

Coronavirus Pandemic

COVID-19 in Sudan

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Abstract

The steadily growing COVID-19 pandemic is challenging health systems worldwide including Sudan. In Sudan, the first COVID-19 case was reported on 13th March 2020, and up to 11 November 2020 there were 14,401 confirmed cases of which 9,535 cases recovered and the rest 3,750 cases were under treatment. Additionally, 1,116 deaths were reported, indicating a relatively high case fatality rate of 7.7%. Several preventive and control measures were implemented by the government of Sudan and health partners, including the partial lockdown of the country, promoting social distancing, and suspending mass gathering such as festivals and performing religious practices in groups. However, new cases still emerging every day and this could be attributed to the noncompliance of the individuals to the advocated preventive measurements.

Key words: COVID-19; Sudan; preventive measures; deaths; cases.

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Introduction

The Novel Coronavirus disease (COVID-19) is an infectious viral disease caused by Severe Acute Respiratory Syndrome Coronavirus 2, which basically originated from Wuhan city, China in December 2019 [1]. Soon later, the prevalence of the disease increased dramatically; thus, on 11 March 2020, the World Health Organization (WHO) has declared that the SARS-CoV-2 is a major health problem worldwide, with an extremely high infection rate and in lack of treatment it was developed into pandemic. The mode of the transmission of SARS-CoV-2 is via respiratory droplets from the infected person after cough or sneezing; furthermore, the infection may take place via touching of the virus contaminated surfaces [2, 3]. While some infected people stay asymptomatic, the clinical presentation of other COVID-19 patients ranges from

mild symptoms like fatigue and general weakness to life threatening Pneumonia like illness that eventually led to death due to the complications and multi-organ failure [4]. In the symptomatic patients the symptoms vary from one individual to other including; fever, headache, cough, loss of taste and/or smell, sore throat, nausea, vomiting, diarrhea and difficulty in the breathing [5]. In general, patients develop these symptoms during the 2 – 14 days after the exposure to the virus. In addition to the general life support care in emergency unit, till date there is no effective treatment that cure the disease, hence the crucial needs for strict compliance to the prevention measures recommended by the WHO, including maintaining self-hygiene and social distance of at least 6 feet, avoid the mass gathering and groups particularly in closed areas, and wearing the face mask. In this communication, we are

discussing COVID-19 situation in Africa using the Sudanese experience as a model country for similarly resources-poor and underdeveloped setting. Also, here we summarize the COVID-19 situation in Sudan until 11 November 2020.

Methodology

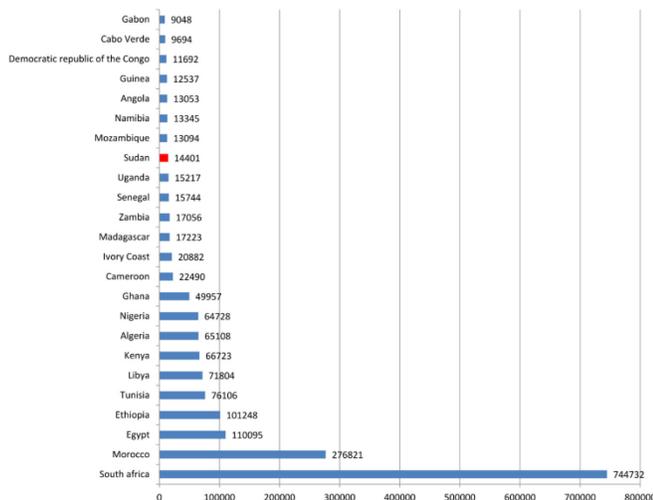
Data collection

Data were collected through reviewing the internet databases reporting COVID-19 cases worldwide. Data deposited by the worldometers reporting the COVID-19 pandemic (<https://www.worldometers.info/coronavirus/>) was consulted, and the numbers of cases and deaths reported from Sudan were identified, collected, and analyzed to compare between the first and second waves. Data breakdown of cases in Sudan were identified through the Sudan Ministry of Health online database (<http://www.ghdx.healthdata.org/organizations/federal-ministry-health-sudan>) reporting the numbers of cases and deaths per each state.

COVID-19 situation in Africa

Currently, the second wave of COVID-19 continues to expand globally, according to WHO, there are 60 million cases and over 1.4 million deaths reported globally since the start of the pandemic. In Africa the virus was first reported in the mid of February 2020 and by November 12th 2020, 1,946,369 cases of COVID-19 were report in Africa, that represent about 3.7% of the total cases reported globally. South Africa, Morocco and Egypt share the most of cases reported from Africa (Figure 1). Since Sudan is considered as the third largest country in Africa, with a total population of 43,849,260.

