

## A Success Story: How Botswana is Winning the War against Coronavirus?

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### Abstract

As at March 20, 2020, the four nations bordering Botswana; Namibia, South Africa, Zambia and Zimbabwe, had recorded outbreaks of the Coronavirus, without a single case in Botswana. There is low probability of an outbreak of COVID-19 in Botswana considering the nation's preparedness through prevention strategies and strict adherence to WHO directives on COVID-19. Botswana has many success stories; their stable economy, peaceful and sustained democracy, long history of respect for human and animal rights etc. Another of Botswana's success stories, which the rest of the world can emulate is their ability to maintain zero-case of Coronavirus in the midst of the pandemic. In this article the author articulates public health structures and systems implemented by Botswana and the Botswana government, which may have helped to maintain a COVID-19-free nation. Primary data was sourced through direct observation, phone calls, e-mails and minimal face to face interview. Secondary data was sourced from relevant published and un-published documents. Speculations linking the COVID-19 outbreak to bioterrorism or divine punishment on mankind were debunked using reviews of scientific evidences. COVID-19 is known to thrive in temperatures below 26 degrees Celsius. The author projects that winter season in Botswana, (May to August) with temperatures between minus to 23 degrees Celsius, may favor outbreak of the virus. Consequently, author recommends some personal and national preparedness strategies for Botswana and the government to help maintain a COVID-19-free nation.

**Keywords:** Botswana; COVID-19; Coronavirus

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### Introduction

The 2019–20 coronavirus pandemic is a pandemic of coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. The disease was first identified in Wuhan, Hubei, China in December 1, 2019 [2]. Coronaviruses (CoVs) are the largest group of viruses belonging to the *Nidovirales* order, which includes *Coronaviridae*, *Arteriviridae*, and *Roniviridae* families. The *Coronavirinae* comprise one of two subfamilies in the *Coronaviridae* family, with the other being the *Torovirinae*. There are four main sub-groupings of coronaviruses, known as alpha, beta, gamma, and delta [1,3]. Coronaviruses (CoVs), are enveloped positive-sense (double helix) RNA viruses, characterized by club-like spikes that project from their surface; an unusually large RNA genome, and a unique replication strategy [4]. The name corona derives from the crown-like (corona) spikes on their surface [5]. Coronaviruses were first identified in the early

1930s; with the first human Coronavirus discovered in 1960s [5-8], without clear source [6]; although some scholars incriminate lower mammals like bats [7]. Coronavirus is zoonotic; meaning that it can infect both animals and humans [7]. Most coronaviruses cause respiratory diseases of varying degrees and spread the same way other cold-causing viruses do; that is, through human-to-human transmission via respiratory droplets. The spreading could be direct, by infected people coughing and sneezing out the droplets containing the virus. respiratory droplets or indirect, by susceptible person touching materials contaminated by infected person [8].

### Literature Review

The world has experienced previous outbreaks of Coronavirus; these are the severe acute respiratory syndrome (SARS) of 2003 and the Middle East respiratory syndrome (MERS) of 2014 [9]. Whereas SARS killed 813 people out of 8437 cases in 17 countries [10], MERS killed about 858 people [11]. Both MERS and SARS

where easier to manage than the current SARS-CoV-2 [10,11]. Comparatively, the death rates of the viruses' outbreaks are: Swine Flu was 0.02% [12-14]; MERS was 34.4%; SARS was 9.7% and COVID-19 is 2-4.4% (varied) (Table 1) [13-22].

After contracting the SARS-CoV-2, it takes 1 to 14 days incubation period before the disease is established in a person. Recent studies show an average of 5.1 days [15]. Symptoms simulate initial flu-like symptoms, such as fever, coughing, breathing difficulties, fatigue, and myalgia. Almost everyone gets one type of Coronavirus infection at least once in their life, most likely as a young child. World Health recommended prevention tips include; avoiding close contact with sick individuals; frequently washing hands with soap and water; not touching the eyes, nose, or mouth with unwashed hands; and practicing good respiratory hygiene [2].

