KSR Kenya Studies Review

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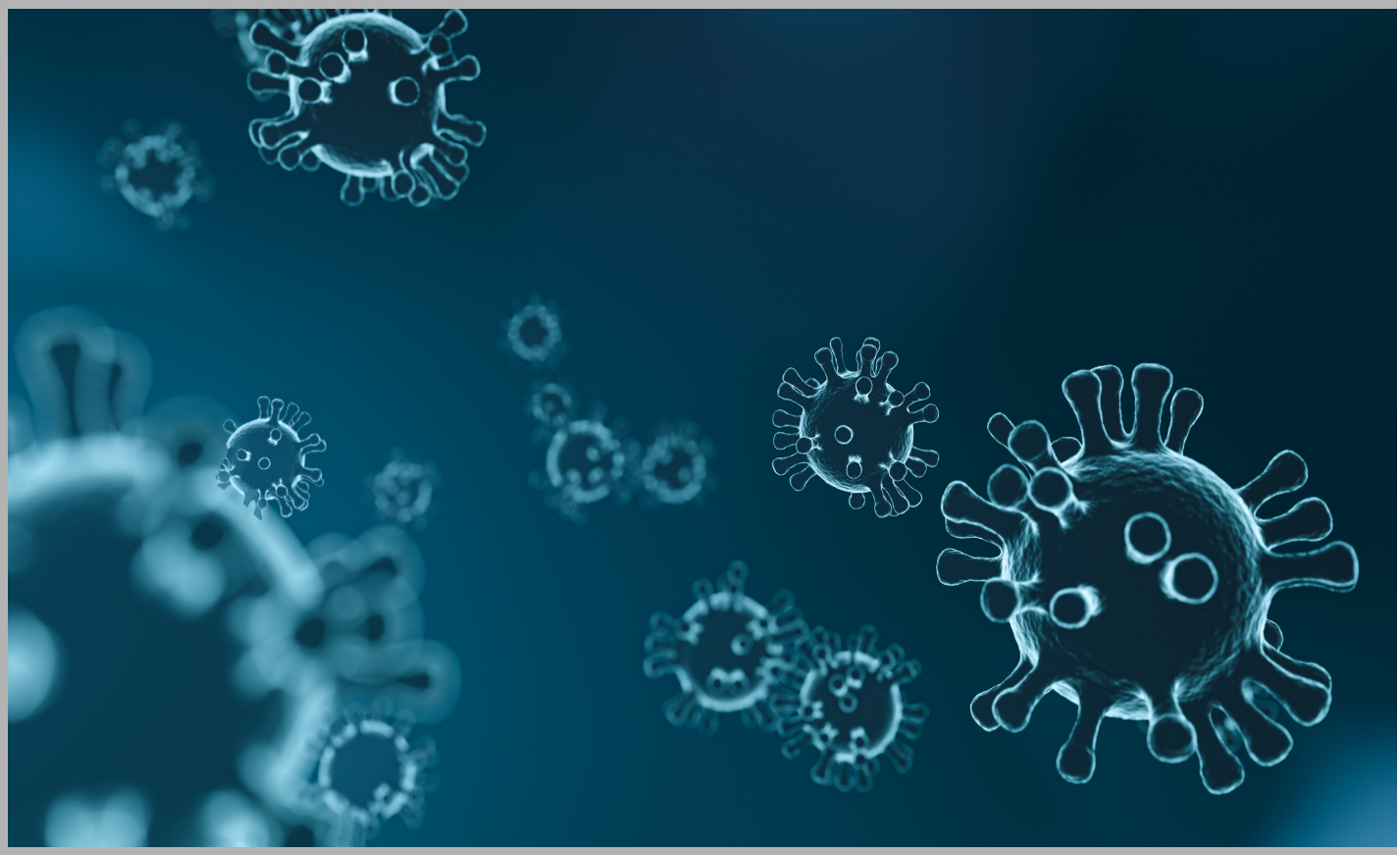

SPECIAL ISSUE

COVID-19: Coronavirus Pandemic

Fall 2020 | Volume 8 | Number 2

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KENYA STUDIES REVIEW

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The year 2020 has been one of the most devastating time of the twenty-first century. The novel coronavirus (COVID-19) paralyzed nations, causing major disruptions for businesses, educational institutions, transportation, and virtually permeated and interrupted every aspect of people's daily lives. Millions of people transformed their homes into schools and offices while wearing face coverings became a new normal. Rising numbers of those who tested positive for the virus or died because of it often challenged people's optimism. Hunkered down in their homes, most people sought for answers the best way they knew how. Some glued their eyes on their television sets while others surfed the internet for any credible information. Most, like me, soon suffered from information overload, bombarded by mixed messages about the virus from the very people charged with easing our panic. Some politicians actively took on the banners of naysayers against the looming dangers of the virus as they trumpeted disinformation. Some preachers put faith before science, leading their followers in harm's way against the advice of renowned American physicians and immunologists' warning of the threats caused by the deadly virus. Doctors and nurses offered solace to the sick and the dying, using modern technology as the only link between patients and their loved ones. Television newscasters, "truth chasers," stole our hearts with their reporting. Many State Governors and their teams of experts gave regular updates on the dire state of affairs in their regions. Not to mention the many other essential workers who heeded the call of duty and forewent their safety to ensure our daily needs and services were met. Though we have lost many people in the wake of this devastating virus, I remain optimistic now in my writing about the efficacy of the current and upcoming vaccines. Our lives might never return to the normalcy of our pre-COVID-19 days, but if we work collectively, we should be able to see better days ahead.

This *Kenya Studies Review'*s Special Issue on COVID-19 offers readers insightful articles, commentaries, opinion pieces, and poetry by Kenyan scholars, in both the diaspora and the motherland, reflecting on how this pandemic impacted their personal and professional lives. Myriad topics covered in this issue are diverse in scope, from conceptual, methodological, practical, Higher Education, to anecdotal accounts of lived experiences. It is our hope readers will be enriched from the expansive tableau of information documented here.

–Imali J. Abala

Every Dark Cloud Has a Silver Lining: Some Positive Externalities of the COVID-19 Crisis to Kenya and Her US Diaspora

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Abstract

The Coronavirus disease (COVID-19) is a global pandemic that has infected millions, killed hundreds of thousands of people, and devastated the socioeconomic lives of billions of people from around the world including Kenyans at home and in the diaspora.[1] Some economic sectors like the hotel and tourism industries have been so hard hit that they will take many years to recover. Nevertheless, like many other crises in history, the COVID-19 crisis does have silver linings or unintended positive consequences including greater creativity and innovation among individuals, organizations, institutions, and nations across the globe. This paper uses secondary data to explore these unforeseen positive consequences in relation to Kenya and her diaspora in the US. The paper starts with an exploration of the global geography of the COVID-19 pandemic before proceeding to examine the US COVID-19 crisis, and the negative impacts of COVID-19 on Kenya and her US diaspora. It then provides an extended discussion of the unintended social, health, political, economic, geopolitical, and educational, scientific, and technological silver linings of the COVID-19 crisis to Kenya and her US diaspora at the individual, organizational, institutional, and national/global level. The paper ends with a brief highlight of its policy implications.[2]

Keywords: Coronavirus, COVID-19, crisis, geography, Kenya, USA, externalities, innovations, diaspora

INTRODUCTION

The coronavirus disease (hereafter COVID-19) pandemic, which is prevalent all over the world, has devastated the globe and changed it in profound ways. Part of this impact derives from the scale and complexity of the COVID-19 crisis and the responses it has engendered:

> It is important to think of COVID-19 not as a single global pandemic, but rather as a simultaneous and sequential outbreak of many local epidemics, with slight variations reflecting local geographies … While the basic transmission mechanisms of the virus are the same everywhere – exposure to an infected person – the spatial patterns of virulence, morbidity, and mortality and experience of [the] disease … [differ]. [These patterns] … reflect spatial differences in vulnerability including comorbidities, resilience based on previous experience with dealing with disease, and preparedness. Available health care systems are only one, albeit a very important, component. Thus, while maintaining some essential similarities – contact tracing and limiting [the] exposure of uninfected [people] – the response to disease … [also differs]. (Oppong, 2020: 4)

[1] The analytical cut-off date for this paper was July 20, 2020.
[2] I thank the reviewers for their insightful comments on an earlier draft of this paper.

Global geography of the COVID-19 disease

Table 1 summarizes COVID-19 confirmed cases, recoveries, and deaths for the world, USA, and Kenya, as of July 20, 2020. On that day, the USA ranked number one globally is the number of confirmed cases, recoveries, and deaths while Kenya was ranked 65 globally. Within Africa, Kenya, which "confirmed its first coronavirus case [on Friday, March 12, 2020] — a 27-year-old Kenyan national who was studying abroad," (Ombuor, 2020: no pp) was ranked seventh in COVID-19 cases (behind South Africa, Egypt, Nigeria, Ghana, Algeria, and Morocco), ninth in recoveries (behind South Africa, Egypt, Ghana, Algeria, Nigeria, Morocco, Cameroon, and Ivory Coast), and eight in deaths (behind South Africa, Egypt, Algeria, Nigeria, Sudan, Cameroon, and Morocco) (Worldometer, 2020).

