

# COVID-19 in Conflict Border Regions: A Case of South Kordofan, Sudan

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## Commentary

**Keywords:** COVID-19, post-conflict, rural, Sudan and South Kordofan

**Posted Date:** March 3rd, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-259345/v1>

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# Abstract

The novel coronavirus disease (COVID-19) was first reported in Sudan on 13 March 2020. Since then, Sudan has experienced one of the highest COVID-19 spread and fatalities in Africa. As per 12 December 2020, Sudan had a total of 21,591 cases, 1,355 cumulative deaths at a case fatality rate (CFR) of 6.28%. South Kordofan State has 17.4% COVID-19 case fatality rate, the fifth highest rate among the 18 States. The State is home to over 200,000 poor and displaced people from years of destructive civil unrests. To date, several localities such as the Nubba mountains region remain under rebel control and are not accessible. South Kordofan State Ministry of Health in collaboration with the federal government and non-governmental organizations set up four isolation centres with 40 total bed capacity, but with only two mechanical ventilators and no testing centre. There is still need for further multi-sectoral coalition and equitable allocation of resources to strengthen the health systems of rural and conflict affected regions. This article aims at providing insight into the current State of COVID-19 in South Kordofan amidst the second wave to address the dearth of COVID-19 information in rural and conflict affected regions.

## Introduction

Globally, several socioeconomic and livelihood activities have been disrupted by lockdown measures to control COVID-19 spread since it was declared a global pandemic by the World Health Organization on 11 March 2020 [1, 2]. Such disruptions have further strained the already weak health systems of low and middle income countries [1–3]. In Africa, Sudan was among the first countries to report the first cases in early March 2020 [4].

Sudan is the second largest country in Africa with a population of over 40 million people, and home to refugees from South Sudan, Somali, Eritrea, Central African Republic, Syria, Chad, Yemen, and Ethiopia [4–6].

South Kordofan one of the 18 States of Sudan, is located in the South Central region of Sudan, with an estimated population of 2.5 million people [7]. It is a wide conflict affected State bordering South Sudan in the South. The State has experienced chronic poverty worsened by the protracted conflict in the region that has displaced over 200 000 people and led to extensive destruction of infrastructure [7, 8].

Besides COVID-19, South Kordofan has previously been affected by epidemics such as yellow fever, chikungunya and dengue fever which have further strained the health system [9, 10]. An inter-agency assessment report done in May 2020 in the internally displaced people's camps showed overcrowding, poor water supply and inadequate medicines and limited health workers which are risk factors for COVID-19 spread [11].

With the current ongoing peace talks between the new government and the rebels in the region [12], demand for these services will likely increase as more people are expected to return to the State. Thence a need to effectively plan for the limited resources to ensure proper service delivery in terms of water,

sanitation, and hygiene (WASH), health services, and nutrition on top of the ongoing second wave of COVID-19.

Rural areas in Africa such as South Kordofan, which make up the largest part of Africa have been given less attention in the fight against COVID-19 compared to urban areas [13]. With such little attention, these areas continue to face challenges such as; inaccessibility due to poor road network, insecurity, inadequate health workers, health facilities, and COVID-19 diagnostic services [13, 14]. Of the 18 Sudan States, South Kordofan is among the least under resourced which greatly limits access and provision of essential services [15]. It is therefore crucial to give more attention to these areas to ensure equitable access to care, universal health coverage and above all, enable successful containment of COVID-19.

## **Current Covid-19 Statistics**

The limited testing and screening services in rural areas risks a high number of undetected cases. A recent report showed that between April and September, about 16,090 deaths were undetected in Khartoum and the fatality rates are expected to increase in the second wave compared to the first wave [16]. As per 12 December 2020, Sudan had a total of 21,591 confirmed COVID-19 cases and 1,355 cumulative deaths, with a case fatality rate (CFR) of 6.28%. South Kordofan has the fifth highest CFR of 17.4% compared to the rest of the 18 States with the highest seen in North (57.5%), Central (50.0%) and East (31.8%) Darfur States. These States are as well affected by on and off conflicts both internally and from bordering Central African Republic and Chad. Of the 23 confirmed COVID-19 cases as per 12 December 2020 in South Kordofan, over 65% were male and of the four deaths, three (75%) were male and one (25%) female.

## **Covid-19 Prevention Measures**

The State Ministry of Health (SMoH) through support from the Federal Ministry of Health (FMoH) and health non-governmental organisations (NGOs) has taken some measures to ensure that COVID-19 is controlled. Due to the scarcity of hospitals in South Kordofan most patients' first entry points are Primary Health Care facilities which are mainly supported by international non-governmental organisations (INGOs) which provide training and supplies for triage and COVID-19 related management protocols, referral services, personal protective equipment (PPEs) and infection prevention and control (IPC).

Some of the measures that have been implemented thus far include training and setting up of at least 14 rapid response teams (RRTs). The RRTs are engaged in contact tracing and community-based surveillance. Equally, there has been continued community awareness and sensitisation through mass media campaigns in urban and rural areas using vehicles with mounted microphones to deliver COVID-19 preventive messages to communities. To supplement nationwide media messages about COVID-19, broadcasting through television and radio stations is ongoing but not accessed by everyone. Some INGOs have worked together with the SMoH to implement community health activities such as community lead action where local leaders are trained to prepare their communities for COVID-19

prevention [17]. This approach empowers the community to take their own action and be at the centre of the fight against the spread of COVID-19 [17].

