makoye, 2021).

This Bishop stands as a vocal opponent of vaccinations in Tanzania, advising his followers not to get the vaccine because it could affect

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cognitive abilities and make individuals look like zombies, according to his sermons. Gwajima, speaking at his church, claimed that western countries supporting the worldwide vaccination effort have a dark agenda against Africans. Although there is little evidence of vaccination apprehension among evangelical Christians and other extremist groups, religious reasoning often spreads outside of church walls and into society. Gwajima's odd anti-COVID-19 vaccine attitudes, on the other hand, have drawn a lot of fire. It is harmful to mislead people who trust us in matters where we don't have the expertise, according to January Makamba (Makoye, 2021). When Tanzania's Minister for Health, Dr. Dorothy Gwajima, the wife of Bishop Gwajimas' brother, authorised the Police Force to arrest and question Kawe MP Josephat Gwajima, the tale moved beyond politics. Bishop Gwajima, according to Dr. Gwajima, has made false statements that have hampered her ministry's attempts to combat the coronavirus.

On the other hand, while younger generations are still hesitant to obtain the vaccine, an increasing number of senior adults are lining up to get the Johnson & Johnson shot. A group of elderly people sits in wooden seats at the Mabwepande Health Center on the outskirts of Dar es Salaam, waiting to be vaccinated. Vera Kamuzelya, 76, said: "I really cannot wait to get the shot; it is my best bet and my best protection." She claims that fears about COVID-19 shots are unjustified because the vaccine's efficacy and safety were verified through studies before its approval. In Tanzania's COVID-19vaccination campaign, older people are leading the way. While health officials battle doubts about vaccine efficacy and long-term negative effects, the elderly and fragile people take advantage of the opportunity to be vaccinated and protected against the virus. The Anadolu Agency conducted a spot check at numerous immunisation centres and discovered that elderly individuals dominate the lines. Verdiana Ndunguru, 80, walks into a tent where medical professionals in surgical masks are injecting visitors with the Johnson& Johnson vaccination at Mwananyamala hospital, clutching

her handbag. "I came here because I believe I owe it to myself and others to save our lives", she explained. Even though Ndunguru's children were concerned about her diabetes, a doctor who interviewed her said she was healthy enough to receive the vaccine (Makoye, 2021). The results are available in English.

## **CONCLUSION & RECOMMENDATIONS**

Events in the early phases of the Covid-19 pandemic remind us how nature can be so arrogant and how nature always triumphs in conflicts between man and nature. President Magufuli's actions were risky and suicidal in that they disregarded science. The past loss of lives that resulted from disregarding medical advice and treatment could have been prevented. It was irresponsible for the government of Tanzania to shun away from the measures that were being taken by the international community against Covid-19. As such, collective strategies were needed to combat the disease effectively at the global and country levels.

Findings suggest that the changing stance by the government officials of the same incumbent political party has affected the current scientific approach insisted by the government machinery in Tanzania which in turn created a divided community. In fact, as many Tanzanians are still divided into the new approaches taken by the government, therefore, the health authority is responsible for mass education to restore the lost trust and confidence in the same government officials with the changing direction of the pandemic. Mass education and awareness are extensively required due to the lack of health facilities and workers to respond to the patients if the pandemic situation is intensified in the country. This can be achieved by sharing information that requires the active participation of States and the private sector. Besides, Tanzania is not an island to which her people will be enclosed but need to interact with the world anyhow. This calls for collective strategies towards the disease that will place the country in the world's acceptable position on the pandemic.