Discussions around origin (mastermind) and spread of SARS-CoV-2 virus have elicited divergent speculations. Some scholars attach religious/spiritual undertones to the virus [12]; some think it is an experimental mistake, some call it global economic sabotage, whereas others have described it as deliberate bioterrorism [16].

Although, validity of such claims is questionable, there are strong speculations that the jet age ushered in threats about nuclear terrorism but the Information Age will harness its strength in artificial intelligence and biotechnology to reshape the face of terrorism. Bio terrorism and rouge AI machines will topple regular terrorism as we know it today.

Bill Gates succinctly captured these projections in his 2015 speech at Ted Talk when he postulated that the world would soon experience unprecedented outbreaks of (Corona-like) viruses within the decade. He projected that should an outbreak similar to Spanish virus re-occur, the world was not prepared to contain it. He proposed a need for advancements in the number of medical facilities and testing procedures, more research and development, and better infrastructure in the area of underdeveloped regions of the world, where such a pathogen would likely break out [17].

Among the religious folks, there are different schools of thought about COVID-19. Some claim that Covid-19 virus is God's punishment to China and the rest of mankind for their SINS. These scholars envision a world thrown into pandemonium and being forced to seek God. They look forward to a mighty harvest of souls of sinners into the kingdom of God at the end of the Covid-19 outbreak. Israeli Rabbi, Meir Mazuz at a press conference of the 'Yachad' political party in Bnei Brak, on March 8, 2020 claim that Coronavirus outbreak was a divine punishment for gay pride parades [12]. On the contrary, the modern Orthodox Ne'emanel Torah Va'Avodah group condemned Mazuz's remarks;

describing it as "inciting and insensitive in the time of pain." Another religious school of thought disagrees with the former. This group claims that God does not send disease to mankind in a bid to draw man to himself; rather that he, GOD, draws mankind with his love. This latter group of religious teachers claim that Coronavirus was long prophesied in the Book of Revelation in the Bible as one of the several plagues expected to hit the earth before the end of this present age. In their words, "These plagues will destroy the different nation's economies and pave way for one world economy and one world government, which they describe as the government of the Anti-Christ". Going by them, Coronavirus is one of such "END TIME plagues". They insist that Coronavirus outbreak is a process to end of the current world system as we know it. And that the search for solutions to this pandemic disease will ULTIMATELY unveil the anti-Christ who would claim to have solution for mankind's catastrophe. According to them, "the world's economy collapse will manifest first as closure of schools, malls, auditoria for social & religious events, games and travels. General human activities shall be disrupted and eventually halted. As one country is recovering, another one is picking up from where the other left off. The Anti-Christ will promise free healthcare, education, food etc. But in exchange, he shall ask man to subscribe to his government by accepting his mark. Note however, that between now (today) and the manifestation of the Anti-Christ, the rapture of the church will take place." Both religious groups agree that Covid-19 is NOT an American invention as alleged by Iran and Russia. It makes no sense that America would send the virus to China, seeing that the disease would eventually become global; spreading to the United States (C. Oyakhilome, personal Communication, 2020 March 16).

Kristian Anderson, PhD, an associate professor of immunology and microbiology at Scripps Research and corresponding author of the paper, "COVID-19 coronavirus epidemic has a natural origin", insists that the current COVID-19 epidemic, which has spread to 70 countries is of natural cause. Dr. Kristian and his colleagues compared the available genome sequence data for known coronavirus strains to firmly determine that SARS-CoV-2 is a product of natural evolution. These scientists claim that the receptor-binding domain (RBD), a kind of grappling hook that grips onto the hosts cells, and the cleavage site, a molecular can opener that allows the virus to crack open and enter the host cells are similar and consistent with known coronaviruses but showed signs of progressive evolution [18].

Fears of economic meltdown will force governments of different countries to adopt a quasi-socialist economy. Already the Trump led government is making plans to mail out cheques of \$1,000

Table 1 2019 Coronavirus compared to other major viruses.