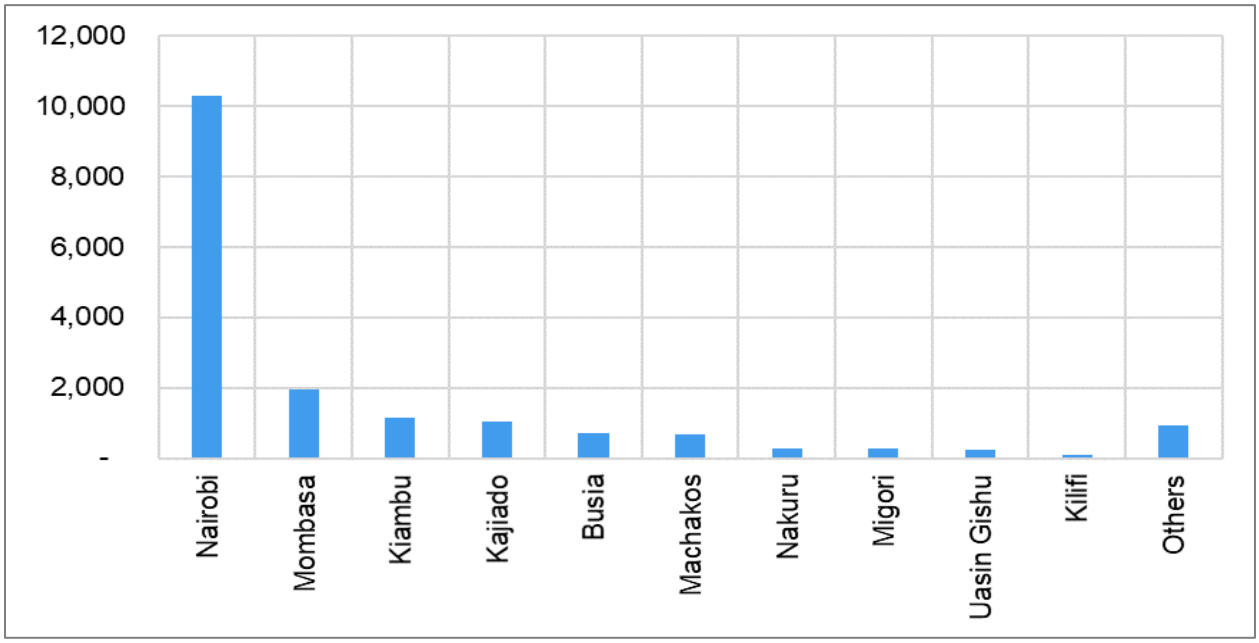
Table 1: Select COVID-19 data for the World, USA, and Kenya (July 27, 2020)

Region or Country	Confirmed Cases	Recovered	Deaths	Total Cases/1 million population	Deaths/ 1 million population	Tests/ 1 million population	Total Population
World	16,536,894	10,127,775	654,089	2,122	84	-	7,800,000,000
USA	4,398,184	2,101,307	150,053	13,282	453	164,667	331,139,904
Kenya	17,603	7,743	280	327	5	5,133	53,845,480

Sources: COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU): https://coronavirus.jhu.edu/map.html; Worldometer https://www.worldometers.info/coronavirus/

Within Kenya, most COVID-19 cases were, on July 26, 2020, primarily concentrated in the country's urban and border town counties (Figure 1, Table 2).

Figure 1: COVID-19 cases, July 26, 2020



Source: Coronavirus tracker, https://nation.africa/kenya/covid

Nairobi City County alone had 58% of the COVID-19 cases in the country followed by Mombasa City County which had 11%. This is because these two cities, especially Nairobi, are Kenya's airline gateways. This is important because the virus initially spread across the globe through airline passenger flows. The next two counties, Kiambu and Kajiado, with 6% each, are, along with Machakos County (4%), in the Nairobi Metropolitan region, which collectively had 74% of all cases in Kenya on that date (Table 2).

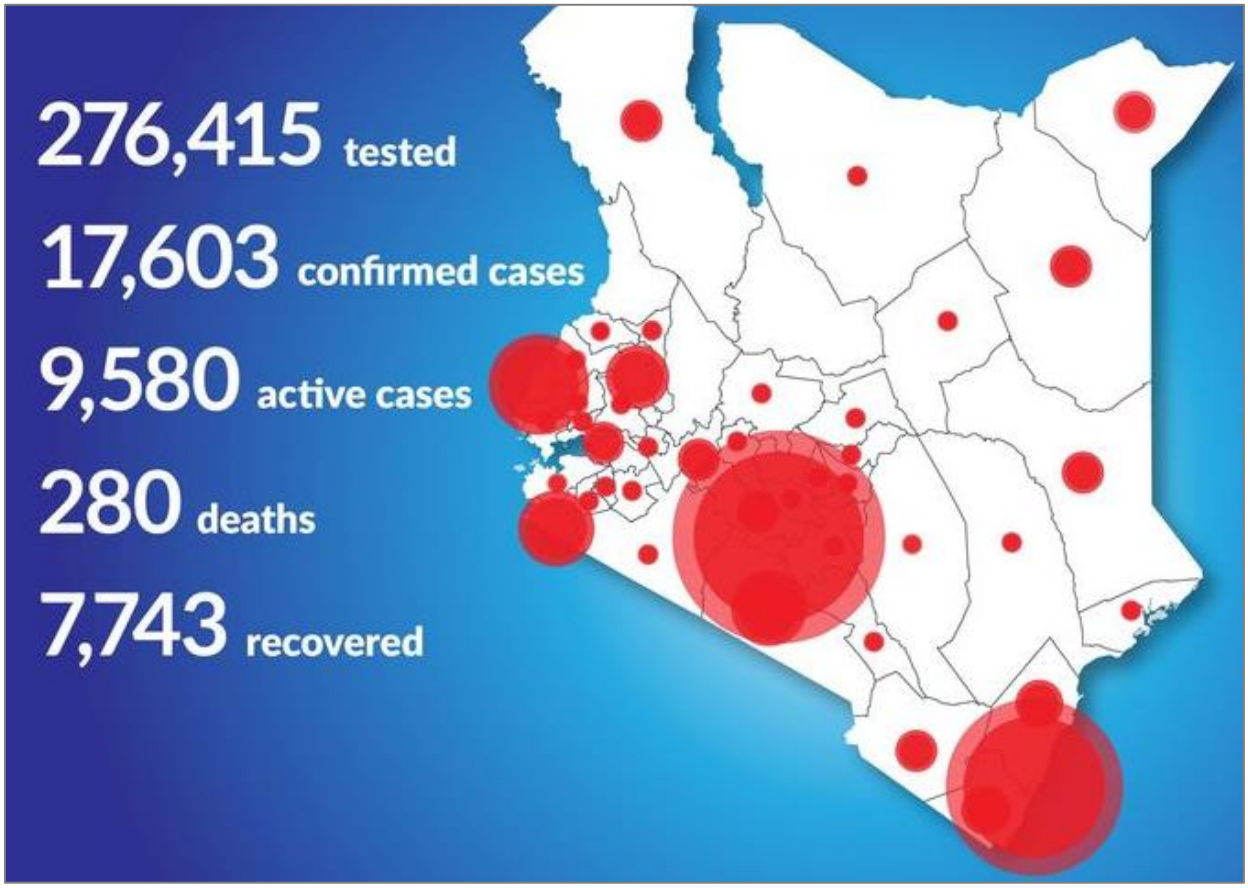
The relatively high number of COVID-19 cases in the remaining counties is attributable to many factors (Figure 1). Some of these counties are wildlife tourism centers (e.g., Nakuru) and beach tourism hotspots (e.g., Kilifi County which is also adjacent to Mombasa City County) which attract visitors from all over the world. Others (e.g., Nakuru, Uasin Gishu, Migori, and Busia Counties) have many COVID-19 cases because they lie on the country's main transport arteries (e.g., the Mombasa-Nairobi-Nakuru-Kisumu highway – Figure 2) which link Kenya to neighboring countries. Moreover, Uasin Gishu County contains Eldoret town, one of Kenya's largest towns. Eldoret is also home to Eldoret International Airport, Kenya's third largest airport after Jomo Kenyatta International Airport (JKIA) in Nairobi and Moi International Airport in Mombasa. Other counties (e.g., Migori and Busia counties) lie on Kenya's international border and are thus home to the border towns (e.g., Migori and Busia) that mediate road traffic between Kenya and Uganda and Tanzania (Figure 2).

