AFRO Weekly COVID-19 Literature Update

2022/08/14-2022/08/19

Prepared by AFRO COVID-19 IMST through its information management cell, together with DAK team of the ARD’s office

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Due to the abundance of information and literature produced on COVID-19 in the world in general and in Africa in particular, the WHO Regional Office for Africa is publishing a weekly "Weekly COVID Literature Update" to highlight the most important literature. Each week we will select some articles per topic as well as reports and grey literature when available.

The aim is to provide an easy-to-read summary of each publication. This Bulletin is organised according to several categories of interest.

The publications shared are the result of a bibliographic research work carried out regularly on several online information sources with a major search strategy "COVID-19 AND Africa" in combination with the following keywords: epidemiology (response activities OR hygiene practices OR social distancing OR case management), vaccination, public perceptions, other diseases and other sectors. For this issue, the list of information sources is as follows: WHO Covid-19 database, PubMed, BioMed Central, Lancet (including sister journals), One library, African Index Medicus, Nature (including sister journals), Science (including sister journals), PLOS, Google scholar, Oxford University Press, Taylor & Francis, Springer, the BMJ.

The list is subject to change and kindly note that the choice of the publications to be included in this update is subjective.

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En raison de l'abondance d'informations et de littérature produites sur la COVID-19 dans le monde en général et en Afrique en particulier, le Bureau régional de l’OMS pour l’Afrique publie chaque semaine "Weekly COVID Literature Update" pour mettre en évidence la littérature la plus importante. Chaque semaine, nous sélectionnerons quelques articles par sujet ainsi que les rapports et la littérature grise quand c'est disponible.

L'objectif est de fournir un résumé facile à lire de chaque publication. Ce bulletin est organisé suivant plusieurs catégories d'intérêt.
Les publications partagées sont le résultat d'un travail de recherche bibliographique effectué régulièrement sur plusieurs sources d'information en ligne avec une comme stratégie de recherche majeure "COVID-19 ET Afrique" combinés aux mots clés suivants : epidemiology (response activities OR hygiene practices OR social distancing OR case management), vaccination, public perceptions, other diseases and other sectors. Pour ce numéro, la liste des sources d'information utilisées est la suivante : WHO Covid-19 database, PubMed, BioMed Central, Lancet (including sister journals), One library, African Index Medicus, Nature (including sister journals), Science (including sister journals), PLOS, Google scholar, Oxford University Press, Taylor & Francis, Springer, the BMJ.

Cette liste est susceptible d'être modifiée. Veuillez noter que le choix des publications à inclure dans cette mise à jour est subjectif.

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Devido à abundância de informação e literatura produzida sobre a COVID-19 no mundo em geral e em África em particular, o Escritório Regional da OMS para África está a publicar semanalmente uma "Weekly COVID Literature Update" para destacar a literatura mais importante. Cada semana iremos selecionar alguns artigos por tópico, bem como relatórios e literatura cinzenta, quando disponível.

O objectivo é fornecer um resumo de fácil leitura de cada publicação. Este boletim está organizado de acordo com várias categorias de interesse.

As publicações partilhadas são o resultado de um trabalho de pesquisa bibliográfica realizado regularmente em várias fontes de informação em linha com uma grande estratégia de pesquisa "COVID-19 E África" em combinação com as seguintes palavras-chave: epidemiology (response activities OR hygiene practices OR social distancing OR case management), vaccination, public perceptions, other diseases and other sectors. Para esta edição, a lista de fontes de informação é a seguinte: WHO Covid-19 database, PubMed, BioMed Central, Lancet (including sister journals), One library, African Index Medicus, Nature (including sister journals), Science (including sister journals), PLOS, Google scholar, Oxford University Press, Taylor & Francis, Springer, the BMJ.

A lista está sujeita a alterações e note-se que a escolha das publicações a serem incluídas nesta actualização é subjectiva.
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A. COVID-19 EPIDEMIOLOGY/ SURVEILLANCE (trends/ distribution)

**Title:** Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in Africa: Current Considerations and Future Projections  
**Journal:** Clinical Infectious Diseases  
**Publish Date:** August 15, 2022  
**URL:** [https://doi.org/10.1093/cid/ciac401](https://doi.org/10.1093/cid/ciac401)

**Abstract:**  
The burden of severe Covid-19 has been relatively low in sib-Saharan Africa compared to Europe and the Americas. However, SARS-CoV-2 sero-prevalence data has demonstrated that there has been more widespread transmission than can be deduced from reported cases. This could be attributed to under reporting due to low testing capacity or high numbers of asymptomatic SARS-CoV-2 infection in communities. Recent data indicates that prior SARS-CoV-2 exposure is protective against reinfection and that vaccination of previously SARS-CoV-2 infected individuals induces robust cross-reactive antibody responses. Considering these data, calls for a need for a re-think of the COVID-19 vaccination strategy in sub-Saharan African settings with high SARS-CoV-2 population exposure but limited available vaccine doses. A potential recommendation would be to prioritize rapid and widespread vaccination of the first dose, while waiting for more vaccines to become available.

**Title:** Leveraging artificial intelligence and data science techniques in harmonizing, sharing, accessing and analyzing SARS-COV-2/COVID-19 data in Rwanda (LAISDAR Project): study design and rationale  
**Journal:** BMC Medical Informatics and Decision Making  
**Publish Date:** August 12, 2022  
**URL:** [https://doi.org/10.1186%2Fs12911-022-01965-9](https://doi.org/10.1186%2Fs12911-022-01965-9)

**Abstract:**  
**Background**  
Since the outbreak of COVID-19 pandemic in Rwanda, a vast amount of SARS-COV-2/COVID-19-related data have been collected including COVID-19 testing and hospital routine care data. Unfortunately, those data are fragmented in silos with different data structures or formats and cannot be used to improve understanding of the disease, monitor its progress, and generate evidence to guide prevention measures. The objective of this project is to leverage the artificial intelligence (AI) and data science techniques in harmonizing datasets to support Rwandan government needs in monitoring and predicting the COVID-19 burden, including the hospital admissions and overall infection rates.  
**Methods**  
The project will gather the existing data including hospital electronic health records (EHRs), the COVID-19 testing data and will link with longitudinal data from community surveys. The open-source tools from Observational Health Data Sciences and Informatics (OHDSI) will be used to harmonize hospital EHRs through the Observational Medical Outcomes
Partnership (OMOP) Common Data Model (CDM). The project will also leverage other OHDSI tools for data analytics and network integration, as well as R Studio and Python. The network will include up to 15 health facilities in Rwanda, whose EHR data will be harmonized to OMOP CDM.