Virus	Year Identified	Cases	Deaths	Fatality Rate	Number of Countries
Ebola	1976	33,577	13,562	40.4%	9
Nipah	1998	513	398	77.6%	2
SARS	2002	8,096	774	9.7%	29
MERS*	2012	2,494	858	34.4%	28
COVID-19**	2020	258,052	11,277	4.4	164

Source: John Hopkins, CDC, World Health Organization, New England Journal of Medicine, Malaysian Journal of Pathology, CGTN

\* As of November 2019; \*\* As of March 20, 2020

monthly to every American citizen. Beyond the Coronavirus care giving, Trump is tilting towards Andrew Yang's proposals to introduce universal basic income for all Americans come November, 2020. Other countries may follow suit in no time but at different magnitudes and rates.

As at Friday, March 13, 2020, coronavirus had infected more than 100,000 people around the world and killed almost 3,500 [6,20]. By January 29, global mortality rate was 2% but later rose to 3.4% by March 3. Mortality rate in China as at February 4 was 2.1% nationwide; 4.9% in Wuhan; 3/1% in Hubei and 0.18% in other provinces of China. Death rate among hospitals rose to about 15% Case Fatality Ratio [21]. As at March 18, 2020, Italy had recorded 35,713 cases and above 2,500 deaths caused by coronavirus. With about 345 deaths within 24 hours, 43% mortality and 57% recovery, Italy is considered the world worst case. Similarly, by March 18, Spain had recorded 767 deaths due to Coronavirus [21]. Sporadic cases have been recorded in about 33 out of 54 African countries with a total of 600 cases and 17 deaths and 40 recoveries [19]. Some experts are worried about Africans preparedness for the COVID-19 outbreak. Professor Patterson claims that factors that are capable of affecting success in containment of COVID-19 in Africa include but not limited to, limited financial commitments by politicians; lack of confidence in public health services arising from difficulties encountered during the control of Ebola; locals believing more the religious and traditional rulers than the politicians [22]. On the contrary some other scholars are optimistic that Africa will not be badly hit like the western world. The latter group attribute a form of preparedness advantage to the environment of Africa and the existing structures used in managing Ebola not too long ago.

Epidemiologist model posit a global best-case scenario of tens of thousands of deaths and a worse-case scenario of 10 million deaths in 2 years. By exploring seven different scenarios of how COVID-19 might evolve in the coming year, Dr Warmick and Roshen postulated that the global outbreak of COVID-19 may lead to losses of about \$2.3 trillion and more than 15 million deaths [23]. Projections based on C.D.C. scenarios show a potentially vast toll of coronavirus outbreak in America; 160 to 214 million infections; 200,00 to 1.7 million deaths; 2.4 to 21 million hospitalization [24]. There is strong claim that there may be two (2) outbreaks of SARS-CoV-2; the current outbreak and a subsequent one. The second outbreak is feared to be more deadly; a mutation of the current COVID-19, which may be infective in Africa.

## Coronavirus in Botswana

As at March 18, 2020, Botswana had not recorded any case of COVID-19, even though their sister country South Africa had confirmed about 116 cases, which later grew to 150 cases by March, 19 with no deaths. Already by March 16, Botswana had closed all its four borders with South Africa. Border posts with Zambia, Zimbabwe, and Namibia currently remain open.

There is no guarantee that the current COVID-19 will hit Botswana; maybe not during the 1<sup>st</sup> wave of outbreak. However, there are two strong reasons why COVID-19 may not establish and flourish in Botswana. These are:

## High atmospheric temperature

As earlier established in this writeup, the COVID-19 of a double helix RNA virus. It is highly susceptible to acids and acidic compounds and highly thermolabile; that is, easily destroyed by heat. COVID-19 does not survive in an atmospheric temperature about 26 degrees Celsius. Botswana average temperature at this time of the first outbreak up till April 5, 2020 ranges from 23°C lowest to 37°C highest; given an average temperature of 30°C. This temperature is high enough to decimate COVID-19. In addition to Botswana heat, the air is dry. Both conditions will make it difficult for COVID-19 to establish in Botswana.