Table 2: Distribution of COVID-19 cases by County (Nairobi Metropolitan Region counties are shown in grey)

County	2019 Population	COVID-19 Cases	COVID-19 Cases / 1,000 Population	Percent of Total Cases
Nairobi	4,397,073	10,293	2.3	58
Mombasa	1,208,333	1,951	1.6	11
Kiambu	2,417,735	1,141	0.5	6
Kajiado	1,117,840	1,028	0.9	6
Busia	893,681	698	0.8	4
Machakos	1,421,932	689	0.5	4
Nakuru	2,162,202	282	0.1	2
Migori	1,116,436	265	0.2	2
Uasin Gishu	1,163,186	223	0.2	1
Kilifi	1,453,787	102	0.1	1
Others	30,212,091	931	0.0	5
Total	**47,564,296**	**17,603**	**0.4**	**100**

Sources: 2019 Kenya Population Census, https://www.knbs.or.ke/; Namatsi, J. (2020, July 28). Covid-19: Kenya cases shoot to 17,603 with record 960 infections. *Daily Nation*. https://nation.africa/kenya/news/covid-19-kenya-cases-shoot-to-17-603-with-record-960-infections-1906350

Figure 2: Distribution of Covid-19 cases in Kenya on July 26 2020



Source: Namatsi, J. (2020, July 28). Covid-19: Kenya cases shoot to 17,603 with record 960 infections. *Daily Nation*. https://nation.africa/kenya/news/covid-19-kenya-cases-shoot-to-17-603-with-record-960-infections-1906350

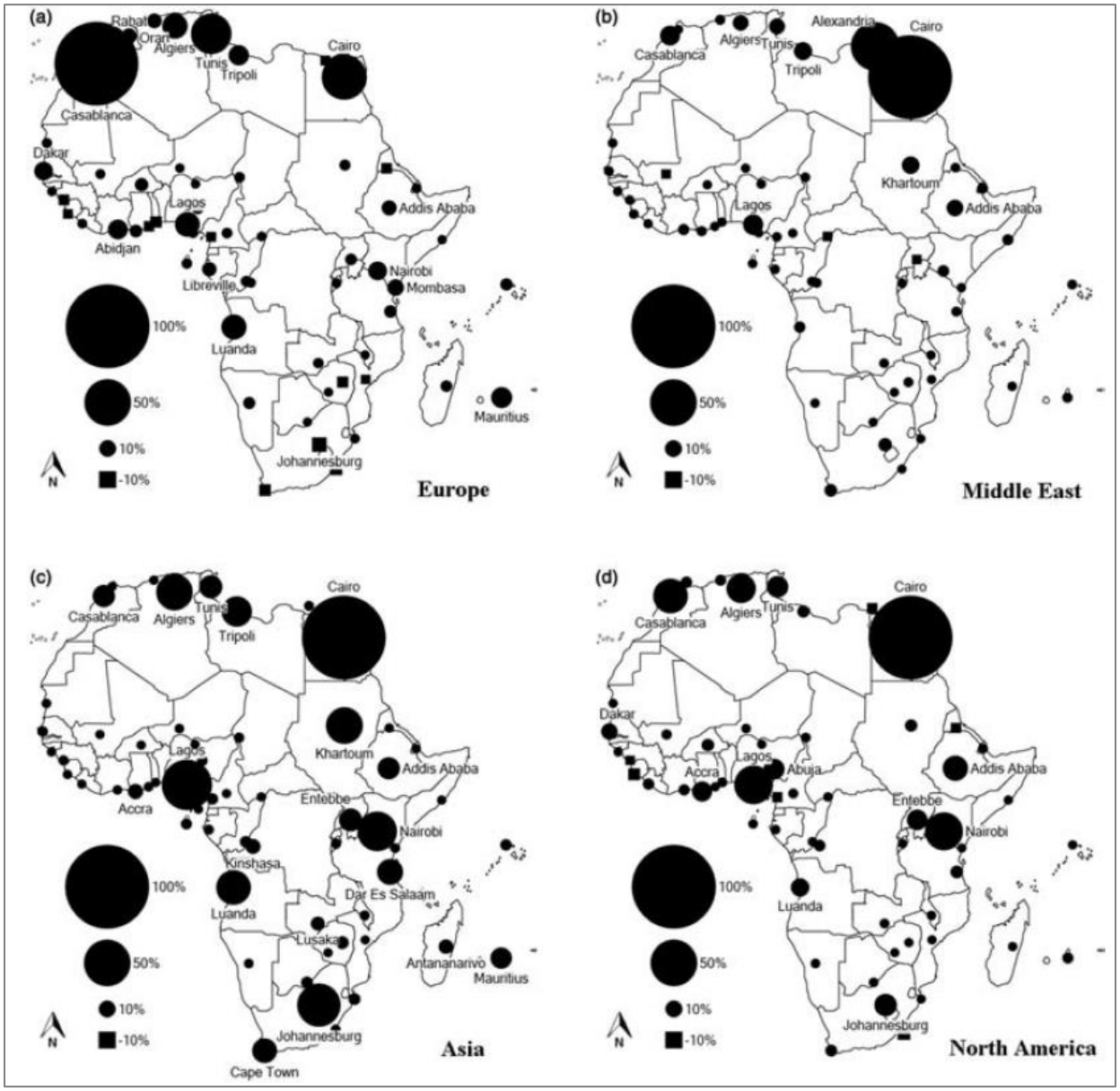
The data in Table 2 and Figures 1 and 2 shows that COVID-19 is mainly diffused or spread hierarchically. That is, it reaches the most globally connected cities first e.g., Nairobi before diffusing to the next largest cities in the national or regional urban hierarchy. Thus, cities with the most international connections e.g., New York and London got COVID-19 first before hierarchically diffusing it to lower ranked cities in the global urban hierarchy through their airline connections (Bassens et al., 2012; Otiso et al., 2011).

In Africa, the highest numbers of COVID-19 cases are similarly found in the continent's most globally connected countries of South Africa, Egypt, Nigeria, Ghana, Algeria, Morocco, and Kenya. These countries' global connections, e.g., through national or authorized airlines, are in turn concentrated in their major cities including Johannesburg (South Africa), Cairo (Egypt), Cape Town (South Africa), Lagos (Nigeria), Nairobi (Kenya), Durban (South Africa), Casablanca (Morocco) and Accra (Ghana) (Figure 3). For instance, Nairobi is globally connected because of many reasons. Besides being Kenya's capital city, Nairobi is:

> the commercial, industrial, financial, educational, and communication hub for Eastern and Central Africa. Moreover, the city is one of the major international air transport hubs in Sub-Saharan Africa more so for tropical Africa. In particular, the city's major non-African OD [overseas destination] links are to London, Dubai, Mumbai and Amsterdam. Locally and regionally, Nairobi is linked strongly to Mombasa (Kenya), Johannesburg, and Kampala. Nairobi's strong connections to Europe, the Middle East, Asia and North

America pertain to its being: (i) the regional headquarters of many multinational corporations, (ii) the gateway to East Africa and the core of the region's dominant economy, (iii) [the] global headquarters of the United Nations Environment Program (UNEP) and the United Nations Human Settlements Program (UNHABITAT) and, (iv) [the] host to one of the largest concentrations of secretariats of international organizations in Africa especially non-governmental organizations (NGOs) and foreign country embassies. (Otiso et al, 2011: 615)

Figure 3: Relative changes in airline linkages between 61 African cities and four world regions, 2003–2009



Source: Bassens, D., Derudder, B., Otiso, K. M., Storme, T., & Witlox, F. (2012). African gateways: measuring airline connectivity change for Africa's global urban networks in the 2003–2009 period. *South African Geographical Journal, 94* (2), 103-119. (p. 111).

Nairobi's airline linkages to Asia (including China) and North America (including USA) grew by around 50% in the 2003-2009 period (Figures 3c and d). This was even before Kenya Airways started operating direct flights to the US in 2019. Thus, by the time COVID-19 broke out in early 2020, Nairobi had strong airline connections to the global Asian and North American epicenters of the disease. Unsurprisingly, the disease quickly got to Nairobi before spreading to Mombasa and to Kenya's other secondary towns. Nairobi continues to lead the country in COVID-19 numbers (Table 2 and Figures 1 and 2). Regardless of size or rank, once COVID-19 reaches a city, it spreads within it through the various mechanisms of contagious diffusion or the "spread of an infectious disease, such as measles, that requires direct contact between individuals for infection to occur." (Hornsby, 2011:2)