**Expected results**

This study will yield a technical infrastructure where the 15 participating hospitals and health centres will have EHR data in OMOP CDM format on a local Mac Mini (“data node”), together with a set of OHDSI open-source tools. A central server, or portal, will contain a data catalogue of participating sites, as well as the OHDSI tools that are used to define and manage distributed studies. The central server will also integrate the information from the national Covid-19 registry, as well as the results of the community surveys. The ultimate project outcome is the dynamic prediction modelling for COVID-19 pandemic in Rwanda.

**Discussion**

The project is the first on the African continent leveraging AI and implementation of an OMOP CDM based federated data network for data harmonization. Such infrastructure is scalable for other pandemics monitoring, outcomes predictions, and tailored response planning.

**Title:** Sewage surveillance of SARS-CoV-2 at student campus residences in the Western Cape, South Africa  
**Journal:** Science of The Total Environment  
**Publish Date:** August 13, 2022  
**URL:** [https://doi.org/10.1016/j.scitotenv.2022.158028](https://doi.org/10.1016/j.scitotenv.2022.158028)

**Abstract:**

The current severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) diagnostic capacity is limited in defined communities, posing a challenge in tracking and tracing new infections. Monitoring student residences, which are considered infection hotspots, with targeted wastewater surveillance is crucial. This study evaluated the efficacy of SARS-CoV-2 targeted wastewater surveillance for outbreak mitigation at Stellenbosch University’s student residences in South Africa. Using torpedo-style passive sampling devices, wastewater samples were collected biweekly from manholes at twelve Stellenbosch University Tygerberg (SUT) campus and Stellenbosch University-Main (SUM) campus student residences. The surveillance led to an early warning detection of SARS-CoV-2 presence on campus, followed by an informed management strategy leading to restriction of student activities on campus and a delay in the onset of the third wave that was experienced throughout the country. Moreover, the study highlighted the extent of possible infections at defined locations even when a low number of confirmed coronavirus disease 2019 (COVID-19) cases were reported. The study also tracked the surge of the Delta and Omicron variants in the student residences using the Thermo Fisher TaqMan® RT-qPCR genotyping assay.

**Title:** Post-COVID-19 condition 3 months after hospitalisation with SARS-CoV-2 in South Africa: a prospective cohort study  
**Journal:** The Lancet Global Health  
**Publish Date:** September 1st, 2022  
**URL:** [https://doi.org/10.1016/S2214-109X(22)00286-8](https://doi.org/10.1016/S2214-109X(22)00286-8)
Abstract:
Post COVID-19 condition (PCC), as defined by WHO, refers to a wide range of new, returning, or ongoing health problems in people who have had COVID-19, and it represents a rapidly emerging public health priority. We aimed to establish how this developing condition has affected patients in South Africa and which population groups are at risk.

Methods
In this prospective cohort study, we used the DATCOV national hospital surveillance system to identify participants aged 18 years or older who had been hospitalised with laboratory-confirmed SARS-CoV-2 infection in South Africa. Participants underwent telephone follow-up assessment at 1 month and 3 months after hospital discharge. Participants were assessed using a standardised questionnaire for the evaluation of symptoms, functional status, health-related quality of life, and occupational status. We used negative binomial regression models to determine factors associated with PCC.

Findings
Of 241,159 COVID-19 admissions reported to DATCOV between Dec 1, 2020, and Aug 23, 2021, 8309 were randomly selected for enrolment. Of the 3094 patients that we were able to contact, 2410 (77·9%) consented to participate in the study at 1 month after discharge. Of these, 1873 (77·7%) were followed up at 3 months after hospital discharge. Participants had a median age of 52 years (IQR 41–62) and 960 (51·3%) were women. At 3 months of follow-up, 1249 (66·7%) of 1873 participants reported new or persistent COVID-19-related symptoms, compared with 1978 (82·1%) of 2410 at 1 month after hospital discharge. The most common symptoms reported at 3 months were fatigue (50·3%), shortness of breath (23·4%), confusion or lack of concentration (17·5%), headaches (13·8%), and problems seeing or blurred vision (10·1%). On multivariable analysis, the factors associated with persistent symptoms after acute COVID-19 were being female (adjusted incident rate ratio 1·20, 95% CI 1·04–1·38) and admission to an intensive care unit (1·17, 1·01–1·37).

Interpretation
Most participants in this cohort of individuals previously hospitalised with COVID-19 reported persistent symptoms 3 months after hospital discharge and a significant impact of PCC on their functional and occupational status. The large burden of PCC symptoms identified in this study emphasises the need for a national health strategy. This should include the development of clinical guidelines and training of health-care workers for identifying, assessing, and caring for patients affected by PCC; establishment of multidisciplinary health services; and provision of information and support to people who have PCC.

