



COVID-19: Global Preparedness, Challenges and Impact

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ABSTRACT

Corona virus COVID-19 is a pandemic whose devastating effects were felt in all corners of the world and by all humanity of whatever age, gender, economic and social status from the beginning of January 2020 and the intensity increasing day-by-day. The patients that had symptoms were isolated while waiting for results. In some countries, self-isolation was encouraged while in others, people had to be put in quarantine facilities to cut down the spread chain immediately. Different countries identified quarantine centers where individuals were quarantined for 14 days upon which they would be tested. A philanthropist Bill gates, the Microsoft billionaire, committed himself to donating resources for developing a vaccine. Research centers directed their focus to establishing a cure or a vaccine for the killer virus. After four months of trials and tests, there was no sign of a cure. Many governments in the world applied a partial or full lockdown guided by the rate of infection and death. China was the first to call for a complete lockdown as it struggled with the new pandemic. The CoVID 19 pandemic has affected every facet of life; social, economic and mental. This has placed a lot of strain on governments and individuals. The economic status of many countries and individuals has been adversely affected and may take a long time before recovery.

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1. INTRODUCTION

COVID-19 is a pandemic whose devastating effects were felt in all corners of the world and by all humanity of whatever age, gender, economic and social status from the beginning of January 2020 and the intensity increasing day-by-day. According to Last [1], a pandemic is “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people. A Chinese doctor, Li Wenliang working in Wuhan city, Hubei in China got concerned about a novel pneumonia-like infection that was becoming common by the day. On 31st December 2019, the World Health Organization (WHO), China Country Office was informed of cases of pneumonia of unknown etiology detected in Wuhan City, Hubei Province of China that had infected 44 people between December and early January 2020 [2]. Later on a similar disease was reported in other areas of China and outside. With the increasing reports of the little known pneumonia-like disease, its outbreak was declared a Public Health Emergency of International Concern on 30th January 2020. WHO monitored the reports on the disease and its presentation.

In due course, the efforts from medical scientists in different parts of the world directed their attention to the study of this novel disease after which it was found to be a type of corona virus which on 11th February 2020, was named COVID-19 by WHO. The disease presentations were broadcasted in all world media with WHO giving an update of the findings as they came from well established researchers and scientists. The disease within weeks had spread all over the world and was causing devastating consequences. WHO [3] noted that the corona virus COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge faced since World War Two. This review article will give an overview of the disease including the disease and its symptoms, government preparedness and its impact.

The human corona viruses were first identified in the mid-1960s [4]. In the past such viruses included MERS-CoV (the beta corona virus that causes Middle East Respiratory Syndrome, or MERS) SARS-CoV (the beta corona virus that causes severe acute respiratory syndrome, or SARS). The viruses originate from birds and

more so bats. COVID-19 is a novel virus that caught the world of medics by surprise. Its definition and symptoms keep being revised as new discoveries are made. However, there is a general consensus from scientists that it is a viral disease that affects the respiratory system. It gets into one’s body through the mouth, the nose and the eyes. COVID-19 is in itself a protein that can survive in given surfaces for a varying period of time. The virus can jump from animals and infect men after which they can be passed from one human to another. This disqualifies the myth that they jumped out of a lab in Wuhan. Mayo Clinic [5] notes that symptoms of COVID-19 infection include: fever, cough, tiredness, shortness of breath, difficulty breathing, muscle aches, chills, sore throat, loss of taste and smell, headache and chest pains. It is spread through contact within 1 to 2 meters, respiratory droplets spread through sneezing, coughing and talking resulting to droplets being inhaled or land in the mouth or nose of a person nearby and touching surfaces with the virus and then touching ones mouth, nose or eyes.

2. GOVERNMENTS PREPAREDNESS AND CHALLENGES

2.1 Governments Preparedness

Every pandemic has to be handled with preparedness that is usually coordinated and implemented by the governments of the countries concerned. WHO [6] immediately, after realizing that the corona virus was a pandemic, provided guidelines to reduce transmission of virus within and outside of China. The world governments responded in various ways. Some governments responded by creating COVID-19 emergency response committees. The committees operated on guidelines from their countries and those provided by WHO. Some of mitigation measures taken by governments are outline below:

Health facilities: The responses mainly involved improving the health facilities. This included setting out some sections of the existing hospitals for admitting COVID-19 patients. This was important because of the infectious nature of the virus. China built a new hospital in 10 days set up specifically to tackle the Wuhan corona virus [7]. This was important due to the threat that the virus posed especially in Wuhan, Hobei

Province where it was believed to have originated.