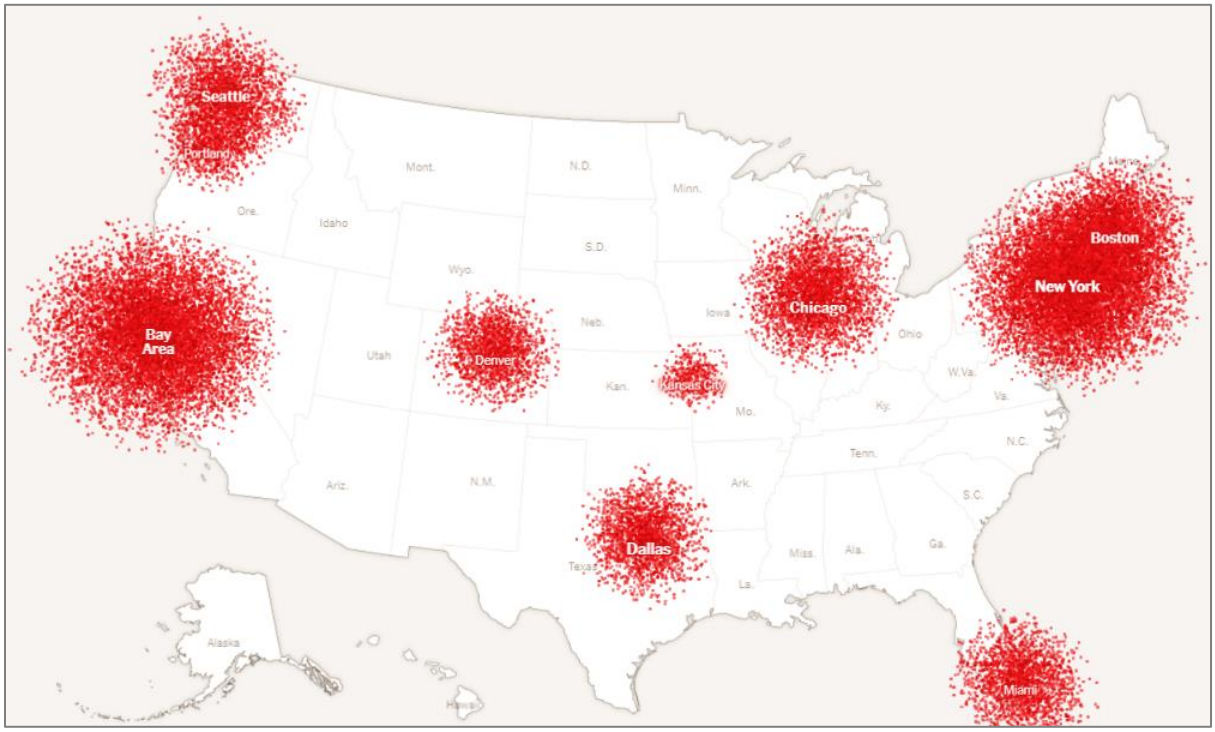
The US COVID-19 crisis

Coronavirus disease was first reported in the US on January 21, 2020 "when a man in Washington state who had traveled to Wuhan, China, tested positive. The Seattle area soon became a hotspot, with cases soaring after an outbreak at a nursing home outside the city" (Singh 2020: no pp). Subsequently, it spread across the country through hierarchical diffusion involving airline linkages between major Chinese, European, and US cities. By March 1, 2020 these international airline flows had seeded major US cities like New York, Boston, Miami, Chicago, Dallas, Kansas City, Denver, Seattle, and the San Francisco Bay Area with the coronavirus (Figure 4). From many of these major US cities, which also serve as major airline hubs, the virus/COVID-19 spread to and between other cities in the US urban hierarchy through the domestic airline (and other transport) networks shown in Figure 5. Within the individual US cities shown in Figures 4, 5 and 6, COVID-19 spread through contagious diffusion or person-to-person contact with infection rates decreasing with distance from the disease epicenters. It is noteworthy that many of the US COVID-19 state and metropolitan area epicenters (Figures 4-6) are also home to most of the Kenyan immigrants in the US.[3] Therefore, COVID-19 has negatively affected many of these immigrants.

Even though data on the incidence of COVID-19 within the Kenyan diaspora community in the US is very poor, many have contracted it and recovered, and a few have died of it (Gitaa, 2020a). Conversely, as shown in Table 1, as of July 27, 2020, there were 17,603 COVID-19 cases in Kenya, 7,743 of whom had recovered and 280 had died of the disease. Needless to say that in both the US and Kenya, the true COVID-19 incidence is higher given the low number of people tested for the disease as of July 27, 2020 (see Tests per 1 million population in Table 1).

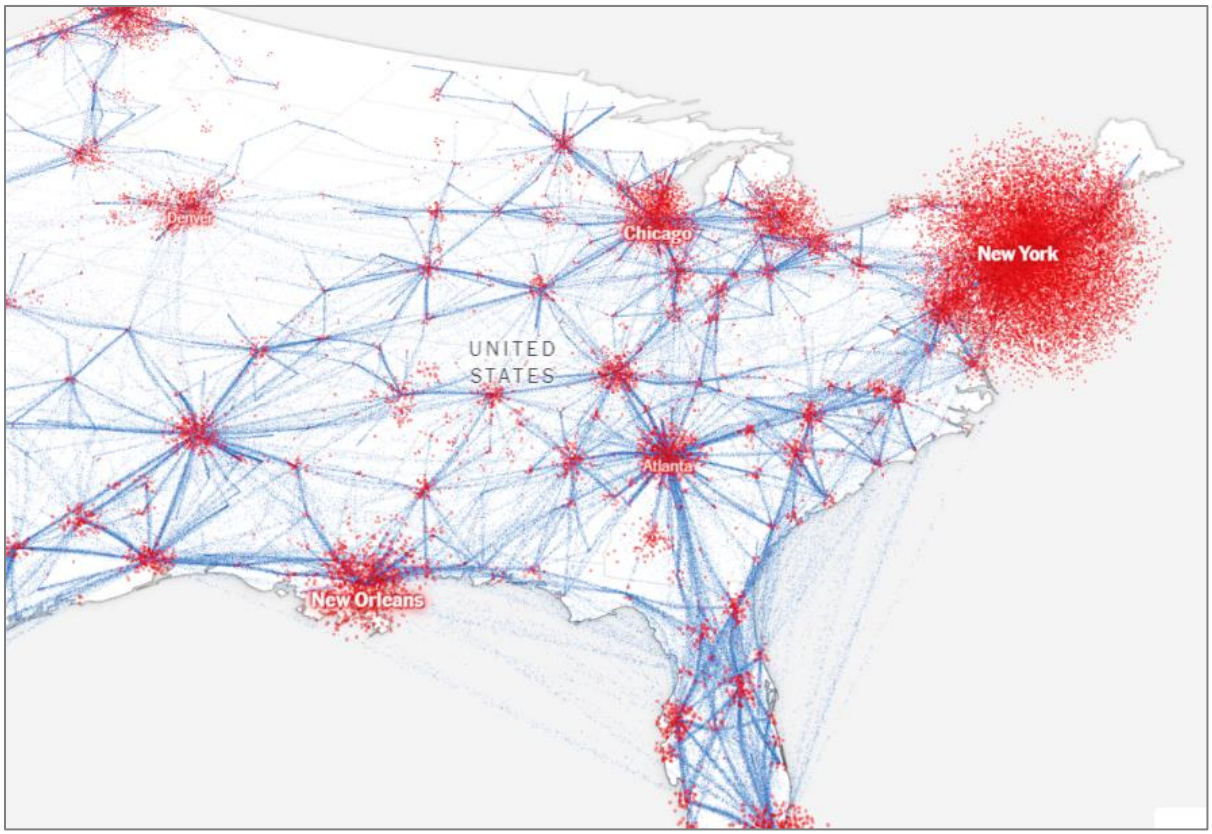
[3] There were 147,000 Kenyan immigrants in the US in 2018. Slightly more than 50% of them were females and had a lower median age of 36 years compared to 38 for the general US population. Relative to the general US population, Kenyan immigrants in the US in 2017 had higher marriage rates (51% vs. 48%), a slightly lower divorce rate (7% vs. 11%), more percent family households (70% vs. 65%), a higher average household size (3 vs 2.7), a slightly higher average family size (3.7 vs. 3.6), a higher bachelor's degree educational attainment (50 vs. 32%), a higher graduate or professional degree educational attainment (21 vs. 12%), a higher employment or labor force participation rate (78 vs. 63%), a higher representation in management, business, science, and arts occupations (50 vs. 38%) and service occupations (22 vs. 18%), and a disproportionately high participation in the educational services, and health care and social assistance industry (42 vs. 23%) (U.S. Census Bureau, 2017). Most of the Kenyans in the health care and social assistance industry work as doctors, registered nurses, nurse aids, and pharmacists and, therefore, have a high chance of contracting COVID-19.