Title: Identification of SARS-CoV-2 Omicron variant using spike gene target failure and genotyping assays, Gauteng, South Africa, 2021
Journal: Journal of medical virology
Publish Date: August 2022
URL: https://doi.org/10.1002/jmv.27797
Abstract:
The circulation of Omicron BA.1 led to the rapid increase in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) cases in South Africa in November 2021, which warranted the use of more rapid detection methods. We, therefore, assessed the ability to
detect Omicron BA.1 using genotyping assays to identify specific mutations in SARS-CoV-2 positive samples, Gauteng province, South Africa. The TaqPath™ COVID-19 real-time polymerase chain reaction assay was performed on all samples selected to identify spike gene target failure (SGTF). SARS-CoV-2 genotyping assays were used for the detection of del69/70 and K417N mutation. Whole-genome sequencing was performed on a subset of genotyped samples to confirm these findings. Of the positive samples received, 11.0% (175/1589) were randomly selected to assess if SGTF and genotyping assays, that detect del69/70 and K417N mutations, could identify Omicron BA.1. We identified SGTF in 98.9% (173/175) of samples, of which 88.0% (154/175) had both the del69/70 and K417N mutation. The genotyped samples (45.7%; 80/175) that were sequenced confirmed Omicron BA.1 (97.5%; 78/80). Our data show that genotyping for the detection of the del69/70 and K417N coupled with SGTF is efficient to exclude Alpha and Beta variants and rapidly detect Omicron BA.1. However, we still require assays for the detection of unique mutations that will allow for the differentiation between other Omicron sublineages. Therefore, the use of genotyping assays to detect new dominant or emerging lineages of SARS-CoV-2 will be beneficial in limited-resource settings.

**B. COVID-19 RESPONSE ACTIVITIES**

(hygiene practices, social distancing, case management)

**Title:** Gender and the impact of COVID-19 on demand for and access to health care: Intersectional analysis of before-and-after data from Kenya, Nigeria, and South Africa

**Journal:** Journal of Global Health

**Publish Date:** August 13, 2022

**URL:** [https://doi.org/10.7189/jogh.12.05024](https://doi.org/10.7189/jogh.12.05024)

**Abstract:**

**Background:** Global health emergencies can impact men and women differently due to gender norms related to health care and social and economic disruptions. We investigated the intersectionality of gender differences of the impact of COVID-19 on health care access with educational and socio-economic factors in Kenya, Nigeria, and South Africa.

**Methods:** Data were collected by Opinion Research Business International using census data as the sampling frame. We used conditional logistic regression to estimate the change in access to health care after the emergence of the pandemic among men and women, stratified by educational level. We also examined the change in demand for various health care services, stratified by self-reported experiences of financial difficulty due to the pandemic.

**Results:** Among those reporting a need to seek health care in South Africa, there was a statistically significant decline in the ability to see a health care provider during the pandemic among women, but not among men; this gender gap was more evident in those who did not have post-secondary education (odds ratio (OR) = 0.08, P = 0.041 among women; no change among men) than for those with post-secondary education (OR = 0.20, P = 0.142 among women; OR = 0.50, P = 0.571 among men). South African women financially affected by the pandemic had a significant decline in seeking preventive care during the pandemic (OR = 0.23, P = 0.022). No conclusive effects were noted in Nigeria or Kenya.
Conclusions: In South Africa, the pandemic and its strict control measures have adversely and disproportionately impacted disadvantaged women, which has implications for the nature of the long-term impact as well as mitigation and preparedness plans.

Title: Ivermectin exposures reported to the Poisons Information Helpline in South Africa during the COVID-19 pandemic
Journal: South African Medical Journal
Publish Date: August 2022
URL: http://dx.doi.org/10.7196/SAMJ.2022.v112i8.16473
Abstract:

Background
Ivermectin is an antiparasitic drug that has shown in vitro activity against COVID-19. Clinical studies supporting ivermectin for COVID-19 prevention and treatment are conflicting, with important limitations. Public support for ivermectin is significant, with extensive off-label use despite the conflicting views on its efficacy. Ivermectin tablets and injectable formulations are not registered in South Africa for human use by the South African Health Products Regulatory Authority. The National Department of Health does not currently recommend the use of ivermectin for COVID-19.

Objectives. To describe cases of ivermectin exposure reported to the Poisons Information Helpline of the Western Cape (PIHWC) before and after publication of the drug’s in vitro activity against SARS-CoV-2.

Methods. In a retrospective review, ivermectin-related calls reported to the PIHWC from 1 June 2015 to 30 June 2020 (period 1) were compared with calls received from 1 July 2020 to 31 July 2021 (period 2), dichotomised according to the first publication indicating ivermectin activity against SARS-CoV-2.

Results. Seventy-one cases were screened, and 65 were included for analysis; 19 cases were reported during period 1 and 46 during period 2. During period 2, 25 ivermectin cases (54.3%) were related to COVID-19 use. Of these, 24 cases (52.2%) involved veterinary preparations, 3 (6.5%) human preparations and 19 (41.3%) unknown preparations. Fourteen cases (73.7%) during period 1 and 30 (65.2%) during period 2 were reported to be symptomatic. The most common organ systems involved were the central nervous (n=26 cases; 40.0%), gastrointestinal (n=18; 27.7%), ocular (n=9; 13.8%) and dermatological (n=5; 7.7%) systems.

Conclusion. Ivermectin-related exposure calls increased during study period 2, probably as a result of ivermectin being used as preventive and definitive therapy for COVID-19 in the absence of robust evidence on efficacy, dosing recommendations or appropriate formulations.