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Additionally, Tanzania's government should have joined the global vaccine alliance as quickly as possible. It should have been prepared to use its scientific expertise and work closely with international partners to accomplish this. Involving African scientists, notably Tanzanian scientists, in the creation of a COVID-19 vaccine will/would dramatically increase its uptake. This could be accomplished by giving these scientists the tools they need to do independent research in a partnership, such as capacity building, infrastructure, and finances. African experts should be involved in the creation of a COVID-19 vaccine, according to the majority of Tanzanians. When it comes to a COVID-19 vaccine, this has to do with their level of faith in foreign institutions and pharmaceutical corporations. The premise is that seeing one of their own on a vaccine development team will boost confidence. Given that pharmaceutical companies will be intimately involved in the development and distribution of a COVID-19 vaccine, this appears to be a foregone conclusion. According to the opinions of many, the pharmaceutical industries, particularly those of western countries and China, are held in high regard. The majority believe that businesses are just concerned with generating a profit and are unconcerned about public health. They are concerned about the hazards posed by people or institutions in whom they have lost faith. As a result, community/public engagement will be the most effective strategy to dramatically increase vaccine acceptance in Africans in general and Tanzanians in particular the COVID-19 vaccine.

Finally, since the world continues to face the Covid-19 disaster and since there is a risk of the emergence of a new variant of Covid-19, then it is everyone's responsibility to protect oneself and the people around by observing all Covid-19free approaches including taking recommended measures by the WHO and the government for the welfare and prosperity of the entire nation. To avoid the current social confusion, the government should monitor, direct, and provide updated guidelines on the pandemic due to the emergence of some important figures who provide their Covid-19positions and influence their followers to adhere to them, thus creating many divisions and confusion among Tanzanians.

## REFERENCES

- Abdul H. (2021, May 17). *Tanzania: President Hassan makes a post-Magufuli U-turn on Covid-19response and vaccines*. The Africa Report. https://www.theafricareport.com/891 44/tanzania-after-magufuli-fight-againstcovidstill-not-clear-even-with-pressure-totake-up-vaccines/
- Achtman, M., Zurth, K., Morelli, G., Torrea, G., Guiyoule, A., & Carniel, E. (1999). Yersinia pestis, the cause of plague, is a recently emerged clone of Yersinia pseudotuberculosis. *Proceedings of the National Academy of Sciences*, 96(24), 14043-14048.
- Adhikari, S. P., Meng, S., Wu, Y.-J., Mao, Y.-P., Ye, R.-X., Wang, Q.-Z., Sun, C., Sylvia, S., Rozelle, S., & Raat, H. (2020). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: A scoping review. *Infectious Diseases* of Poverty, 9(1), 1–12.
- Al Jazeera. (2020, May 2). *Tanzania opposition mps to Boycott parliament after 3 mps die. Coronavirus pandemic News* | Al Jazeera. Retrieved December 26, 2022, from https://www.aljazeera.com/news/2020/5/2/ta nzania-opposition-mps-to-boycottparliament-after-3-mps-die
- Auray, S., & Eyquem, A. (2020). The macroeconomic effects of lockdown policies. *Journal of Public Economics*, 190, 104260.
- BBC. (n.d.). Covid-19 vaccines: Tanzanian government says the country has 'controlled' the virus. BBC News. Retrieved December 30, 2022, from https://www.bbc.com/news/av/world-africa-56019310
- Benton, A., & Dionne, K. Y. (2015). International political economy and the 2014 West African Ebola outbreak. *African Studies Review*, 58(1), 223-236.
- Buguzi, S. (2021, March 16). Tanzania makes COVID-19 U-turn but secrecy persists. Scie

Article DOI: https://doi.org/10.37284/ajhg.2.1.1088

dev net. https://www.scidev.net/global/tanza nia-makes-covid-19-u-turn-but-secrecypersists/#fl-main-content