Figure 4: Estimated COVID-19 infections by March 1, 2020



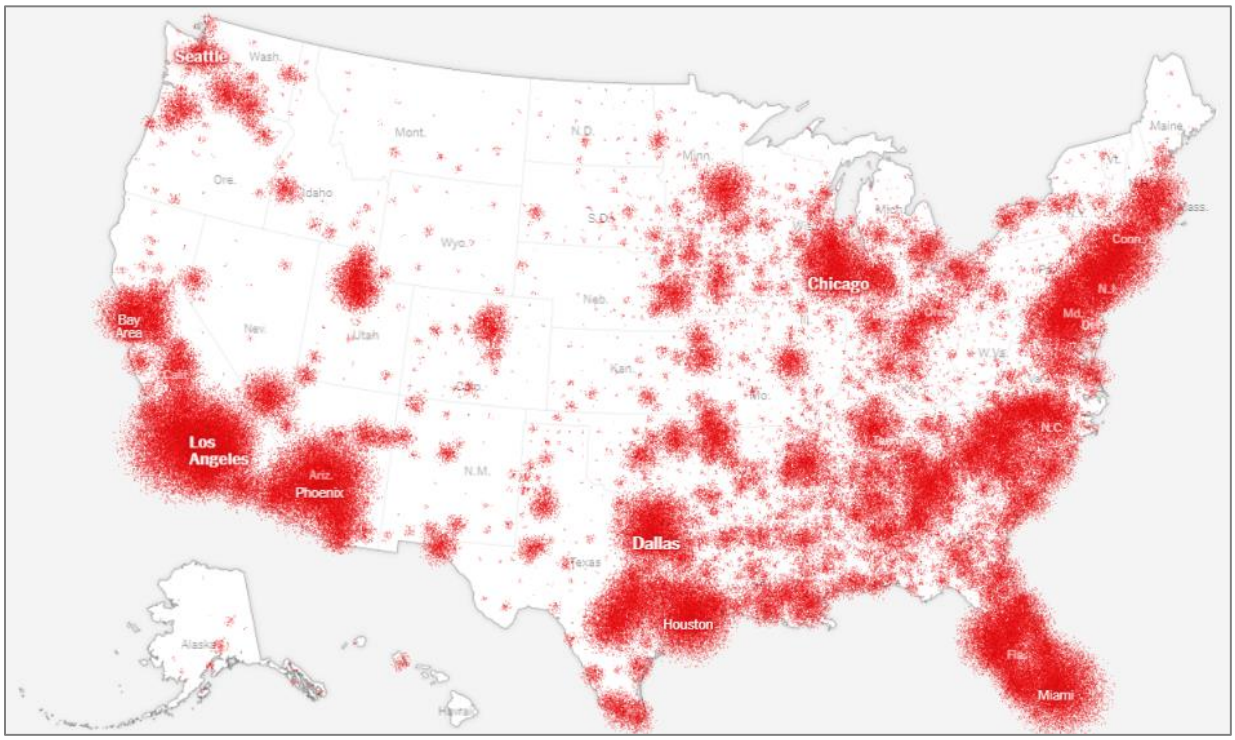
Source: https://www.nytimes.com/interactive/2020/us/coronavirus-spread.html

Figure 5: COVID-19 epicenters and travel (spread) paths across the US



Source: https://www.nytimes.com/interactive/2020/us/coronavirus-spread.html

Figure 6: New confirmed COVID-19 cases, June 9 - June 23, 2020



Source: https://www.nytimes.com/interactive/2020/us/coronavirus-spread.html

Negative impacts of COVID-19 on Kenya and her US Diaspora

Besides threatening lives, COVID-19 has devastated global trade and the economies of virtually every country on earth leading to massive unemployment, food shortages, social friction, and economic uncertainty. The hospitality, tourism, and airline industries of many countries have all but collapsed and there is no end in sight until a COVID-19 vaccine is found and distributed widely (Oppong, 2020).

Kenyans are vulnerable to COVID-19 because of weak healthcare and food supply systems, high poverty rates, corruption, low personal protective equipment (PPEs) supplies and effectiveness (Brosseau & Sietsema, 2020), and overreliance on imported medical equipment and supplies. Moreover, as in many other African countries, COVID-19 has upended the social and communal lives of Kenyans as "[common] African cultural practices [like] hugging, handshake greetings, large funerals and weddings, and crowded church services [have had to be halted because of their potential to transmit COVID-19]" (Oppong, 2020: 2). Although the "closeness of [Kenyan] family ties [has made] social distancing more difficult" [because, for instance, most] "people feel compelled to visit sick relatives or bereaved families" [, old burial] rituals such as washing and touching the dead body before burial" have been suspended because of their potential to transmit COVID-19 (ibid.).

For many slum dwellers in Kenya, e.g., those who live in Kibera in Nairobi City, COVID-19 prevention measures like "social distancing [are all but an] impossible or an unaffordable luxury" (Oppong 2020: 2) given their high density living and lack of access to in-house piped water, toilets, showers and handwashing facilities, or even basics like soap. Moreover, many Kenyans are vulnerable to high COVID-19 mortality because of malnutrition and comorbidities like HIV/AIDS and tuberculosis. Like many other Africans, most Kenyans "work in informal

economies and have to work daily or face hunger or even starvation" (Oppong, 2020: 2). As a result, many Kenyans [have defied] government shutdowns in the face of violent police crackdowns against this practice because "the hunger virus is more real and deadly than [the] coronavirus" (Oppong, 2020: 3).

Kenyan immigrants in the US and elsewhere in the diaspora have also been negatively impacted by COVID-19 because of many internal (e.g., housing and occupation) and external factors (e.g., widespread discrimination and racism against Blacks). Although Kenyan immigrants in the US have many impressive qualities such as high average incomes, most of them rent (58%) rather own (42%) their homes (U.S. Census Bureau, 2017). As a result, many of them have struggled to follow US local, state, and federal authorities' COVID-19 control measures like social distancing and self-quarantine. Moreover, for the 16% of Kenyan immigrants with no health insurance coverage (U.S. Census Bureau, 2017), a COVID-19 related trip to the hospital can be a very costly endeavor.

Even more worrying is the fact that most of the 42% of Kenyan immigrants who work in educational services, and health care and social assistance industry, work in the healthcare sector as frontline workers (nurses, doctors, and nurse aids) in hospitals and nursing homes that increase their potential of being infected with COVID-19. This reality is already evident in the State of Minnesota which has one of the highest concentrations of Kenyan/African immigrant healthcare workers. In the state:

> while black congregate health care workers [i.e., those who work in nursing homes] make [up only] 19 percent of the industry's workforce in Minnesota, they account for 43 percent of that workforce infected with the [coronavirus]—the highest of any racial group. By contrast, white congregate care workers made up 74 percent of the workforce, but just 38 percent of workers infected with the virus. (Peters, 2020: no pp)

Some of these black workers are Kenyan immigrants who are not only feeling the brunt of COVID-19 personally by getting infected and sickened by the virus but by also infecting and endangering their families, sometimes because of lack of enough coronavirus testing and PPEs (Peters, 2020).

Many Kenyan and other African immigrant nursing home workers in the US are also bearing the brunt of COVID-19 because they earn relatively low wages -- $32,000 a year for nursing assistants, $45,000 for licensed nurse practitioners (LPNs), and an average of $78,000 for the more qualified and rarer registered nurses (RNs) (ibid.). Therefore, to make ends meet, they often "work more than one job and transfer shifts from one care facility to the next, sometimes during the same day" (ibid.). Moreover, they have a tendency to work nonstop because they are often the breadwinners for their immediate families in the US, their extended families in Kenya and other African countries, and because many do not have paid sick days. Yet, in their quest to succeed at all costs by working in multiple places, "they not only multiply the risks to themselves, but they also multiply the risk of passing COVID-19 specifically from one setting to another" (ibid.) and to their elderly nursing home clients/patients who are highly vulnerable to COVID-19. Older people are highly susceptible to the disease because they are more likely than not to suffer from common COVID-19 comorbidities like hypertension, obesity, and diabetes (Richardson et al., 2020). Moreover, the risk for a severe COVID-19 illness and possibly death increases with age (National Center for Immunization and Respiratory Diseases [NCIRD 2020a]). Elderly Kenyan immigrants in the US are therefore among the country's grim COVID-19 statistics (Table 1).

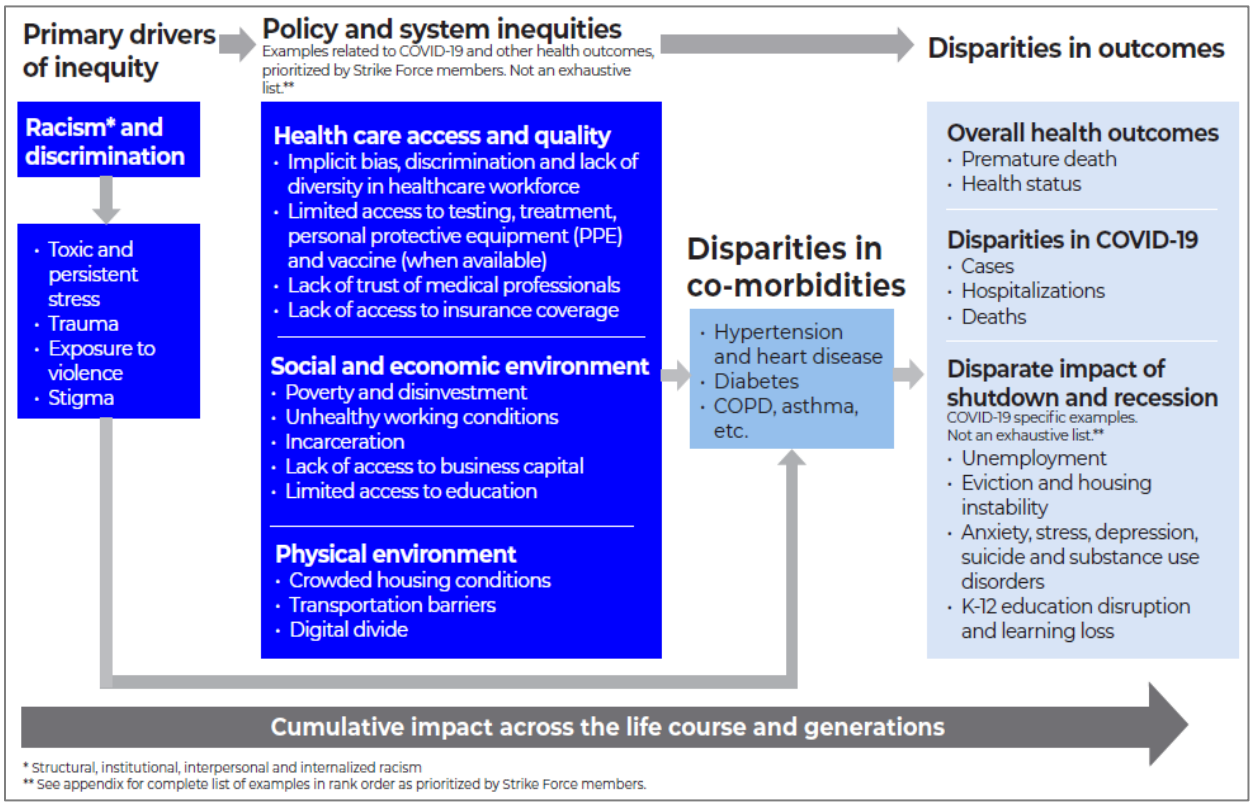
Kenyan immigrants in the US are also vulnerable to COVID-19 because most of them (98%) are black. Therefore, like other US minorities, they are negatively impacted by the country's "[long-standing] systemic health and social inequities [that] have put many people from racial and