C. COVID-19 VACCINATION

Title: Hesitancy to receive the novel coronavirus vaccine and potential influences on vaccination among a cohort of healthcare workers in the Democratic Republic of the Congo
Journal: Vaccine
Publish Date: August 12, 2022
URL: https://doi.org/10.1016/j.vaccine.2022.06.077
Abstract:
Hesitancy to receive the COVID-19 vaccine among healthcare workers (HCWs) in low-resource settings, such as the Democratic Republic of the Congo (DRC), is a major global
health challenge. This study identifies changes in willingness to receive vaccination among 588 HCWs in the DRC and reported influences on COVID-19 vaccination intentions. Up to 25 repeated measures were collected from participants between August 2020 to August 2021. Among the overall cohort, between August 2020 and mid-March 2021, the proportion of HCWs in each period of data collection reporting COVID-19 vaccine hesitancy ranged from 8.6% (95% CI: 5.97, 11.24) to 24.3% (95% CI: 20.12, 28.55). By early April 2021, the proportion reporting hesitancy more than doubled (52.0%; 95% CI: 46.22, 57.83). While hesitancy in the cohort began to decline by late-June 2021, 22.6% (95% CI: 18.05, 27.18) respondents indicated hesitancy in late-August 2021 which remains greater than the proportion of hesitancy at any time prior to early-March 2021. Patterns in reported influences on COVID-19 vaccination were varied with the proportion reporting some influences (e.g., no serious side effects, country of vaccine production) remaining stable throughout the year and other factors (e.g., recommendation of Ministry of Health, ease of vaccination) falling in popularity among respondents. Agreement that the national vaccination schedule should be followed apart from the COVID-19 vaccine remained high among respondents throughout the study period. This study shows that, among a cohort of HCWs in the DRC who have likely been influenced by regional, national, and global factors, COVID-19 vaccine hesitancy has fluctuated during the pandemic and should not be treated as a static factor. Additional research to determine which factors most influence HCWs' willingness to receive the COVID-19 vaccine offers opportunities to reduce vaccine hesitancy among this important population through tailored public health messaging.

**Title:** Coronavirus Disease 2019 (COVID-19) Vaccine Prioritization in Low- and Middle-Income Countries May Justifiably Depart From High-Income Countries' Age Priorities

**Journal:** Clinical Infectious Diseases

**Publish Date:** August 15, 2022

**URL:** [https://doi.org/10.1093/cid/ciac398](https://doi.org/10.1093/cid/ciac398)

**Abstract:**

In high-income countries that were first to roll out coronavirus disease 2019 (COVID-19) vaccines, older adults have thus far usually been prioritized for these vaccines over younger adults. Age-based priority primarily resulted from interpreting evidence available at the time, which indicated that vaccinating the elderly first would minimize COVID-19 deaths and hospitalizations. The World Health Organization counsels a similar approach for all countries. This paper argues that some low- and middle-income countries that are short of COVID-19 vaccine doses might be justified in revising this approach and instead prioritizing certain younger persons when allocating current vaccines or future variant-specific vaccines.

**Title:** COVID-19 and vaccination: myths vs science

**Journal:** Expert Review of Vaccines

**Publish Date:** August 18, 2022

**URL:** [https://doi.org/10.1080/14760584.2022.2114900](https://doi.org/10.1080/14760584.2022.2114900)

**Abstract:**

Several vaccines against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have been developed since the inception of the coronavirus disease 2019 (COVID-19) in December 2019, at unprecedented speed. However, these rapidly developed vaccines
raised many questions related to the efficacy and safety of vaccines in different communities across the globe. Various hypotheses regarding COVID-19 and its vaccines were generated, and many of them have also been answered with scientific evidence. Still, there are many myths/misinformation related to COVID-19 and its vaccines, which create hesitancy for COVID-19 vaccination, and must be addressed critically to achieve success in the battle against the pandemic.

Title: Advancing the Science of Vaccine Safety During the Coronavirus Disease 2019 (COVID-19) Pandemic and Beyond: Launching an International Network of Special Immunization Services

Journal: Clinical Infectious Diseases

Publish Date: August 15, 2022

URL: https://doi.org/10.1093/cid/ciac407

Abstract:
Within 2 years after the start of the coronavirus disease 2019 (COVID-19) pandemic, novel severe acute respiratory syndrome coronavirus 2 vaccines were developed, rigorously evaluated in large phase 3 trials, and administered to more than 5 billion individuals globally. However, adverse events of special interest (AESIs) have been described post-implementation, including myocarditis after receipt of messenger RNA (mRNA) vaccines and thrombosis with thrombocytopenia syndrome after receipt of adenoviral vector vaccines. AESIs are rare (<1 to 10/100 000 vaccinees) and less frequent than COVID-19 complications, though they have associated morbidity and mortality. The diversity of COVID-19 vaccine platforms (eg, mRNA, viral vector, protein) and rates of AESIs both between and within platforms (eg, higher rate of myocarditis after mRNA-1273 vs BNT162b2 vaccines) present an important opportunity to advance vaccine safety science. The International Network of Special Immunization Services has been formed with experts in vaccine safety, systems biology, and other relevant disciplines to study cases of AESIs and matched controls to uncover the pathogenesis of rare AESIs and inform vaccine development.

Title: Recent malaria does not substantially impact COVID-19 antibody response or rates of symptomatic illness in communities with high malaria and COVID-19 transmission in Mali, West Africa

Journal: Frontiers in Immunology

Publish Date: August 2022

URL: https://doi.org/10.3389/fimmu.2022.959697

Abstract:
Malaria has been hypothesized as a factor that may have reduced the severity of the COVID-19 pandemic in sub-Saharan Africa. To evaluate the effect of recent malaria on COVID-19 we assessed a subgroup of individuals participating in a longitudinal cohort COVID-19 serosurvey that were also undergoing intensive malaria monitoring as part of antimalarial vaccine trials during the 2020 transmission season in Mali. These communities experienced a high incidence of primarily asymptomatic or mild COVID-19 during 2020 and 2021. In 1314 individuals, 711 were parasitemic during the 2020 malaria transmission season; 442 were symptomatic with clinical malaria and 269 had asymptomatic infection. Presence of parasitemia was not associated with new COVID-19 seroconversion (29.7%
(211/711) vs. 30.0% (181/603), p=0.9038) or with rates of reported symptomatic seroconversion during the malaria transmission season. In the subsequent dry season, prior parasitemia was not associated with new COVID-19 seroconversion (30.2% (133/441) vs. 31.2% (108/346), p=0.7499), with symptomatic seroconversion, or with reversion from seropositive to seronegative (prior parasitemia: 36.2% (64/177) vs. no parasitemia: 30.1% (37/119), p=0.3842). After excluding participants with asymptomatic infection, clinical malaria was also not associated with COVID-19 serostatus or symptomatic seroconversion when compared to participants with no parasitemia during the monitoring period. In communities with intense seasonal malaria and a high incidence of asymptomatic or mild COVID-19, we did not demonstrate a relationship between recent malaria and subsequent response to COVID-19. Lifetime exposure, rather than recent infection, may be responsible for any effect of malaria on COVID-19 severity.