However, the nationwide restriction of movement between States that was imposed from May 2020 to September 2020 was poorly adhered to due to the limited resources to monitor and effect it, and negative attitude of the population towards COVID-19 existence [5]. Nevertheless, there is no clear information regarding the COVID-19 measures in the closed rebel-controlled areas.

The other challenges faced include; social distancing being poorly adhered to in the community due to social norms. However, these norms are being challenged through community awareness and sensitisation messages. PPEs are provided to the health facilities mainly through INGOs however, use of face masks is not being adhered to by the community partly due to the negative attitude and limited availability and affordability of face masks.

## **Covid-19 Treatment Facilities**

Although the government of Sudan has set up 36 isolation centres (IC) across all the States with a bed capacity of 985 beds and 198 intensive care unit beds, these are still very low as per international standards [5]. South Kordofan SMOH has four isolation centres with a total of 40 bed capacity of which 2 are intensive care beds with only two mechanical ventilators [18]. Through the support of FMOH and INGOs, health facilities have been trained and supplied with PPEs. There are presently no COVID-19 testing centres in South Kordofan currently has no COVID-19 testing centre, instead any collected sample is transported through over 500 kilometres to the national capital, Khartoum. This causes delay in receiving results. No clear information is available regarding the COVID-19 treatment services set up in the closed rebel-controlled areas.

## **Public Health Implications**

To ensure effective and well-coordinated response to epidemics, decision-makers need to have the right information via health information systems and data platforms [19]. In South Kordofan and similar contexts, data collection and surveillance are affected by challenges such as poor internet access, limited phone network coverage and poor road network which leads to insufficient reporting and delayed response to active cases, risking further spread and mortality. Investing in infrastructure such as road network and the technology and communication sector is key in preparing for, earlier detection and effective response to future epidemics. This will ensure innovations in the health system hence enabling digital data collection, confidential self-reporting, and epidemic control measures such as health messaging [19]. Furthermore, with timely reporting of accurate data, the different stakeholders can ensure efficient resource allocation due to good visibility across the health system's various components via quality health information systems.

Conflict affected areas are usually lacking in sectors such as education, gender equality and technology which is the case in South Kordofan compared to other States in Sudan. To ensure effective and context specific health policies, scientifically based evidence is critical. Stakeholders need to create a peaceful environment to attract investment in research and development upfront before an outbreak. Given the conservative nature of the State, research and development strategies need to address gender differences. This is crucial in ensuring feasibility of data collection and ensuring accurate data as women would not readily participate in male dominated activities that would require them being open and giving information.

In rural and resource limited regions such as South Kordofan, community engagement through use of community health committees, trusted local leaders, and community health workers are crucial in health service delivery including responding to epidemics and pandemics [19, 20]. These help to form a quick link between clinical and community-based services, disseminate culturally appropriate and context specific information on behavior change, which ensures positive responses and community ownership of service delivery. Increased community participation in health projects facilitates the community to contribute to the logistics of the effort and also ensures sustainability of the projects or response activities. Stakeholders need to ensure that more trusted members of the community are trained to ensure availability of enough community health workers. Furthermore, their services can be integrated to include nutrition, maternal and child health services. To ensure availability of resources and tackle shortage of staff and supplies, there is still need for multi-sectoral participation in the fight against COVID-19.

## **Conclusion**

This paper has provided insight into the current situation of the health system's readiness to handle the second wave of COVID-19 in a conflict affected region of Sudan near the border with South Sudan. In this regard, the article has noted a high case fatality rate with limited resources to handle COVID-19 cases in terms of testing and treatment. There is still need for multi-sectoral participation in the fight against COVID-19. The FMoH should provide more resources to ensure setting up of more isolation centres, ICU beds and testing centres. There is further need to plan effectively for the IDP camps' and returnees who are expected to further strain the already struggling health system and to conduct further studies to assess knowledge, attitude and practice on COVID-19 in rural and conflict affected regions.

## **Abbreviations**

WHO: World Health Organization

ARI: Acute respiratory infections

COVID-19: Coronavirus disease 2019

IPC: Infection prevention and control

PPE: Personal Protective Equipment

ICU: Intensive Care Unit

FMoH: Federal Ministry of Health

SMoH: State Ministry of Health

RRTs: Rapid Response Teams

NGO: Non-Governmental Organisations

## **Declarations**

## **Acknowledgements**

We thank the South Kordofan SMoH, the Federal Ministry of Health and other organizations such as UN-OCHA for the open-source data which was used for this study.

## **Funding**

No funding was obtained for this study.

## **Availability of data and materials**

Not applicable

## **Authors' contributions**

Quraish Sserwanja designed the study, selected, and processed the data and wrote the manuscript. Mohammed Bashir Adam, Emmanuel Olal and Joseph Kawuki participated in writing and revising the manuscript. All the authors contributed to the subsequent drafts, reviewed, and endorsed the final submission.

## **Ethics approval and consent to participate**

No serious ethical issues involved in the study since secondary data was used, and no direct interaction of human nor animal specimens was involved.

## **Consent for publication**

Not applicable.

## Competing interests

All authors declare that they have no competing interests.

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