Personal Protective Equipment (PPEs): Preparedness also involved production and provision of Personal Protective Equipment (PPEs) to the health care workers and others in the frontline in fighting the virus. The Health workers required full proof protective equipment to ensure that they did not contact the virus as they interacted with those who contacted the disease. Different governments went ahead and identified factories that could produce protective equipment for their front-line staff. Following specifications from the experts, protective equipment from special materials were made and had to be approved by relevant bodies. Those countries that did not have the capacity had to import. Over the time, importation of goods became a problem as airlines closed down due to the risk of importing cases. Many governments had therefore to engage their own people and their own factories and raw materials.

At some point, countries experienced shortages including United States of America, United Kingdom and Italy. Due to the overwhelming cases of infection and death, the countries struggled with providing equipment. The developing countries faced a major challenge, and had to some extent relied on assistance from developed countries and various institutional or individual philanthropists. During the period Kenya received 20,000 testing kits from Jack Ma foundation [8]. The other 53 African countries had received similar equipment from the same kitty through the government of Ethiopia. Bill Gates, the Microsoft billionaire committed himself to donating resources for developing a vaccine. This was a good gesture bearing in mind that Africa significantly depended on the developed countries for technology. In some countries, the health workers warned about going on strike in fear of their safety. UK had to quickly import some PPEs from Turkey to avert the strike. Kenya had also to raise the supply of the PPEs to keep the highly tensed healthcare workers on their feet.

Face Masks: WHO [9] came up with a guideline on wearing of face masks. The governments guided by their ministries of health contracted people to make and distribute face masks among the citizens. Private institutions were also involved in making of masks following the WHO laid down requirements. In many countries, no-one could leave their homes without a face

mask. This is to control infecting oneself or others. Governments came up with different ways of enforcing this guideline. In some countries, those who did not wear masks were jailed for some period while some policemen meted all types of punishment. The citizens found this directive quite uncomfortable and some lawyers and other interested parties run to court to fight this directive. However on seeing the effect of the virus, the courts were quick to deny them what they felt was their right to freedom. Desperate times require desperate measures. With time people wore masks in public places with a lot of ease. Due to the aggressive call by WHO, governments and media houses, people realized the need to wear the masks as a way of fighting the pandemic. It finally became the new normal.

Identifying, Testing, Isolating, Treatment and Contact Tracing: Those infected had to be identified, isolated, treated and their contacts traced. This was the mantra in fighting the virus. However, Identifying the sick was a challenge because the symptoms were mostly similar to those of the normal flu and pulmonary pneumonia that includes a dry continuous cough, an itchy throat and fatigue problems in breathing, high temperature, serious inflammation of lungs requiring intubation at the critical stages. As scientific studies continued in various world laboratories, it was discovered that some patients were asymptomatic. This led to unnoticeable spread that required mass testing. This complicated identification of the sick.

Testing was a major challenge as the testing equipment and reagents were not easily accessible. The testing equipment was only manufactured in a few countries. Reagents were also very scarce. Developing countries had to depend on the developed countries for this ability. This resulted to some countries reporting zero cases due to the inability to test. The testing involved collecting some stuff from the nostrils and the throat using swabs. These were tested and results achieved within a given period depending on the testing facilities available.

The patients that had symptoms were isolated while waiting for results. In some countries, self-isolation was encouraged while in others, people had to be put in quarantine facilities to cut down the spread chain immediately. Different countries identified quarantine centers where individuals were quarantined for 14 days upon which they would be tested. If they turned positive, they

were advised to self-quarantine or be hospitalized. While in the hospital the patients are treated for symptoms as there is no identified medication for the virus. In critical the stage, the patients are intubated to feed the lungs with oxygen at which point most of the patients die. Contact tracing is started immediately a patient turns positive. This involves getting in touch with all the individuals the patient came into close contact with and taking them to quarantine. This was a key strategy in fighting the pandemic.