D. COVID-19 PUBLIC PERCEPTIONS AND EFFECTS

Title: Lived experiences of recovered COVID-19 persons in Nigeria: A phenomenological study
Journal: PLos
Publish Date: August 15, 2022
URL: https://doi.org/10.1371%2Fjournal.pone.0268109
Abstract:
Background
Numerous publications have documented the mode of transmission and prevention of COVID-19 but little or no evidence exists on the experiences of people who survived the infection.

Objective
This study explored the specific experiences of persons who were infected with COVID-19, but have recovered completely. A secondary objective was to identify essential elements in the lived experiences of such persons, which would be useful in designing appropriate policies and programs for managing the virus in Nigeria.

Method
The data were collected using in-depth interviews with 21 persons who were diagnosed with the virus and recovered. The data were transcribed and analyzed qualitatively using NVivo software. The experiences of the survivors of COVID-19 were examined under six themes: compliance with prevention measures before being infected, perceptions on how they contracted the virus, the symptoms they experienced, the management of the disease, their experiences with the healthcare system, their emotional experiences, and their recommendations on specific strategies to prevent and manage the virus based on their experiences.

Results
The commonly perceived means of contracting the virus were through colleagues, patients, and friends who were infected. The most commonly experienced symptoms were anosmia and fever. The health providers were described as courteous but some of the respondents observed avoidance and fear. Not all the interviewees knew the drugs they were treated with, but some, particularly the medical personnel, identified hydroxychloroquine, azithromycin, vitamin C, Augmentin, among others. Some of the participants used herbal
remedies. While some respondents recounted good experiences in the isolation centre, others had unpleasant experiences. Direct and indirect encounters which were perceived as stigmatizing and discriminatory were reported by some respondents.

**Conclusion**

We conclude that persons who recovered from COVID-19 in Nigeria had varied experiences relating to the mode of infection, the clinical features, methods of treatment, and psychosocial effects of the virus. These experiences would be useful for designing and implementing appropriate interventions, policies, and programs for managing the pandemic in the country.

**Title**: Students' Perceptions Towards Tourism Education and Careers After the COVID-19 Pandemic in Sub-Saharan Africa

**Journal**: African Journal of Hospitality, Tourism and Leisure

**Publish Date**: August 2022

**URL**: [https://doi.org/10.46222/ajhtl.19770720.282](https://doi.org/10.46222/ajhtl.19770720.282)

**Abstract**: The changing career environment in tourism following COVID-19 has piqued the interest of scholars who are curious as to whether such changes have altered perceptions of tourism careers. This study examined undergraduate students' perceptions towards tourism education, careers and the tourism and hospitality industry prospects following COVID-19 in the Sub-Saharan region using a case study of Malawi. The study is guided by the social cognitive career theory (SCCT) and employed qualitative research methods. The findings revealed that the majority of students had favourable views of tourism careers as a result of their optimism regarding tourism recovery. Those who had lost faith in tourism and its careers expressed reservations about countries' economic ability to implement tourism recovery strategies. The study suggests career guidance and counselling, as well as increasing student awareness of government tourism recovery measures and recovery success stories across industry subsectors, as means of restoring student confidence in tourism and tourism-related careers.

**Title**: Public sentiments toward COVID-19 vaccines in South African cities: An analysis of Twitter posts

**Journal**: Frontiers in Public Health

**Publish Date**: August 2022

**URL**: [https://doi.org/10.3389/fpubh.2022.987376](https://doi.org/10.3389/fpubh.2022.987376)

**Abstract**: Amidst the COVID-19 vaccination, Twitter is one of the most popular platforms for discussions about the COVID-19 vaccination. These types of discussions most times lead to a compromise of public confidence toward the vaccine. The text-based data generated by these discussions are used by researchers to extract topics and perform sentiment analysis at the provincial, country, or continent level without considering the local communities. The aim of this study is to use clustered geo-tagged Twitter posts to inform city-level variations in sentiments toward COVID-19 vaccine-related topics in the three largest South African cities (Cape Town, Durban, and Johannesburg). VADER, an NLP pre-trained model was used to label the Twitter posts according to their sentiments with their associated intensity scores. The outputs were validated using NB (0.68), LR (0.75),
SVMs (0.70), DT (0.62), and KNN (0.56) machine learning classification algorithms. The number of new COVID-19 cases significantly positively correlated with the number of Tweets in South Africa (Corr = 0.462, P < 0.001). Out of the 10 topics identified from the tweets using the LDA model, two were about the COVID-19 vaccines: uptake and supply, respectively. The intensity of the sentiment score for the two topics was associated with the total number of vaccines administered in South Africa (P < 0.001). Discussions regarding the two topics showed higher intensity scores for the neutral sentiment class (P = 0.015) than for other sentiment classes. Additionally, the intensity of the discussions on the two topics was associated with the total number of vaccines administered, new cases, deaths, and recoveries across the three cities (P < 0.001). The sentiment score for the most discussed topic, vaccine uptake, differed across the three cities, with (P = 0.003), (P = 0.002), and (P < 0.001) for positive, negative, and neutral sentiments classes, respectively. The outcome of this research showed that clustered geo-tagged Twitter posts can be used to better analyse the dynamics in sentiments toward community–based infectious diseases-related discussions, such as COVID-19, Malaria, or Monkeypox. This can provide additional city-level information to health policy in planning and decision-making regarding vaccine hesitancy for future outbreaks.