ethnic minority groups at increased risk of getting sick and dying from COVID-19" (NCIRD, 2020b: no pp). These systemic health and social inequities are caused by and manifested in:

- discrimination against minorities in US health care, housing, education, criminal justice, and finance systems;
- low healthcare access and utilization due to lack of transportation and child care and communication and language barriers between patients and healthcare providers;
- disproportionate representation in risky but essential work settings such as healthcare facilities and grocery stores;
- educational, income, and wealth gaps that prevent many minority groups' ability to minimize potential COVID-19 infection by working from home; and
- many low-income immigrants' tenuous housing situations or tendency to live in crowded multigenerational housing situations that undermine their ability to social distance or to self-quarantine when they need to (NCIRD, 2020b).

The interrelationships between many of these systemic health and social inequities and outcomes are shown in Figure 7. Nevertheless, despite the widespread socioeconomic devastations of the COVID-19 crisis, it has also created some unforeseen opportunities for Kenya and her diaspora.

Figure 7: Factors driving COVID-19 and other disparities



Source: [Ohio] COVID-19 Minority Health Strike Force (2020). *COVID-19 Ohio Minority Health Strike Force Blueprint*. Page 7, https://coronavirus.ohio.gov/wps/portal/gov/covid-19/families-and-individuals/More-than-a-mask/More-than-a-mask

Every dark cloud has a silver lining: Positive externalities of the COVID-19 crisis

For the avoidance of doubt, this section is not some ghoulish celebration of the terrible COVID-19 disease which has devastated the world, infected millions and killed hundreds of thousands of people including Kenyans at home and in the diaspora. This is simply an exploration of the inescapable reality that in the process of dealing with this disease, people from around the world, including Kenyans at home and in the diaspora, have gained certain unintended benefits from it. This reality has ample historical precedent. Whenever humans have found themselves in a crisis of any kind, they have often willingly or unwillingly ended up gaining some unintended benefits from the creativity, innovation, and other coping mechanisms that crises so often engender. These are the silver linings that often accompany every dark cloud. Accordingly, the COVID-19 dark cloud that the world is currently living under has come with some short-term and possibly long-term social, political, economic, geopolitical, and educational, scientific and technological silver linings and health enhancing behaviors. The discussion below outlines some of them.

Positive social outcomes

The COVID-19 crisis has brought about many unintended social benefits. Because "crisis is [often] … a strong driver of creativity and innovation" at the individual, organizational, institutional, and national levels (Reiter-Palmon et al., 2020: no pp), Kenyans at home and in the diaspora are exhibiting creativity and innovation at all of these levels. At the individual level, COVID-19-related lockdowns have helped many Kenyans at home and in the diaspora to discover, refine, enhance, and market their gifts and talents. For example, a new teenage Kenyan comedian, Elsa Majimbo, has become an internet sensation since March 2020 with witty and relatable monologues on COVID-19 lockdowns, border controls, closure of schools and restaurants, and the challenges and benefits of COVID-19-related social distancing and isolation (Salaudeen, 2020). Mainstream and social media is awash with such creativity and innovation with, for instance, Kenyan and diaspora entertainers, like Kenyan disc jockeys and comedians, finding new ways to market their craft online and on social media platforms like Facebook, WhatsApp, and Zoom. Although these mediums predate the advent of COVID-19, they are more heavily utilized now by individuals, organizations, and institutions within and across national borders.

At the organizational and institutional level, the COVID-19 crisis has forced many Kenyan and diaspora institutions e.g., educational ones to innovate. Although most Kenyan primary, secondary, and tertiary educational institutions are closed because of a lack of online learning facilities, some of them, e.g., KCA University and United States International University-Africa (USIU), have thriving online learning programs because they had invested in the necessary infrastructure prior to the onset of COVID-19. Many of Kenya's public universities are scrambling to catch up by launching or enhancing their online learning programs.

Nationally, the COVID-19 crisis has forced the Kenyan government to make certain internet infrastructural investments to enable the country to better deal with the current COVID-19 crisis and others like it in the future. One such investment is the recently announced partnership between Telkom Kenya and Google's Project Loon to launch balloon-based internet services in Kenya that will serve an underserved or totally unserved 50,000-square kilometer area across central and western Kenya. Large sections of this region are un-or-under-served because they are far from the country's fiber optic backbone that runs along its major highways. This first of its kind project in Africa, "had been in the works for years, [but] was accelerated by the coronavirus pandemic and the global necessity to work [and learn] online" (Feleke, 2020: no pp).

Nationally, the coronavirus has also "heralded a painful paradigm shift in the [Kenyan] mourning and burial culture" (Star Team and Agencies 2020: no pp). This is because COVID-19 control measures like social distancing have substantially changed the hitherto outlandish and expensive Kenyan funerals, whether at home or abroad. Prior to the start of the COVID-19 crisis, lengthy funeral and mourning procedures were the norm and were meant to "bring some kind of closure [to mourners], bring families and friends closer together, let them remember the departed, [and] forgive and forget [the past]. A proper traditional send-off with all the trappings," included plenty of food, mass gatherings, fundraisings to cover mortuary fees often accrued by keeping bodies for weeks on end as families prepared "intricate funeral ceremonies and [adhered to] strict practices, such as where the grave should be" (ibid.). On the burial day, speeches took entire days as throngs of relatives, "villagers and politicians from far and wide" showed up to give the deceased a decent send-off (Star Team and Agencies, 2020: no pp). Among "cultures like the Luhya, Luo and Kisii" mourners grieved for days and engaged in little to no work when doing so (ibid.). The coronavirus pandemic has upended all these elaborate mourning and burial rites leading to drastic decreases in funeral costs though some people are unhappy about this. Previously, '[burying] the dead in [the new normal] less than 48 hours was unheard of" (Star Team and Agencies, 2020: no pp).

Now that Kenyan society knows that it is possible to bury a loved one quickly without much ceremony and without attracting curses from angry gods; it is possible that this change is permanent. Commenting on this very possibility, one reader of the above cited article noted:

> The picture is grim, this virus that was visited on us [and] has [changed] the way life was, and now we have to develop new norms, the new world order has taken effect. (Star Team and Agencies, 2020: no pp)

Yet another reader added:

> Many African cultures seem to love the dead more than the living. People spend more on funerals and burials than on development that can improve the welfare of the living. In that case, COVID-19 may have a positive impact on such cultures. (Star Team and Agencies, 2020: no pp)

In the Kenyan diaspora in the US, bodies, especially those of first-generation immigrants, have long been sent back to Kenya for burial. Since Kenya is currently not accepting the bodies of people who have died abroad of COVID-19, they have had to be buried in the USA and other foreign countries thereby substantially cutting the cost of funerals in the diaspora as well (Mudi, 2020) besides initiating or strengthening the nascent culture of burying loved ones abroad. It is unlikely that the diaspora practice of shipping bodies to Kenya for burial will continue to the same extent after the pandemic ends.

Increases in wellness practices or health enhancing behaviors

The COVID-19 crisis has also triggered increases in wellness practices and other health enhancing behaviors including fewer road accidents, a lower incidence of communicable disease burdens due to COVID-19 shelter-in-place orders (Davies, 2020), better hygiene, as well as lower incidents of food poisoning in restaurant and hotels. Globally, including in Kenya and the US, drunken driving is a major cause of road traffic accidents (Jewell & Brown, 1995).

For instance, between 2009 and 2018, there were 74,333 road accidents in Kenya – many of them caused by drunk drivers - which killed 31,729, seriously injured 68,405 and slightly injured 69,223 people in the most productive ages of 15-45 years (Kenya National Bureau of Statistics,

2019; Manyara, 2016). The cost of these mostly preventable road accidents to Kenyans at home and abroad, and to their organizations, and institutions are immense. Similarly, in the US, the economic ripples of preventable and unpreventable road crashes to individuals, organizations, institutions, and to the country are similarly substantial.