## Botswana preparedness and compliance to WHO directives on COVID-19

Botswana has many success stories; the stable economy, peaceful politics, respect for human and animal rights etc. Another Botswana success story, which the rest of the world can learn is Botswana's preparedness for the COVID-19 outbreak and compliance to the WHO directives on COVID-19. Within the first week of March, 2020, the government of Botswana had provided free testing at border posts. The author was tested on March 9, 2020. Free hand washes were provided in public schools before its eventual closure on March 21, 2020; a new Act on COVID-19 was produced and distributed freely by March 20; aggressive awareness campaign programs resumed; as different national Embassies demonstrated the so-called Coronavirus greeting, religious, sporting and social functions were suspended for 30 days starting from March 18, 2020. By March 20, 2020, not more than 10 people were allowed to gather in one place either for religious or social functions. Defaulter were arrested as at March 23, 2020. It is therefore not surprising that although the virus is spreading in the four bordering countries, there is no record of Coronavirus in Botswana. There are arguments that Botswana adhere to extant laws because of their low population but on the contrary, Botswana's compliance is cultural; Botswana are more law-abiding than citizens of most other African countries where we have visited or lived in. We might be wrong but this is our personal observation.

## National day of prayer

There is a general belief in the nation of Botswana believe that through the prayers of the citizens, the outbreak of COVID-19 was averted in their country.

## Strict observance of quarantine of in contact person

Botswana has instituted a strict observance of quarantine for every in-contact person. Unlike most other African countries that have refused to observe that WHO regulations, Botswana has shown to comply. As at the time of writing this article the President of Botswana had just returned from Namibia, where there are confirmed cases of COVID-19 and the President is undergoing a compulsory 14 days quarantine; him and all members of his travel contingent.

## Unverified claims that melanin protects against COVID-19

There is an unverified rumor that melanin in the skin of Africans

provides protection against COVID-19. This is unlikely inaccurate however, researches have shown that most of the affected countries have had exposure to 5G radiations, which is believed to compromise the integrity of the human skin. With an intact skin mucosa, there is less likely of contracting the COVID-19 infection.

### **Possibility of establishing covid-19 in botswana in winter and recommended preparedness**

If at all the COVID-19 will establish in Botswana it will most likely do so in winter. Botswana's winter occurs between June/July to September/October during which time the average temperature is 4°C lowest and 18-19°C highest. This temperature is conducive for COVID-19 to establish. Secondly during winter, for some reason, maybe because of the cold, people tend to associate more. This can tamper with maintaining social distance. It is imperative for the government of Botswana to prepare ahead of winter to prevent and/or contain the virus should there be any outbreak. Consequently, let us recommend the following as part of preparedness for the nation.

## **What the Government can do Ahead of Winter to Avoid Covid-19**

### **Shutting the borders**

Already the nation has closed its four borders connecting to South Africa. We do not know how long these borders closure will remain but speaking without sentiment, border closure is highly recommended.

### **Quarantine and Isolation**

The government of Botswana must observe strictness in quarantining every and all in-contact persons as well as isolating every sick person. This may prove highly difficult for several reasons. Prominent of such is that over 90 percent of the supplies into Botswana come from neighboring nations, particularly South Africa. Shutting the borders of Botswana to South Africa can cripple the national supply of food, fuel, clothing, etc., within 7 days.

### **Organize awareness campaign**

As earlier noted the nation has resumed awareness campaign programs to educate her citizens about the COVID-19. We listened to the President of Botswana (PoB) address the nation on this subject matter; this is highly commendable unlike some president who are oblivious of the pandemic. It is important that this campaign.

### **Program should be taken to the grass roots**

We have observed that Botswana repose more confidence on religious and traditional rulers than political ruler; actually, the entire Africa does [22]. We therefore recommend that the religious leaders should teach and write about COVID-19. We find a point where the message of love weaves neatly with the discourse of COVID-19. Religious leaders should not shy away from this discussion.

### **Provide containment homes during winter periods**

The government needs to provide more containment homes in winter than they have done already. Like we say in our part of Africa, "we don't pray for evil, we only plan for it. And when we plan for it, we are not cowards; it simply means we are wise."