E. COVID-19 EFFECTS ON OTHER DISEASES AND SECTORS

Title: Conflicts increased in Africa shortly after COVID-19 lockdowns, but welfare assistance reduced fatalities
Journal: Economic Modelling
Publish Date: August 17, 2022
URL: https://doi.org/10.1016/j.econmod.2022.105991
Abstract:
Understanding how rises in local prices affect food-related conflicts is essential for crafting adequate social welfare responses, particularly in settings with an already high level of food vulnerability. We contribute to the literature by examining how rises in local food prices and the lockdowns implemented to contain the first wave of the COVID-19 pandemic affected conflict. We analyze real-time conflict data for 24 African countries during 2015–2020, welfare responses to COVID-19, changes in local food prices, and georeferenced data on areas with cultivation, oil, mines, all associated with differentiated risk of conflict. We find that the probability of experiencing food-related conflicts, food looting, riots, and violence against civilians increased shortly after the first strict lockdowns of 2020. Increases in local prices led to increases in violence against civilians. However, countries that timely provided more welfare assistance saw a reduction in the probability of experiencing these conflicts and in the number of associated fatalities. Our results suggest that providing urgent aid and assistance to those who need it can help reduce violence and save lives.

Title: The COVID-19 pandemic and disruptions to essential health services in Kenya: a retrospective time-series analysis
Journal: The Lancet Global Health
Publish Date: September 2022
URL: https://doi.org/10.1016/S2214-109X(22)00285-6
Abstract:

Background
Public health emergencies can disrupt the provision of and access to essential health-care services, exacerbating health crises. We aimed to assess the effect of the COVID-19 pandemic on essential health-care services in Kenya.

Methods
Using county-level data routinely collected from the health information system from health facilities across the country, we used a robust mixed-effect model to examine changes in 17 indicators of essential health services across four periods: the pre-pandemic period (from January, 2018 to February, 2020), two pandemic periods (from March to November 2020, and February to October, 2021), and the period during the COVID-19-associated health-care workers’ strike (from December, 2020 to January, 2021).

Findings
In the pre-pandemic period, we observed a positive trend for multiple indicators. The onset of the pandemic was associated with statistically significant decreases in multiple indicators, including outpatient visits (28·7%; 95% CI 16·0–43·5%), cervical cancer screening (49·8%; 20·6–57·9%), number of HIV tests conducted (45·3%; 23·9–63·0%), patients tested for malaria (31·9%; 16·7–46·7%), number of notified tuberculosis cases (26·6%; 14·7–45·1%), hypertension cases (10·4%; 6·0–39·4%), vitamin A supplements (8·7%; 7·9–10·5%), and three doses of the diphtheria, tetanus toxoid, and pertussis vaccine administered (0·9%; 0·5–1·3%). Pneumonia cases reduced by 50·6% (31·3–67·3%), diarrhoea by 39·7% (24·8–62·7%), and children attending welfare clinics by 39·6% (23·5–47·1%). Cases of sexual violence increased by 8·0% (4·3–25·0%). Skilled deliveries, antenatal care, people with HIV infection newly started on antiretroviral therapy, confirmed cases of malaria, and diabetes cases detected were not significantly affected negatively. Although most of the health indicators began to recover during the pandemic, the health-care workers’ strike resulted in nearly all indicators falling to numbers lower than those observed at the onset or during the pre-strike pandemic period.

Interpretation
The COVID-19 pandemic and the associated health-care workers’ strike in Kenya have been associated with a substantial disruption of essential health services, with the use of outpatient visits, screening and diagnostic services, and child immunisation adversely affected. Efforts to maintain the provision of these essential health services during a health-care crisis should target the susceptible services to prevent the exacerbation of associated disease burdens during such health crises.

Title: Medico-demographic characteristics and outcomes of COVID-19 patients admitted to a Provincial Hospital in Center-West of Morocco
Journal: Panafrican Medical Journal
Publish Date: August 10, 2022
URL: https://www.panafrican-med-journal.com/content/article/42/268/full/

Abstract:
Introduction: the Kenema District Surveillance team in Sierra Leone received notifications of patients with suspected Lassa fever on February 20th and March 2nd, 2019. On that day, an investigation started to confirm the diagnosis and search for additional cases.
Methods: we used the Lassa fever surveillance case definition and collected demographic and exposure information from suspected cases through interviews and clinical records. Blood samples were collected from the cases to confirm the diagnosis. Active case finding was conducted in the community and health facility.

Results: on February 10, 2019, an eight-year-old male developed a fever (>39.5°C) and a sore throat. On February 18, 2019, he was admitted to a hospital and treated for malaria and pneumonia. On February 20, 2019, Lassa fever was suspected when bleeding from orifices and testing confirmed Lassa fever. On February 15, a 5-year-old female developed fever and headache and was treated with anti-malarial drugs. On February 26th the high fever re-emerged with severe bleeding from the orifices. She was admitted and treated with antibiotics, confirmed for Lassa fever, and died on March 2, 2019.

Conclusion: the two children had Lassa fever, and no additional cases were identified. We sensitized clinicians on suspicion of Lassa fever to improve early detection and treatment.

Title: Locked Down: Economic and Health Effects of COVID-19 Response on Residents of a South African Township
Journal: Global Social Welfare
Publish Date: August 2022
URL: https://link.springer.com/content/pdf/10.1007/s40609-022-00230-1.pdf

Abstract:
Background
Little research has examined how pandemics affect residents in under-resourced communities. This study investigated how COVID-19 and lockdown policies affected residents of Alexandra, one of Johannesburg, South Africa’s lowest-income townships.

Methods
We conducted a telephone survey May 11–22, 2020, while the lockdown and alcohol ban were in effect, of a spatially stratified sample of 353 adult Alexandra residents drawn randomly from voter registration, credit card application, and prior studies’ sampling frames. We examined economic consequences; health experiences, including COVID-19 exposure and mental health symptoms; alcohol use; and personal experiences with violence.