> Counting medical expenses and productivity losses stemming from injuries and deaths, car crashes cost the US economy more than $75 billion in 2017. Throw in property damage, emergency responders, insurance costs, congestion, and the inevitable court cases, and it's far more. In 2010, the most recent year for which the grand total is available, crashes cost the US $242 billion. (Davies, 2020: no pp)

Therefore, COVID-19-related declines in the number of vehicles and drunk drivers on the roads have substantially reduced the number of road traffic accidents in Kenya and the US thereby saving the invaluable lives and resources of many Americans and Kenyans at home and abroad. These life and material savings have also benefited many American and Kenyan organizations and institutions.

On another health front, COVID-19 has forced the government of Kenya to roll out environmental clean-up projects in Nairobi's many slum areas; projects that will help to control the disease and well as improving these areas' long neglected sanitation needs (Dijkstra, 2020).

Unintended positive educational, scientific, and technological outcomes

The COVID-19 crisis has also inspired many unintended positive educational, scientific, and technological changes from the individual to the national level. These individual changes are collectively affecting countries across the globe even as national changes are also affecting individuals.

At the individual level, COVID-19 has also forced Kenyans at home to innovate and start making masks, face shields, ventilators, and other medical supplies like oxygen (Daily Nation, 2020; Deutsche Welle 2020) since many imported ones are either in short supply or too expensive. Specifically, since the advent of COVID-19, individuals at various Kenyan institutions (including Kenyatta University, Dedan Kimathi University of Technology, and Numerical Machining Complex) have created ventilator prototypes that are being evaluated by the Ministry of Health, Kenya Bureau of Standards (KEBS), and the Pharmacy and Poisons Board (PPB) before being fine-tuned into equipment that can be used in actual hospital settings (Daily Nation, 2020; Merab, 2020). Although some of these prototypes will not get to production stage, not least because of lack of adequate financing, shortage of essential parts, and lack of a mature national framework to support such ideas from conception through actualization and eventual commercialization (Merab, 2020: no pp); the COVID-19 crisis has demonstrated that the country has an innovative capacity that, if nurtured properly, can free it from overreliance on foreign technology.

Meanwhile, Kenya's informal sector has also come up with cheaper hospital beds that could reduce the country's reliance on imported ones. The government has already ordered 500 of them for use in county hospitals (Kabale, 2020). Similarly, the Kenya Medical Research Institute (KEMRI) -- East Africa's leading medical research facility -- is testing the efficacy of Zedupex, a local herbal medicine, against COVID-19 while also serving as one of Kenya's central players in COVID-19 testing and management (Ruvaga, 2020). Many of these innovations in Kenya's health sector have also come about because COVID-19 travel restrictions have amply demonstrated to Kenyan politicians' and leaders' that their favorite foreign hospitals are not always within reach.

At the institutional and organizational level, Kenyan public universities offer a good case study on COVID-19 induced changes. Prior to COVID-19, Kenyan public universities consisted of "two-universities-in-one", that is the "administrative" and "academic" universities, each with "different interests, powers and influence" (Kanyinga, 2020: no pp). The administrative university, which includes powerful administrators, finance officers (bursars and procurers), security officers and other support staff, had grown to the point of overwhelming and choking the academic side of many universities by a ratio of "one teaching staff to nine administrative staff" (ibid.). This disastrous situation, which arose from the reckless "recruiting [of support staff] on the basis of tribe and nepotism" has led to many Kenyan universities spending as much as 60 per cent of their revenues on administrative salaries, many of which are equal or higher than those of lecturers and professors (ibid.). Consequently, many Kenyan universities' teaching, research and stature in the world has declined substantially in recent decades leading to their decreased contribution to knowledge production and national development.

In closing the physical university, which is dominated by administrative staff, COVID-19 has starved the "administrative university" of power and given the "academic university" room to recreate itself through online learning. Moreover, COVID-19 has given Kenya's Ministry of Education the room that it has long sought to restructure Kenyan universities to focus on their core teaching, research, and engagement with the local and global community of scholars (ibid.). This change is long overdue. At the same time, COVID-19 has forced many Kenyan universities to optimize and expand their online learning infrastructure and find novel ways of extending their distance and online education and e-library services to students and teaching staff in order to minimize disruptions to their learning programs (Ayiro, 2010).

On the educational front, COVID-19 has also re-invented the operations of many academic associations. For instance, in lieu of its cancelled 2020 face-to-face conference in Dallas, USA, the Kenya Scholars and Studies Association – KESSA (www.kessa.org) decided to host monthly Zoom presentations and discussions which have proven to be popular and successful in bringing in new members as well as widening the reach of the association into the broader nonacademic Kenyan immigrant community in the USA. Many of these new members are people who would otherwise not attend KESSA conferences because of cost and other factors. Moreover, the informal socializing that follows the formal presentations has proven to be a very effective forum for KESSA members and others to network. In this sense, COVID-19 has made KESSA and its members more accessible to the broader community and, therefore, in a sense made it more effective in serving its mission. It appears that these online meetings will continue even after COVID-19 is over.

Unintended positive political outcomes

The COVID-19 crisis has also brought some unintended positive political outcomes to Kenya and her diaspora. Domestically, the disease has lowered national political temperatures by shutting down, at least for a while, the country's noisy and often counterproductive political rallies. COVID-19 has also provided Kenyans with an opportunity to rally behind health care workers as well as helping to shift national priorities towards greater internal self-sufficiency.

For the Kenyan diaspora in the US, the COVID-19 crisis has brought about greater interest and involvement in US political affairs maybe because they now realize that these directly impact their everyday lives. Previously, these immigrants, who along with others from Africa, the late Professor John Arthur famously called "invisible sojourners" because of their relative detachment from US society and tendency to see themselves as temporary residents of the US, were demonstrably more interested in the political life of Kenya (and other African countries) while

being conspicuously absent from the political affairs of their new home country (Arthur, 2000). Although the worldview of Kenyan immigrants in the US has been changing slowly since John Arthur's 2000 proclamation, the COVID-19 crisis has certainly hastened it leading to many of them, e.g., those in Minnesota, to vie for various city and county seats in the November 2020 elections (Gitaa, 2020b, 2000c). Some of the heightened political activity among Kenyan immigrants in the US is undoubtedly linked to the murder of George Floyd by a Minneapolis, Minnesota, Police Officer in May 2020; a murder that starkly reminded them of the urgent need to work for the betterment of black lives in the US since they, like many black Americans, are not immune to the everyday racial realities of being black in America. Although Kenyan/African immigrants in the US have often had uneasy relations with African Americans, George Floyd's murder and the ongoing Black Lives Matter protests against anti-black racism and police brutality are helping to usher in positive change in this dynamic (Akaeze, 2020). In sum, the COVID-19 crisis and other concurrent events have either initiated or intensified certain changes that are likely to have long-term positive political consequences for Kenya and her global diaspora.

Unintended positive geopolitical outcomes

COVID-19 has also given Kenyans (and other Africans) at home and in the diaspora a chance to unite, grow, and flex their geopolitical muscle more effectively in response to the mistreatment of Africans and/or blacks in China and the US. In Kenya, the roots of this battle started a few years ago when the media reported that Chinese employers and restauranteurs were discriminating against Kenyans in their own country. For example, in 2018, the *Standard* newspaper carried a story headlined "Five ways Kenyan SGR [Standard Gauge Railway] workers are mistreated by Chinese 'masters'" that reported that Chinese nationals in the country were running roughshod over Kenyan workers and were subjecting them to neo-colonial, racist, and blatantly discriminatory treatment even as the country was spending millions of shillings a day on the project. Kenyan workers were reportedly being underpaid compared to their Chinese colleagues, were being indiscriminately fired and replaced by Chinese workers for the flimsiest of reasons, and had poor working conditions (Wafula, 2018). Although Kenyans from around the globe expected the Kenya government to favor them when responding to this issue, they were shocked when the then government spokesperson, Mr. Erick Kiraithe, defended the Chinese bosses and blamed Kenyan workers for a poor work ethic and for airing their employment grievances through the media. Moreover, Kiraithe argued that the challenges that Kenyan workers were experiencing at the hands of Chinese employers were common in any multiracial setting due to cultural clashes (KTN News Kenya, 2018). As might be expected, many Kenyans were displeased with their government's seeming inability to defend its citizens from mistreatment by foreigners on Kenyan soil.