Quarantine Facilities: Each government had to identify quarantine facilities where those suspected to have the virus were locked down until the 14th day when they would be tested for the virus. Private quarantine facilities were also available for those who could afford [10]. Sometimes the quarantine conditions caused the quarantined a lot of anxiety and stressed. The cost of the quarantine was met by the individuals while some governments paid met the expenses. In some countries the people taken to quarantined centers expressed displeasure with the facilities and the type of treatment they received from those facilities. In A quarantine centre in Kenya, those in the quarantine reported dissatisfaction. To them, it was a punishment. Some escaped by jumping over the fence of the Kenya Medical Training College, one of the government quarantine centers in Nairobi and the Minister of health had to plead with them to go back [11]. This was a hindrance to the government's effort to avert the spread of COVID-19.

Guidelines and Restrictions: Each government enforced guidelines as guided by WHO. These guidelines were pegged to the constitutions of each government. They included social and physical distancing of about 1-2 meters, staying at home, hand-washing, hand sanitizing, coughing on the elbow rather than the hands, using of tissue paper and disposing them after use as opposed to the use of handkerchiefs, avoiding touching the face by wearing masks to cover the eyes, nose and mouth and avoiding handshake. Group gatherings were banned. These included churches and other social gatherings. Bars and other social places were closed.

Aggressive Communication: Communication was a major tool in fighting the pandemic. Systematic Communication through the social, electronic media and other media was done extensively. Various government agencies

designed warnings and statements to educate the masses on how the COVID-19 spreads its symptoms and ways of protecting oneself and others from infection. Television channels demonstrated how to use the masks and stressed the need to use them accurately. Countries became open in reporting the number of infections as per areas, number that had recovered and number of deaths and the number tested. Different countries had a committee that made daily briefs accompanied by statistics on COVID-19. This was important in times of a pandemic. However some countries were not disclosing the actual numbers. WHO and other institutions displayed the global numbers on a 24 hour basis. China, USA, European countries and some African countries such as Nigeria and Kenya displayed their numbers. The African countries and other developing countries that lagged behind in testing and reporting cases were able to learn the strategies that worked best as they read the daily reports from the countries with better facilities and willing to share their statistics with the world.

Frontline Health Care Workers: No country in the world can be fully equipped to deal with the day-to-day health issues. However some countries are ahead of others in this endeavour. COVID-19 pandemic demonstrated the disparity in health care preparedness. However, countries over Europe and US and a few other countries though overwhelmed by the numbers of infection demonstrated robust facilities comparatively. During the pandemic the health care workers were provided with the equipment they required and in some instances had a robust insurance cover. On the other hand, healthcare workers in the less developed countries had to struggle with the few equipment facilities and especially in countries that did not take the pandemic seriously. The healthcare staff found themselves overwhelmed by the pandemic probably more than any other health care workers globally. They had to learn to do what they could with the little that was provided guided by the oath of service that bound them. The equipment makes marks and visible scars on their bodies as they struggled with the infected and the dying. Data from previous pandemics, suggest that healthcare workers might develop symptoms of post-traumatic stress disorder, depression, and substance use disorders [12]. Many reported mental health sicknesses resulting from the fear of infection and loneliness as they interacted with the sick and the dying. Adams and Walls [13] confirmed this and reported that frontline medical

workers are at risk of not just adverse physical outcomes from corona virus disease such as COVID-19 but psychological ones too.

Quite a large number of health care and other frontline workers got infected as others succumbed to the virus including the doctor in Wuhan who called the world to the attention of the novel virus. Some countries carried out mass testing of the health care workers resulting to the discovery that quite a big number had been infected by the virus. On several occasions, the healthcare workers were recognized nationally through organized clapping and ululations. Some received gifts from different companies and institutions.