Figure 1. Shows the confirmed cases of COVID-19 among incident-based top 24 African countries.

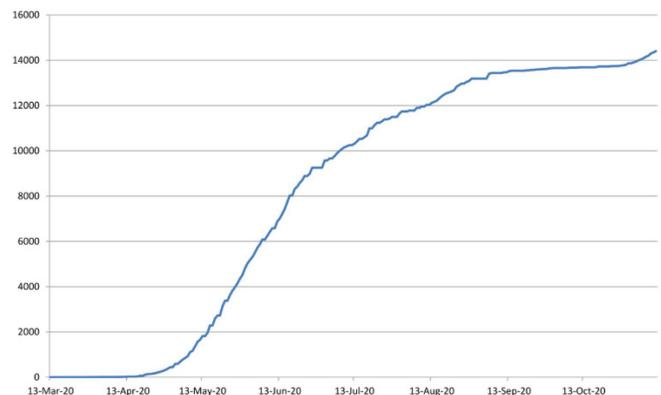


In Sudan the government has initially declared a national restriction on internal travels on 16th March 2020, and implemented partial lockdown on 13th April 2020 as preventive measures [6]. However, this measure was shown to be ineffective and it was challenged by the weak adherence of the public community [6].

COVID-19 situation in Sudan

Since first case of COVID-19 reported in Sudan on 13 March 2020 and by 11 November 2020, there are 14,401 confirmed cases (Figure 2) with 1,116 deaths and 9,535 recovered cases. The highest number of confirmed cases were reported in Khartoum State 10,393 (72.2%); followed by Gezira state 1,214 (8.4%) (Table 1). Regarding the total number of the death per the state; Khartoum state has contributed the most in the country total deaths related to COVID-19 with 415 cases of death (37.18%); followed by Gezira state and North Darfur and the least one was Blue Nile state (0.08%) (Table 1). However, this is mainly because of the proportionally high number of cases reported from Khartoum state to other areas of the country. This is further confirmed by the fact that Khartoum state has reported one of the lowest case fatality rates in Sudan 4%, while other states reported extremely high case fatality rate up to 50% and 60% like South and North Darfur states (Table 1). High case fatality rate in remote states of Sudan highlights the relatively better case management in the capital city, Khartoum, and further underscores the centralization of healthcare system in the country (Table 1).

Figure 2. Epicurve shows the COVID-19 pandemic growth in Sudan between March 13th and November 11th, 2020.



Actions taken by the government of Sudan against COVID-19

Several actions were taken by the governmental of Sudan toward the control of COVID-19 in the country. These include the partial lockdown, prevention of mass gathering events, and intensive media engagement with the public that advocate and promote health guidelines, with frequent health education and rising awareness sessions and messages to encourage the public to improve self-hygiene and adapt self-protection measures. To ensure the successful reach to most of the general community, these messages were distributed through different communication channels including newsletters, newspapers TV, Radio, Text messages in Mobiles, and social media like Facebook, Twitter, and WhatsApp group. Additionally, direct Telephone hotlines were set up for enquires and reporting of suspected cases. Furthermore, self-protection measures and infection control trainings were implemented for the medical staff, paramedical staff, and other healthcare providers working in the major hospitals, healthcare facilities, and quarantine and isolation centers. Furthermore, to minimize the number of new cases the government suspended practicing prayers in the mosques and churches and applied the partial lockdown with 6 hours daily curfew for people to secure their essential needs. Moreover, the country closed the bridges and international point of entries like Khartoum National Airport and Shalatain International Gate in borders with Egypt, and other borders [6].

Challenges faced the lockdown

Several factors related to the country socioeconomic and political situation have challenged the national lockdown as a prevention and control strategy that Sudan Federal Ministry of Health tried to implement a countrywide. The major influential factors include poverty, in 2020, the inflation rate in Sudan increased dramatically up to 212.3% (Sudan - Economic Indicators, <https://tradingeconomics.com/sudan/indicators>). This economic crisis with mainly spurred by the supporters of former dictatorship regime, Omer Al Bashir, who was ousted last year after brutally ruling the country over the last three decades (<https://www.hrw.org/world-report/2020/country-chapters/sudan>), they are using the starvation and conflicts as weapon to regain control of the country. This is further underscored by their constant invitations for massively-crowded protestations and demonstrations in against the transitional government, and to ensure the success of this mass gathering they incentivize poor and needy people by bread and money to participate in their events. Another major challenge for the lockdown is the natural disaster of heavy rains and severe flooding that occurred throughout the country that drowned over 100,000 houses, forcing thousands of families to seek shelter in crowded camps increasing the internally displaced persons to 2.55 million in addition to 1.1 million refugees from the neighboring countries (<https://reports.unocha.org/en/country/sudan/>).