- Byfield, J. A., Brown, C. A., Parsons, T., & Sikainga, A. A. (Eds.). (2015). *Africa and World War II*. Cambridge University Press.
- Centers for Disease Control and Prevention. (2022, April 11). *Emergency preparedness and response program. Centers for Disease Control and Prevention.* Retrieved December 26, 2022, from https://www.cdc.gov/niosh/programs/epr/
- Chinembiri, T., Ahmed, S., & Govan-Vassen, N. (2021). COVID-19 Exposes the Contradictions of Social Media Taxes in Africa.
- Çınar, M. A (2020). Historical Perspective on Epidemics and New Beginning after COVID-19. Karabuk University
- Diamond, J. (2018). *Guns, germs, and steel*. İstanbul: Pagasus.
- Dionne, K. Y., & Turkmen, F. F. (2020). The politics of pandemic othering: putting COVID-19 in global and historical context. *International Organization*, 74(S1), E213-E230.
- Findlater, A., & Bogoch, I. I. (2018). Human mobility and the global spread of infectious diseases: A focus on air travel. *Trends in Parasitology*, 34(9), 772–783.
- Frith, J. (2012). The history of plague-part 1: The three great pandemics. *Journal of Military and Veterans Health*, 20(2), 11–16.
- Fromherz, A. J. (2011). *Ibn Khaldun*. Edinburgh University Press.
- Gupta, S. D. (2020). Coronavirus pandemic: a serious threat to humanity. *Journal of Health Management*, 22(1), 1-2.
- Gore, T. (2020). Confronting Carbon Inequality: Putting climate justice at the heart of the COVID-19 recovery.
- Harris, J. E. (2020). *The coronavirus epidemic curve is already flattening in New York City*. National Bureau of Economic Research.

- Hasöksüz, M., Kilic, S., & Saraç, F. (2020). Coronaviruses and sars-cov-2. *Turkish Journal of Medical Sciences*, 50(9), 549–556.
- Hays, J. (1998). The Burdens of Disease: Epidemics and Human Response in Western History. New Brunswick, New Jersey: Rutgers University Press.
- Hutchison, C. (2020, September 26). In full: Prime minister Boris Johnson's speech to UN General Assembly. HeraldScotland. Retrieved December 24, 2022, from https://www.heraldscotland.com/news/18751 105.full-prime-minister-boris-johnsonsspeech-coronavirus-pandemic-un-generalassembly/
- Ibn Khaldun, (1967) *The Muqadimmah: An Introduction to History, 3 vols, trans.* Franz Rosenthal. London: Routledge and Kegan Paul
- Islam, T., Pitafi, A. H., Arya, V., Wang, Y., Akhtar, N., Mubarik, S., & Xiaobei, L. (2021). Panic buying in the COVID-19 pandemic: A multi-country examination. *Journal of Retailing and Consumer Services*, 59, 102357.
- Jaworsky, B. N., & Qiaoan, R. (2021). The politics of blaming: The narrative battle between China and the US over COVID-19. *Journal of Chinese Political Science*, 26(2), 295–315.
- Kew, J. (2021, April 9). Tanzania's U-Turn on Covid-19 Gets WHO and Africa CDC Support. Bloomberg. https://www.bloomberg.com/news/articles/2 021-04-09/tanzania-s-u-turn-on-covid-19gets-who-and-africa-cdc-support
- Khaldūn, I. (2005). From The Muqaddimah. *World Scientific Book Chapters*, 55-62.
- Kufakurinani, U., & Koke, H. (2016). 'When Europe Sneezes...?'A Comparative Analysis of the African Experience of the Great Depression and the Second World War.
- Kwayu, A. C. (2020, May 31). Tanzania's COVID-19 response puts Magufuli's leadership style in sharp relief. The Conversation. https://theconversation.com/tanzanias-covid-