Burial Procedures: The deaths from corona virus were not handled normally. The normal had become the abnormal. Due to the nature of the virus, the dead had to be buried by the government in most countries together with representatives from the health ministry. In countries such as Spain and Italy, mass graves for COVID-19 dead were prepared and officiated by very few people and in most cases not more than 10. The dead were put in gunny bags and the burial was done under tight security. The dead died in loneliness away from their loved ones and the loneliness followed them to the grave. As morgues are inundated, coffins pile up and mourners grieve in isolation: “this is the bitterest part” [14]. Some said their final goodbye through social media with the assistance of the healthcare workers. In some countries with organized homes for the elderly, the elderly died away from their families. Most countries had identified areas to bury the dead. At one point the sitting Italian prime minister as reported to say, in tears, “We have lost control on corona virus.” However, this was later disputed. At some point, countries such as Spain, Brazil, USA and Italy had their morgues full. They had to look for other facilities which they converted to temporary morgues. Trucks were at some point used to store the dead.

Lockdown: Many governments in the world applied a partial or full lockdown guided by the rate of infection and death. China was the first to call for a complete lockdown as it struggled with the new pandemic. People were asked to remain at home and could only leave home to visit a hospital or buy food. Police were put in place to ensure that this rule was adhered to. Some countries used robots and drones to enforce the lockdown. The lockdown became a major challenge especially in the developing countries

where some people live from hand to mouth. The governments in such countries had to make plans to feed those in non-formal settlements. The lockdown posed problems in social relationships resulting to emotional and mental strain. People stayed away from each other. “Stay home” became a mantra of the period. Private and public institutions advised employees to work from home.

Curfews were imposed in some countries. In Kenya and some other countries such as Nigeria, Ghana and South Africa, curfews requiring people to be in their homes by 6 or 7 were put in place. This was to avoid gatherings in bars and other social places that attract people at after work. Different governments had to struggle making their people obey the curfew. In some countries cases of death were reported from instances of police brutality as they struggled to force people into their homes. At least six people died from police violence during the first 10 days of Kenya’s dusk-to-dawn curfew, imposed on March 27 2020 to contain the spread of COVID-19 Human rights watch [15].

Hospital equipment: The nature of Covid 19 required specialized treatment. Due to the respiratory complications, the critically ill required ventilators and Intensive Care Unit (ICU) services at some stage. Governments, especially in countries where the numbers were large, had to struggle to get ventilators that were used to aid people in breathing. Breathing complications that affected oxygen intake due to the infection of the lungs required the use of ventilators that are expensive and rare. The countries that had an up-to-date technology endeavored to produce more ventilators while other countries like Kenya started improvising. Kenya called her nationals and institutions to come up with prototype ventilators. Kenyatta University Hospital developed some prototype ventilators while other institutions of technology joined in. Coming up with ICU beds with their accompaniments was a difficult task for the developing countries where health care facilities were minimal, some with less than 500 fully operational ICU beds in a whole country.

Food Supply: The farmers, wholesalers and retailers were at home. This led to a food shortage all over the world. Even with food, the supply chain was broken down. Food could not be imported from across the borders while the curfew curtailed the smooth flow of food. Eateries were equally affected as restaurant, hotels and

food kiosks closed down. In some developed countries, the areas with vulnerable people were supplied with food. In the developed countries, the government came up with committees to oversee the supply of food to the needy. Many people had lost their employment and could not put food on their tables. This saw philanthropists donate food to many as governments set apart finances to cater for foodstuff.

Research, Vaccines and Medication: The whole world looked up to researchers and medical scientists to provide a vaccine if not a medical cure for Covid 19. A philanthropist Bill Gates, the Microsoft billionaire, committed himself to donating resources for developing a vaccine. Research centers directed their focus to establishing a cure or a vaccine for the killer virus. After several months of trials and tests, there was no sign for a cure or vaccine for this disease. This resulted to the USA president Mr. Donald Trump, announcing that the US was intending to use hydroxychloroquine that was conventionally used in treating of malaria fever. However, the experts were quick to distance themselves from this decision as no scientific proof was available [9]. Nevertheless, tests on animals and humans were going on. Economic times [16] reported that researchers involved with the ChAdOx1 nCoV-19 trials said the vaccine had shown signs of priming the rhesus macaque monkeys' immune systems to fend off the deadly virus and showed no indications of adverse effects.

This was against the backdrop of a proposition that a vaccine for Covid 19 would never be found just like HIV/AIDS. The dogs that have been specially trained in the medical field and in this case to detect corona virus have been trained and this is on trial. The dogs are already trained to detect odours of certain cancers, malaria and Parkinson's disease [17]. If the results are positive, it would be a major breakthrough as the whole world redirects their laboratory work to Covid 19 studies. In a virtual World health Assembly annual meeting of health Ministers of member countries of WHO, there was a request that if there a vaccine is discovered, it should be distributed fairly.