**Systematic and continued testing:** There are records of patients who recovered testing positive after some days. It could be that they were tested before (within incubation period) the virus established the disease or/and they are experiencing a relapse. But if there are experiencing a relapse then, COVID-19 does not confer post-infection solid immunity. This then is a big question for virologist and vaccine developers. In any case since recovered cases tested positive after some days, then the testing should not be done only once. It should be both systematic and continued with proper documentation. Maybe a negative case today might become positive tomorrow and vice versa

**Provide essential consumables:** The New York Times reports that Matt and Noah Colvin had bought nearly 18,000 bottles of hand sanitizer, packs of antibacterial wipes and boxes of medical masks which they plan to resell online for upwards of \$70. Yesterday, we saw a video clip of a young man in a neighboring country (forget the name) who was reselling hand sanitizer and toilet paper to a certain woman at an exorbitant price. These selfish acts make these essential commodities unnecessarily expensive or outright unavailable. The government of Botswana must move to avoid such acts of selfishness. Additionally, the government can provide these essentials free of charge to her citizens should there be an outbreak of COVID-19.

**Botswana day of prayer:** From our studies there are several question marks regarding COVID-19. We are not insinuating more than saying but we just saying that combating COVID-19 may need some spiritual intervention. So, we recommend that the government should conduct a National Day of Prayer for combating COVID-19.

### **What to do to as a person to avoid the virus?**

**Wash your hands regularly:** We are Africans; we wash hands before and after meals, and after using the bathroom/toilet. Maybe the Muslims wash hand (ablution) five times a day. In the course of this corona-scare we are advised to wash our hands regularly. Someone asked, how regular? We think as often as you can afford to wash your hands.

**Avoid touching your face (picking nose and pimples):** Most melancholic personality enjoy their personal company more than not. When they are left alone, they busy their hands on their head, face and can even bite their fingers. Not Melancholic only; we all do it. The World Health Organization recommends that that gift of face touching must be suspended for now. How about if you itch on your face, what do you do? Simply use a clean hand towel or paper to wipe your face and discard the materials used.

**Adhere to (safe) social distance:** The World Health Organization has recommended a safe social distance of at least 1 meter (3 feet) between yourself and anyone WHO IS COUGHING OR SNEEZING.

The reason is that when people cough or sneeze, they spray small liquid droplets from their nose or mouth which contains virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person coughing has the disease.

**Practice respiratory hygiene:** Make sure both you and people around follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately and appropriately. Use regular nose and mouth mask to cover yourself. Remember that droplets spread virus. But by following good respiratory hygiene you protect you and the people around you from cold, flu and of course COVID-19.

**Obey the government restrain orders:** In Botswana as in several other countries, the government has shut down academic institution; student should stay home, while academic staff may visit their office. Several malls and organizations have asked their staff to stop working or work from home. The government has also advised religious institutions to suspend meetings or not gather more than 100 people for an extended period beyond 2 hours. It is not unlikely that religious zealots will flaunt this order and continue to hold meetings as usual. Well, our advice is that you can HOLD VIRTUAL (ONLINE) MEETINGS. In no time the ban will be lifted.

**Make and use a home-made hand sanitizer:** In many parts of the world, hand sanitizers are already out of stock. People are buying up all stock from the malls and hoarding for themselves. That is unnecessary because the first phase of Corona scare will end in March/April, 2020, and they would not be needing all of those sanitizers and toilet papers. However, if you cannot find hand sanitizers in the malls, or it is too costly for you to buy, you can make your own at home. The formula below is the World Health Organization's approved recipe [2]; viz:

- 1) Pour 31.2mL of hydrogen peroxide into empty 1.5 Liter bottle
- 2) Add 22mls of the glycerin in rose water
- 3) Add 1.25L of the methylated spirit
- 4) Make up the volume to the 1.5L mark of the bottle using water (i.e. 203ml of the water)
- 5) Shake very well and label

### What to do if you suspect you have the virus?

**Practice homemade warm inhalation:** Going up in the remote part of West Africa, we had locally improvised methods of curing cold, flu minor headaches. We inhaled warm-to-hot mentholated steam into our nose. The recipe is this:

- Put hot menthol in clean bowl or bucket
- Pour boiling water into the bowl to cover the menthol completely (**Figure 1**).
- Lean over the bowl and cover yourself completely using a thick blanket ensuring that the mentholated steam fumes into your nostrils
- Inhale steam for about 3-5 minutes and withdraw your face

- You can repeat the inhalation as many times as possible until the water gets cold.