Results
Respondents were aged 18 to 89 and 47% female. About 70% of those employed before the lockdown were no longer working. Over half of households lost at least one source of income. About 50% of respondents reported stockpiling food. A majority reported price rises and declines in availability of food. Smaller percentages reported such changes for other items. Over 80% reported stress or anxiety, or depression due to the pandemic. The prevalence of past-week alcohol use fell from over 50% before the lockdown to less than 10% during the lockdown. Self-reported physical violence victimization increased.

Discussion
COVID-19 and the lockdown disrupted Alexandra residents’ lives through unemployment, lost income, mental health problems, and increased violence. The differences between these outcomes and those in more advantaged communities deserve investigation. Research should also seek to identify tailored responses to effectively address the
challenges of marginalized communities that often have limited resources to deal with pandemics and policies to contain them.

**Title**: Addressing the migrant gap: maternal healthcare perspectives on utilising prevention of mother to child transmission (PMTCT) services during the COVID-19 pandemic, South Africa

**Journal**: Global Health Action

**Publish Date**: August 15, 2022

**URL**: https://doi.org/10.1080/16549716.2022.2100602

**Abstract:**

**Background**

The COVID-19 pandemic has interrupted the prevention of mother-to-child transmission of HIV (PMTCT) programming in South Africa. In 2020, it was estimated that there were 4 million cross-border migrants in South Africa, some of whom are women living with HIV (WLWH), who are highly mobile and located within peripheral and urban areas of Johannesburg. Little is known about the mobility typologies of these women associated with different movement patterns, the impact of the COVID-19 pandemic on mobility typologies of women utilising PMTCT services and on how changes to services might have affected adherence.

**Objective**

To qualitatively explore experiences of different mobility typologies of migrant women utilising PMTCT services in a high mobility context of Johannesburg and how belonging to a specific typology might have affected the health care received and their overall experiences during the COVID-19 pandemic.

**Methods**

Qualitative semi-structured interviews with 40 pregnant migrant WLWH were conducted from June 2020-June 2021. Participants were recruited through purposive sampling at a public hospital in Johannesburg. A thematic approach was used to analyse interviews.

**Results**

Forty interviews were conducted with 22 cross-border and 18 internal migrants. Women in cross-border migration patterns compared to interprovincial and intraregional mobility experienced barriers of documentation, language availability, mistreatment, education and counselling. Due to border closures, they were unable to receive ART interrupting adherence and relied on SMS reminders to adhere to ART during the pandemic. All 40 women struggled to understand the importance of adherence because of the lack of infrastructure to support social distancing protocols and to provide PMTCT education.

**Conclusions**

COVID-19 amplified existing challenges for cross-border migrant women to utilise PMTCT services. Future pandemic preparedness should be addressed with differentiated service delivery including multi-month dispensing of ARVs, virtual educational care, and language-sensitive information, responsive to the needs of mobile women to alleviate the burden on the healthcare system.

**Title**: Millets (pearl and finger) as nutritional interventions for COVID 19 with focus on Zimbabwe: mini review

**Journal**: Cogent Food & Agriculture
Abstract:
Though COVID-19 vaccines have proved to work effectively against SARS-CoV-2, nutritional interventions are central in boosting the immune system and reduce SARS-CoV-2 effects. The review aims at exploring the link between millets bioactive compounds (nutritional and phytochemical composition) and human immune system, as well as COVID-19 prevention and treatment. This mini review is based on the literature survey in these data sources: web of science, Scopus, Google scholar, PubMed, and ResearchGate. Based on the nutritional value and their importance in nutritional security, increased consumption of millets can be beneficial in preventing SARS-CoV-2 infection and COVID-19 establishment. Small grains (pearl and finger millets) contain abundance of bioactive compounds such as carotenoids, phenols, proteins, vitamin E, and tannins with antioxidant properties. Results from the review indicated that finger millet-derived foods contain substantially higher content of micronutrients when compared with other cereals including wheat. Pearl millet another important Zimbabwean millet has a significantly high content of dietary fibres, starch, micronutrients, as well as antioxidants. Moreover, many of the millet-derived antioxidants, such as quercetin, and ellagic acid are known to mop up any foreign agents and toxins. This review addressed the link between millets (nutrients and bioactive compounds) and immune system as well as COVID-19 prevention and treatment. However, there is inconclusive data to explain the contributions of millets in COVID-19 prevention and treatment, and this calls for more randomized and controlled clinical trials to ratify their significance in infectious disease prevention and treatment.

Title: Disruption in accessing sexual and reproductive health services among border populations during COVID-19 lockdown in Uganda

Abstract:
Background: The spread of COVID-19 exposed the inadequacies inherent in the health care systems of many countries. COVID-19 and the attendant demands for emergency treatment and management put a significant strain on countries' health care systems, including hitherto strong health systems. In Uganda, as the government strived to contain COVID-19, other essential health care services were either disrupted or completely crowded out. Balancing the provision of COVID-19 treatment and management services and at the same time offering sexual and reproductive health and rights services (SRHR) proved to be a considerable challenge in these circumstances. COVID-19 prevention-related travel restrictions and border closures had far-reaching negative consequences on the mobility of individuals to access essential health services in Uganda. The situation may have been worse for cross-border communities that sometimes access services across the borders.
Methods: Using quantitative data from 1521 respondents and qualitative data (20 key informant interviews and 12 focus group discussions), we investigate the disruption in accessing SRHR services for border communities in Uganda during COVID-19.
**Results:** Results indicate that females (adjusted odds ratio (aOR) = 1.3; 95% confidence interval CI = 1.08-1.79), those with primary education (aOR = 1.47; 95% CI = 1.61-2.57), currently employed (aOR = 2.03; 95% CI = 1.61-2.57) and those with the intention to leave current residence (aOR = 2.09; 95% CI = 1.23-3.55) were more likely to have experienced a disruption in accessing SRHR services. However, respondents aged 35 years, or more were less likely to have experienced a disruption compared to their younger counterparts.