Table 1. Present the number of confirmed cases, deaths, and case fatality rate per states.

State	Total cases	Attack rate (%)	Total deaths	Case fatality rate (%)
Khartoum	10,393	0.117	415	4
Al Gezira	1,214	0.021	186	15.3
River Nile	446	0.03	79	17.7
Red sea	421	0.041	69	16.4
Northern	386	0.052	45	11.7
Gedaref	280	0.009	54	19.3
Sennar	252	0.011	37	14.7
Kassala	235	0.009	38	16.2
North Kordofan	209	0.008	40	19.1
White Nile	199	0.008	33	16.6
North Darfur	147	0.004	88	59.9
West Kordofan	69	0.003	5	7.2
South Darfur	40	0.001	7	17.5
West Darfur	36	0.002	5	13.9
Blue Nile	30	0.002	1	3.3
East Darfur	21	0.001	7	33.3
South Kordofan	17	0.001	4	23.5
Central Darfur	6	0.0004	3	50
Total	14401	0.029	1116	7.7

Furthermore, with most of the country population relies on farming for living and the fact that wide agricultural spaces were flooded this year to leave more than 9.6 million struggling for food (<https://reports.unocha.org/en/country/sudan/>).

Factors that will drive the spread of COVID-19 development in Sudan

The widespread eruption of cases in Sudan is driven by a wide variety of factors, which all inevitably contribute to the spread of this disease within the community. These factors can be grouped into social, health sector-related, economic and political [7]. The inherited collapsed health system in Sudan, was barely managing the day-to-day cases presenting at hospital. Under such unusual circumstances, the heavy load and rush of patients now presenting to this fragile system, in relation to the available services, resources and the providing staff. This led to a total loss of paradigm and flow within these facilities and concurrently resulted in overcrowding of the rooms contributing to the nosocomial spread to hospital staff, uninfected co-patients and other patients presenting with other health concerns [8,9]. Reflecting on the staff response to the pandemic, a poor commitment to infection control policies was noted due to several factors. A huge number of doctors wear the personal protective equipment (PPE) wrongly. Moreover, some fail to select the appropriate level of protective equipment needed due to the lack of knowledge or absence of equipment. Shortage of PPE supply and low setting wards with poor ventilation and no air-conditioning, drive doctors to avoid wearing the heavy and hot PPE [9-12].

The dominant low socioeconomic status of the population and how a huge sector of the community rely basically on daily labor and employment in order to provide their families with the fundamental requirements [6]. The shortage and even sometimes complete lack of these daily needs, forcing people to gather in crowded queues for a long period of time seeking bread, gas and shopping. This participated to the failure of the movement band law set by the government as part of their emergency health situation control strategy. Furthermore, opposing parties to the current transitional government arranged multiple demonstrations and protests with thousands of people gathering and marching without social distancing or protective masks, all adding to the community based viral spread [13]. The spread of infodemic through social media and other mean is another potent factor

which aggravates social stigma and bad health behaviors within the community [14].

A Call of actions and recommendation

Sudan is a country with low facilities; therefore, Sudan needs to leverage on innovations, country-compatible measures, and other tailor-made strategies for effective responses. The best practice is to prevent the individuals from acquiring the virus by preventing its spread. In this respect, the Health authorities should continue to make efforts to ensure the necessary and critical information are available to people to overcome the infodemic issues [14]. Furthermore, health awareness sessions are needed to improve the awareness of the populations, especially those at risk, and equal distribution of health facilities should also be put in place to ensure that the health for all and the rural communities can reach to the health facilities. Furthermore, we highly recommended to government to support the diagnostic facilities in the country and it should start to invest to increase and improve the diagnostic capacity; this action need the support from the government as well as international communities.

Ethics approval

Ethical approval seems not required as the data included in this article is collected by a surveillance system investigating the COVID-19 pandemic gathered from the online database of the Ministry of health, and worldmeter. The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conclusions

COVID-19 pandemic is challenging health systems and governments globally including the developed nations. In Sudan, the situation is riskier than other countries because the country is suffering from syndemic of several man-made and natural disasters in addition to the ongoing pandemic.

Authors' contributions

AA, NSM, SME, LAH, ZBA, ESA and EES conceived and designed the study; AA, NSM, SME, LAH, ZBA, ESA and EES performed the study; AA, NSM, SME, LAH, ZBA, ESA and EES analyzed the data; AA, NSM, SME, LAH, ZBA, ESA and EES wrote the manuscript. AA, NSM, SME, LAH, ZBA, ESA and EES revised the manuscript. All authors read and approved the final manuscript.

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