This method is highly effective particularly if few drops of vinegar is added to the bowl. COVID-19 virus is a double helix RNA virus, which is highly susceptible to acid and temperatures above 26°C. When a person contracts the virus it lodges in your nasal cavity; the vinegar provides the needed acidity and the steam provides the high temperature; both of which will kill off the virus.

**Practice self-isolation (self-quarantine):** You must self-isolate if any of the following applies to you: you have COVID-19; you have been in close contact with a confirmed case of COVID-19; you have arrived from any country with confirmed cases of coronavirus.

Self-isolation last 14 days because the incubation period of the virus is between 1-14 days, it is expected that during this period you would have passed out most or all of the viruses from your system and would no longer be a carrier. Staying home means do not go outside your home; not even to the cattle post. You can ask people to help you do thing that you must do outside. While you are home, you will need to monitor yourself for symptoms.

**Self-report:** If you have the symptoms of coronavirus or you suspect that you have coronavirus, please do not keep it to yourself or die in silence. Call for help; call your doctor or any other doctor known to you. Let them help you to get tested if necessary.

**Drink warm water:** The SARS-CoV-2 virus is thermolabile; temperatures between 26-27 degrees Celsius kills it. Taking warm water at temperatures above 50 degrees Celsius can kill the virus. WHO recommends that everyone should ensure their mouths



**Figure 1** Dr. Goodhead demonstrating how to carry out a home-made warm/hot inhaler using menthol, lime and/or vinegar in boiling hot clean water.

and throat are moist, never dry. Taking a few sips of water every fifteen (15) minutes at least is very beneficial. This way, even if the virus is in the mouth or stomach, the water will wash down into the stomach; wherein the stomach acid will kill them.

**Self-check:** It may happen that the test kits may not be readily available to reach everyone. Prior to getting tested in the hospital, experts recommend a simple self-test that we can do every morning. Take a deep breath and hold your breath for more than ten (10) seconds. If you complete it successfully without coughing, without discomfort, stiffness or tightness, etc., it proves there is no Fibrosis in the lungs, this basically indicates no infection.

### What not to do if you suspect you have the covid-19?

**Do not take the coronavirus vaccine:** There are several reasons why the Corona vaccine may fail. The vaccine can fail due to patients' nonadherence to treatment regimen; improper administration of vaccine to already sick patients which can cause more harm than good; vaccine failure due to cold chain failure etc. We don't even know if Africans should still accept vaccines from western nations. Don't ask us why.

**Do not use anti-inflammatory drugs to manage coronavirus body pain:** Basically, anti-inflammatory drugs are drugs that work by preventing inflammation. Inflammation is the response the body provides against antigen challenge. Very useful benefit of information is the supply of antibodies (body soldiers) to point of

attack. Anti-inflammatory drugs prevent antibody (body soldiers) from arising to the challenge against the body. This means recovery will depend solely on efficacy of therapeutic drugs being administered.

## Conclusion

The coronavirus pandemic is real. It has affected more than 166 countries. As at March 20, 2020, the time of submission of this article five nations in the Southern African Development Countries; four of which nations are bordering Botswana; Namibia, South Africa, Zambia and Zimbabwe, had recorded outbreaks of the Coronavirus, without a single case in Botswana. There is low probability of an outbreak of COVID-19 in Botswana considering the nation's preparedness through prevention strategies and strict adherence to WHO directives on COVID-19. This article articulates public health structures and systems implemented by Botswana and the Botswana government, which may have helped to maintain a COVID-19-free nation amidst the pandemic. These public health measures include; shutting of Botswana borders, declaring of total lockdown in the nation, Quarantine of contact person and isolation of infected persons, organization of public awareness campaign, systematic and continued testing, Botswana day of prayers, and institution of compulsory use of mask; while providing palliative to assist citizens observe the lockdown. It is hoped that if the nation continues this way, there would be zero or minimal cases of COVID-19 in Botswana.

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