**Conclusions:** Results shed light on the disruption of access to SRHR services during pandemics such as COVID-19 among a highly mobile population. There is a need to invest in building strong and resilient health care systems that can guarantee continuous access to essential health services including SRHR provisions among mobile populations during pandemics.

**Title:** Monkeypox during COVID-19 era in Africa: Current challenges and recommendations
**Journal:** Annals of Medicine and Surgery
**Publish Date:** August 18, 2022
**URL:** [https://doi.org/10.1016/j.amsu.2022.104381](https://doi.org/10.1016/j.amsu.2022.104381)

**Abstract:**
In May 2022, monkeypox virus (MPXV) outbreak was confirmed amid the coronavirus disease 2019 (COVID-19) pandemic in many parts of the world including Africa. This is the largest outbreak since monkeypox (MPX) was first detected in humans in 1970. The MPX outbreak in Africa is an added burden to the fragile healthcare systems that are already overburdened with several reoccurring epidemics. Although several efforts are in place to effectively contained the outbreak. Several measures such as improved surveillance and diagnostic are necessary to contain the spread of the disease in Africa. This commentary highlights the challenges with the MPX outbreak in Africa and discusses the measures that can be taken to limit the spread of the disease, particularly in high-risk countries.

**Title:** Potential SARS-CoV-2 contamination of groundwater as a result of mass burial: A mini-review
**Journal:** Science of The Total Environment
**Publish Date:** August 2022
**URL:** [https://doi.org/10.1016/j.scitotenv.2022.155473](https://doi.org/10.1016/j.scitotenv.2022.155473)

**Abstract:**
The recent COVID-19 disease has highlighted the need for further research around the risk to human health and the environment because of mass burial of COVID-19 victims. Despite SARS-CoV-2 being an enveloped virus, which is highly susceptible to environmental conditions (temperature, solar/UV exposure). This review provides insight into the potential of SARS-CoV-2 to contaminate groundwater through burial sites, the impact of various types of burial practices on SARS-CoV-2 survival, and current knowledge gaps that need to be addressed to ensure that humans and ecosystems are adequately protected from SARS-CoV-2. Data available shows temperature is still likely to be the driving factor when it comes to survival and infectivity of SARS-CoV-2. Research conducted at cemetery sites globally using various bacteriophages (MS2, PRD1, faecal coliforms) and viruses (TGEV, MHV) as surrogates for pathogenic enteric viruses to study the fate and transport of these viruses showed considerable contamination of groundwater,
particularly where there is a shallow vadose zone and heterogeneous structures are known to exist with very low residence times. In addition, changes in solution chemistry (e.g., decrease in ionic strength or increase in pH) during rainfall events produces large pulses of released colloids that can result in attached viruses becoming remobilised, with implications for groundwater contamination. Viruses cannot spread unaided through the vadose zone. Since groundwater is too deep to be in contact with the interred body and migration rates are very slow, except where preferential flow paths are known to exist, the groundwater table will not be significantly impacted by contamination from SARS-CoV-2. When burial takes place using scientifically defensible methods the possibility of infection will be highly improbable. Furthermore, the SARS-CoV-2 pandemic has helped us to prepare for other eventualities such as natural disasters where mass fatalities and subsequently burials may take place in a relatively short space of time.

Title: Correlation between human development index and its components with COVID-19 indices: a global level ecologic study

Journal: BMC Public Health

Publish Date: August 2022


Abstract:

Background
Given that COVID-19 continues to spread worldwide, attempts to restrain the virus and to prevent the effects that critically ill patients with COVID-19 have on healthcare systems, has become a public health priority. This ecological study aimed to investigate the correlation between the Human Development Index (HDI) and the epidemiological indicators of COVID-19, including the cumulative incidence rate of cases, the cumulative incidence rate of death, performed COVID-19 tests, recovery rate, and case fatality rate.

Methods
In this ecological study, a data set was provided, which included the epidemiologic indices of COVID-19, HDI, and its components for each country. Correlation coefficients were used to determine linear correlation. Also, the scatter plots of the HDI for the studied countries based on the epidemiologic indices of COVID-19 were drawn.

Results
This study showed that HDI and its components had positive correlation with a cumulative incidence rate of cases, the cumulative incidence rate of death, and performed COVID-19 tests ($p < 0.001$). HDI and two of its components, including literacy and Gross National Income (GNI) components had negative correlation with case fatality rate (CFR). Also, HDI and two of its components, including literacy and life expectancy components had negative correlation with recovery rate.

Conclusion
Our study showed that the HDI and its components can affect the epidemiological status of COVID-19. As HDI increased, the cumulative incidence rate of cases, cumulative incidence rate of death, and COVID-19 tests increased as well. As HDI increased, CFR and recovery rate decreased as well. Although the HDI is higher in high-income countries, these countries may have also better reporting and surveillance systems.
Title: Stockpiling and food worries: Changing habits and choices in the midst of COVID-19 pandemic
Journal: Socio-Economic Planning Sciences
Publish Date: August 2022
URL: https://doi.org/10.1016/j.seps.2021.101181
Abstract:
Albeit, governments have instituted strong containment measures in the wake of the COVID-19 pandemic, concerns of continuous local spread and economic impact of the virus are impacting global food chains and food security. This paper investigates the effect of concern about the i) local spread and ii) economic impact of COVID-19, on the change in the amount of food and necessities bought in twelve Sub-Saharan African countries. In addition, we examine if these effects are channeled through food worries. The study uses a unique survey dataset by GeoPoll collected in April 2020 (first round) and May 2020 (second round) and employs a multinomial logit and generalized structural equation models. We find significant effect of concern about COVID-19 on change in the package size of food and necessities bought, which is heterogeneous across gender group and rural-urban divide. Our results reveal that concerns of COVID-19 might be promoting stockpiling behavior among females and those with no food worries (due to having sufficient money or resources). This if not properly managed could in the medium to long-term affect the food supply chain, food waste and exacerbate food worries problem especially for already food deprived homes. We discuss the policy implications.