Individual/Family Preparedness: Immediately the pandemic was declared in some parts of the world, people went into panic buying. Instances were witnessed of people fighting over items in supermarkets. In one instance some South Africans broke into a supermarket and picked

anything in sight and mostly food. People bought dry and fresh foods and fully stocked their refrigerators fully. Families made arrangements concerning the aged. Some kept off from their ageing parents and grandparents in an effort to keep them safe.

2.2 Impact of COVID-19

Job losses: As a result of the lockdown, many institutions, companies, factories, industries, markets, sporting matches were closed down leading to loss of employment. Operations in different parts of the world came to a halt as people lost their jobs. In Africa and other developing and underdeveloped countries where a big number of people earn on daily or weekly basis, the effects of job losses were apparent. Those who worked for various airlines and the tourism industry lost their jobs as countries closed their borders. This led to devastation especially for the most vulnerable who could not afford to meet their day-to-day obligations including rent. Those who had sought employment in foreign countries became stranded and had to plead for help from their mother countries. Some countries like USA had to deal with millions of applications for unemployment pay package. International Monetary Fund and World Bank called for poor countries debt a suspension plan. Many interventions were put in place. Kenyan ministry of health and public service were advised by the government to come up with a welfare package stimulus to cover the health workers. Health workers needed to be insured. Five billion Kenyan shillings were given to county governments to assist health workers and the vulnerable. Further, 8.5 billion Kenyan shillings were released to assist the elderly. Five billion which was in arrears would be released to those with disabilities. Adopt a family was another strategy used in Kenya. India came up with a stimulus system to cushion low income families and health workers. In USA many citizens were applying for unemployment benefits.

Religion: Corona virus outbreak put faith into test. In Kenya, many church leaders had informed their faithfuls to keep out of religious gatherings including churches and mosques as this was a fertile ground for infections. Many of them came up in arms to fight the decision. The question on whether to remain in church or follow the governments' directives to keep away from church run in the minds of the faithful. They had to choose between the two. Some stuck with

their faith and had to be forced out of their gatherings by the police and other authorities. Defiance of government directives became common among people of different faiths. They had never thought that a house of worship would be closed by anybody. With the increase in infections and deaths, people obeyed the state.

Impact on the Environment: During the period, less pollution is reported in China and other parts of the world [15]. This is proof that human activities are the contributors of the global warming. People in Northern Indian state of Punjab were reacting with awe at the sight of the Himalayan mountain range, which is now visible from more than 100 miles away due to the reduction in air pollution caused by the country's corona virus lockdown [18]. Similar reports became common. In Kenya, Mt. Kenya became very clear. The world became green. Less ordinary flu was reported as the air became free of emission from motor vehicles.

Strain on Government: Government suffered from the pandemic. Citizens depended on the government to give directions on what to do and what not to do. Governments called virtual meetings to try and plan on how to handle the pandemic. Governments had to provide health-care resources come up with guidelines to be followed by their citizens, enforce the guidelines, feed the vulnerable and continue updating the citizens and giving them hope. They had to deal with the soaring number of the dead. The government had to come up with stimulus packages to salvage their people. They had to make important decisions on whether to use an unapproved drug and whether to close the borders or not under the pressure of an informed and demanding citizens. Those on the apex of the hierarchy of authority faced most of the challenges. The US president and other people started attributing the pandemic to China. WHO was also questioned about the aptness of its response and at one time USA threatened to withdraw their funding. Governments had to make important decision on whether to have a lockdown or not, when to have the lockdown, when to open, which borders to close. This was a stressful moment for all the governments of the world.