Article DOI: https://doi.org/10.37284/ajhg.2.1.1088

19-response-puts-magufulis-leadership-stylein-sharp-relief-139417

- Lone, S. A., & Ahmad, A. (2020). COVID-19 pandemic–an African perspective. *Emerging Microbes & Infections*, 9(1), 1300–1308.
- Lotfi, M., Hamblin, M. R., & Rezaei, N. (2020). COVID-19: Transmission, prevention, and potential therapeutic opportunities. *Clinica chimica acta*, 508, 254-266.
- Maeda, J. M., & Nkengasong, J. N. (2021). The puzzle of the COVID-19 pandemic in Africa. *Science*, *371*(6524), 27–28.
- Maital, S., & Barzani, E. (2020). The global economic impact of COVID-19: A summary of research. *Samuel Neaman Institute for National Policy Research*, 2020, 1–12.
- Makoni, M. (2021, February 13). *Tanzania refuses COVID-19 vaccines*. The Lancet. Retrieved December 26, 2022, from https://www.thelancet.com/journals/lancet/ar ticle/PIIS0140-6736(21)00362-7/fulltext
- Makoye, K. (2021, August 16). Tanzania struggles to dispel myths against COVID-19 vaccines. Anaduolu Agency, 1. https://www.aa.com.tr/en/africa/tanzaniastruggles-to-dispel-myths-against-covid-19vaccines/2336356
- Obulutsa, G. (2020, May). Tanzania suspends laboratory head after president questions coronavirus tests. Reuters. https://www.reuters.com/article/us-healthcoronavirus-tanzania-idUSKBN22G295
- Oyinloye, A. (2021, February 3). *Tanzania minister: No interest in procuring COVID-19-19 vaccines*. Africa News. https://www.africanews.com/2021/02/03/tan zania-minister-no-interest-in-procuringcovid-19-vaccines//
- Rosenthal, F. (1986). Ibn Khaldun in his Time (May 27, 1332-March 17, 1406). In *Ibn Khaldun and Islamic ideology* (pp. 14-26). Brill.
- Shefer-Mossensohn, M., & Varlık, N. (2017). A historiography of epidemics in the Islamic Mediterranean. *Plague and contagion in the Islamic Mediterranean*, 3-25.

- Singer, R. (2020). The Black Death in the Maghreb: A Call to Action. *Journal of Medieval Worlds*, 2(3-4), 115-123.
- Sippy, P. (2021, February 17). *Covid-skeptical Tanzania is experiencing a spike in pneumonia*. Quartz. Retrieved December 26, 2022, from https://qz.com/africa/1973320/co vid-skeptical-tanzania-is-experiencing-aspike-in-pneumonia
- Skopeliti, C. (2021, February 25). Tanzanian minister coughs through press conference aimed at defusing Covid-19fears. The Independent. Retrieved December 26, 2022, from https://www.independent.co.uk/news/w orld/africa/tanzanian-minister-coughs-covidphilip-mpango-b1807175.html
- Strachan, H. (2010). The First World War as a global war. *First World War Studies*, 1(1), 3–14.
- Sumner, A., Hoy, C., & Ortiz-Juarez, E. (2020). Estimates of the Impact of COVID-19 on Global Poverty (No. 2020/43). WIDER working paper. https://doi.org/10.35188/UN U-WIDER/2020/800-9
- Sussman, G. D. (2016). Scientists doing history: Central Africa and the origins of the first plague pandemic. *Journal of World History*, 26(2), 325–354.
- Vellingiri, B., Jayaramayya, K., Iyer, M., Narayanasamy, A., Govindasamy, V., Giridharan, B., Ganesan, S., Venugopal, A., Venkatesan, D., & Ganesan, H. (2020). COVID-19: A promising cure for the global panic. *Science of the Total Environment*, 725, 138277.
- Verma, B. K., Verma, M., Verma, V. K., Abdullah, R. B., Nath, D. C., Khan, H. T., Verma, A., Vishwakarma, R. K., & Verma, V. (2020). Global lockdown: An effective safeguard in responding to the threat of COVID-19. *Journal of Evaluation in Clinical Practice*, 26(6), 1592–1598.
- Vrabac, D., Shang, M., Butler, B., Pham, J., Stern, R., & Paré, P. E. (2021, May). Capturing the effects of transportation on the spread of COVID-19 with a multi-networked SEIR model. In 2021 American Control Conference (ACC) (pp. 3152-3157). IEEE.

Article DOI: https://doi.org/10.37284/ajhg.2.1.1088

Wagner, D. M., Klunk, J., Harbeck, M., Devault, A., Waglechner, N., Sahl, J. W., Enk, J., Birdsell, D. N., Kuch, M., & Lumibao, C. (2014). Yersinia pestis and the Plague of Justinian 541–543 AD: A genomic analysis. *The Lancet Infectious Diseases*, 14(4), 319– 326.

World Health Organization. (n.d.). *Who directorgeneral's statement on Tanzania and covid-19*. World Health Organization. Retrieved December 26, 2022, from https://www.who.int/news/item/20-02-2021who-director-general-s-statement-ontanzania-and-covid-19