Mental Illness: This was a period of uncertainty resulting to anxiety and stress. This would culminate to poor mental health. A study by Sidik, Rampal and Afifi [19] reported that the prevalence of mental health problems such as

depression and cognitive impairment during a pandemic were 7.6% and 22.4%, respectively. During the period, those with pre-existing mental health problems were unable to see their doctors due to the lockdown and fear of getting infection from the hospitals. The healthcare workers were the most affected resulting from the stressful and dangerous situation they were working in. Seeing their patients die would cause them trauma. A case was reported where 16 people were killed in a Canadian shooting rampage where a gunman disguised as a police officer went on a rampage across the Canadian province of Nova Scotia, shooting people in their homes and setting fires [19]. This was considered to be stress related. Domestic violence among many families in the world were reported and related to stress.

Family: The family institution was affected by the pandemic. Members of the family had ample time together. On the other hand, the family found itself with more obligations. Families had to provide for those who could not provide for themselves. When a member of a family lost a job, the whole family had to suffer. In some countries, some families could not afford food or rent. Some had to sleep in the cold after landlords threw them out. Some had to depend on donations for food. Lack of money and other family issues led to domestic violence. There was surge of cases of domestic violence. These were reported in US, Kenya and other countries.

The Elderly: Whiting [20] noted that during the corona virus pandemic, there was a direct correlation between mortality and age. Those 60-69, had a mortality rate at 3.6%; 70-79, 8% and 80 and above, 15%. The elderly have declining health that affects their immune systems. This makes them more susceptible to disease as compared to other populations. Some had other comorbidities such as cancer, diabetes hypertension and cardiovascular diseases. In another study, Sidik, Rampal, and Afifi [19] reported that the prevalence of physical health problems such as chronic illness and functional dependence were 60.1% and 15.7%, respectively.

The young were consequently discouraged from visiting the elderly. Spain reported deaths in care homes for the elderly. Elderly people had been abandoned and some had died in their beds. Seventeen bodies of elderly person were found in New Jersey nursing homes [21]. Andover [22] reported that the state was opening an

investigation into Andover Rehabilitation in Sussex County after a number of bodies were removed this week amid the corona virus pandemic. He also indicated that the outbreak at this nursing home may be the deadliest in New Jersey.

Infections and Deaths: Many countries in the world started reporting cases of infection and deaths from Covid 19 from February 2020 when most of them reported their first case. However, in some countries cases of pneumonia related deaths had increased and some of them could have been related to Covid 19. Since February, many countries made the figures of the infections, recoveries and deaths public. The numbers run into hundreds, thousands as days went by with some countries reporting more than 500 deaths in a day. On 29th May 2020 WHO [23] reported 6,057 853 infections and 371,166 deaths in 216 countries or areas. Some of the numbers of infections included: Americans 2,817,232; Europe 2,159,791; Eastern Mediterranean 520,137; South-East Asia 272,512; Western Pacific 183,198; Africa 104,242; Germany 18115 India 190535; China 84597; The following number of deaths were reported in some of the countries: US 106,349 ; Egypt 959; UK 38,489; Italy 33,415 and Spain 27,127 [24].

Gender Disparity in Death: There was a concern about the gender differences in the numbers of the dead reported globally. Males were no doubt dying in large numbers as compared to the females. Richard et al., [25] noted that men and women had similar odds of contracting the virus, although there were some variation across countries where a higher risk of death than women, across the US and indeed across the globe. They gave an example of England and Wales, for example, male social care workers were dying from COVID-19 at a rate of 23.4 deaths per 100,000, compared to a rate of 9.6 for their female peers.

2.3 Other Areas Affected by CoVID 19 Pandemic

There are others areas affected by the CoVID 19 pandemic. These include learning institutions and recreational activities. In order to prevent spread of corona virus among learners, all levels of educational institutions had to be closed down. The options for learning were house learning involving parents and siblings. Some institutions established online learning using Zoom, Skype among other teleconferencing applications. This

was only possible for homes with access to internet. The governments also broadcasted educational content through dedicated radio as well as TV channels. The other areas were recreational activities. Sports person could not access th facilities for straining and competitions. Citizens could not access beaches, swimming pools, theatres and cinema halls among others.

3. CONCLUSION

The CoVID 19 pandemic has affected every facet of life; social, economic and mental. This has placed a lot of strain on governments and individuals. The economic status of many countries and individuals has been adversely affected and may take a long time before recovery. A concerted effort is required from all concerned in order to overcome this world tragedy. Every effort should be taken to prevent transmission and in discovery of a cure and a vaccine for CoVID 19.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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