It is against this backdrop that ordinary citizens in Kenya and other African countries rose up against China in April 2020 when it became evident that Africans in the city of Guangzhou, China, were being unfairly racially profiled, blamed, and mistreated by locals and city officials for the city's second wave of the COVID-19 pandemic "regardless of whether they [had] tested positive for COVID-19" or "had recently travelled out of China" (Li, 2020: no pp). As a result, many Africans in the city were being "mistreated by landlords, hotel managers and shopkeepers" with "some even left homeless" (ibid.). The then plight of Africans in Guangzhou was especially disappointing to many Africans because they had in previous decades supported China on the international stage. Alarmed by the mistreatment of their brethren in Guangzhou, Kenyans, and other Africans at home and abroad, launched fierce online protests that forced their governments to stand up to China. Therefore several "African ambassadors [in China] condemned the incidents

and put pressure on the Chinese government to respond" (Chimbelu, 2020: no pp). As a result, the central Chinese government was forced to "adjust its coronavirus restrictions on African nationals, provide them with health services without discrimination and [to] adjust accommodation prices for those in financial difficulties" (Li, 2020: no pp). Soon, officials and community leaders in Guangzhou fell in line with the Chinese national government and took action to treat their African residents better and to repair the tattered image of their city (ibid.). But by then, the COVID-19 pandemic had helped to transform China-Africa relations by uniting the latter in securing important concessions from the former. In Kenya and other African countries, there is now a growing willingness for locals to stand up to Chinese contractors and other employers in Africa (Chimbelu, 2020).

During the Africa-China COVID-19 tussle in April 2020, the US supported African nations in condemning China for its initial poor response to incidents of racism and discrimination against Africans in Guangzhou (Anna, 2020; Chimbelu, 2020). China was to return this US favor in May 2020 when it joined Kenyans and other Africans and blacks, the African Union, and others from around the world in condemning the cruel murder of George Floyd in Minneapolis (Feng, 2020; Powell, 2020). Remarkably, "U.S. embassies in Kenya, Uganda, Tanzania and the Democratic Republic of Congo [also] issued rare statements of concern over Floyd's May 25 death and called for accountability after the arrest of a police officer on third-degree murder and manslaughter charges" (Powell, 2020: no pp).

In both of these crises, the two major world hegemons, the US and China, strategically retreated in the face of, primarily, combined Kenyan, African, and African American unity and willingness to stand-up for their rights in China and the US. With the exception of the civil rights era in the US and African independence period in the 1960s, it is hard to think of another time when blacks and their allies have succeeded as much in pushing back their oppression. Undoubtedly, this global Kenyan, African, African American and overall black unity would not have come about without the contemporaneous 2020 COVID-19 and George Floyd murder crises. One can only hope that this unity will last long enough to lead to lasting change in overthrowing individual, organizational, and institutional anti-black racism and oppression in China, the US, and elsewhere in the world.

Unintended positive economic and poverty eradication outcomes

Despite its devastation, COVID-19 has also triggered many unintended positive economic outcomes including bringing greater attention to Kenya's socioeconomic inequity and inequality. This is more so true in the urban areas where the hygienic, social isolation, and shelter-in-place orders designed to combat COVID-19 have proven to be impractical and spurred the Kenya government to implement serious remediation efforts. For instance, prior to COVID-19, many of Nairobi's slums had poor access to adequate supplies of potable water. In a bid to control COVID-19, the Kenya government, through the Nairobi Metropolitan Services (NMS), was forced to drastically increase these areas' access to water through the drilling of a record 93 boreholes in 90 days by the end of June 2020 (Chams Media TV, 2020). Although many of these boreholes have poor quality water that has high fluorine levels, this can be resolved by treating the water. Moreover, COVID-19 has forced the Kenya government to work harder to ensure "that most of the 88 regulated Water Service Providers (WSPs) in the country" are operating at their full capacity (Kebaso, 2020: no pp). It is doubtful that this would have happened without the need to control COVID-19 through better hygiene practices like frequent handwashing.

COVID-19 has also forced Kenya to halt the importation of secondhand clothes to prevent the spread of the coronavirus. Although this move inevitably harms the country's used clothes dealers and sellers, it "could help Kenya [to] revive its own textile industry, which was wiped out in the late 1980s as the country started opening its markets to foreign competition… corona has shown not just for Kenya but for many countries to look inward a lot and try and fill some of the market gaps …The reality is that there's a big opportunity for us to produce local clothes for the citizens" (Dahir, 2020: no pp). According to Kitui County Governor, Charity Ngilu, who spearheaded the production of masks locally in Kenya by April 2020, "Let's not wait and wonder…We import everything and produce nothing, despite having all the resources at our disposal" (Bearak, 2020: no pp). This determination could not only help to revive the country's domestic cotton and textiles industry, employ thousands of Kenyans, and help to alleviate its relatively high poverty levels; but it could also lead to a new way of doing things in the post-COVID-19 era.

Conclusions and policy implications

The ongoing Coronavirus (COVID-19) pandemic has infected millions of people, killed hundreds of thousands, and devastated the socioeconomic lives of billions of people from around the globe including Kenyans at home and in the diaspora. The devastation that it has wrought on the tourism industry and other economic sectors will probably take many years to repair.

Nevertheless, the COVID-19 crisis has also brought many unintended positive social, political, economic, health, geopolitical, and educational, scientific, and technological outcomes to Kenyans at home and in the diaspora. These outcomes are noticeable at the individual, organizational, institutional, and national level. They include arousing many individual gifts and talents, ushering in certain overdue reforms in educational organizations and institutions, changing certain retrogressive national cultural practices (e.g., unproductive over-expenditures on funerals), challenging Kenya's overreliance on imported health supplies that could be produced locally, forcing Kenya to put more emphasis on the development of local health facilities, and fostering widespread individual, organizational, and institutional innovation in, for instance, various Kenyan universities. The crisis has also forced Kenyans and other Africans at home and in diaspora to, albeit temporarily, stand up for their rights in the US and China. Additionally, the COVID-19 crisis has given Kenyans at home and in the diaspora a can-do attitude that could serve them well in the long term.

While COVID-19 has also affected the Kenyan diaspora in the US in many negative ways, it has also forced them to reassess the wisdom of their sojourner mentality that they are in the US temporarily. COVID-19 lockdowns and the cancellation of flights from the US to Kenya between March and July, 2020, and the May 25, 2020 murder of George Floyd, in the City of Minneapolis, Minnesota, which has one of the largest concentrations of Kenyan immigrants in the US; have all forced these immigrants to pay greater attention to their long-term welfare in the US. As a result, they have joined hands with fellow blacks in the US and their allies to fight for increased socioeconomic justice for blacks in China, the US, and beyond. It is unlikely that these changes would have occurred without the unique set of circumstances brought about by the concurrent COVID-19 pandemic and May 2020 George Floyd murder. These changes are the silver linings that the dark cloud of COVID-19 has given to Kenyans at home and in the diaspora.

The findings of this research have many policy implications for Kenyans at home and abroad. For instance, since the concentration of COVID-19 cases in Kenya is in geographically identifiable regions such as Nairobi City County, the country's COVID-19 control policies and

measures should focus on such areas. Additionally, since Kenyans at home are vulnerable to COVID-19 because of weak healthcare and food supply systems, high poverty rates, corruption, and inadequate supplies of effective PPEs; policy makers in the country can craft policies to ameliorate these challenges. Policies that can increase the country's reliance on domestically produced medical equipment and supplies should also be promoted. In the US, policies that can help to reduce the systemic health and social inequities of the country's black population can also benefit resident Kenyan immigrants. These immigrants should also be encouraged to improve their quality of life in the US by becoming more actively engaged in the country's political life.

References

Akaeze, A. (2020, July 1). How George Floyd's death united Africans and African-Americans. *The Christian Science Monitor*. https://www.csmonitor.com/USA/Justice/2020/0701/How-George-Floyd-s-death-united-Africans-and-African-Americans.

Anna, C. (2020, April 11). African nations, US decry racism against blacks in China. *AP News*. https://apnews.com/776dec4ec1d06779a34ecc5c4863d427.

Arthur, J. A. (2000). *Invisible sojourners: African immigrant diaspora in the United States*. Westport, CT: Praeger.

Ayiro, L. P. (2020, August 3). Pandemic has given universities, colleges hard and enduring lessons for the future. *Daily Nation*, p. 6. https://newsstand.nationmedia.com/Kenya/DailyNation/Issue/100/382020100360982#

Bassens, D., Derudder, B., Otiso, K. M., Storme, T., & Witlox, F. (2012). African gateways: measuring airline connectivity change for Africa's global urban networks in the 2003–2009 period. *South African Geographical Journal, 94*(2), 103-119. https://doi.org/10.1080/03736245.2012.742780

Bearak, M. (2020, April 8). The Kenyan factory that transformed into a surgical mask assembly line overnight. *Washington Post*. https://www.washingtonpost.com/world/africa/the-kenyan-factory-that-transformed-into-a-surgical-mask-assembly-line-overnight/2020/04/08/fac04912-783e-11ea-a311-adb1344719a9_story.html.

Brosseau, L. M. & Sietsema, M. (2020, April 1). Commentary: Masks-for-all for COVID-19 not based on sound data. *Center for Infectious Diseases Research and Policy, University of Minnesota*. https://www.cidrap.umn.edu/news-perspective/2020/04/commentary-masks-all-covid-19-not-based-sound-data.

Chams Media TV. (2020, July 12). *93 Boreholes in 90 Days in Nairobi* [Video]. YouTube. https://youtu.be/FgdlouXav7A.

Chimbelu, C. (2020, August 6). COVID-19 pandemic to transform China-Africa relations. *Deutsche Welle*. https://www.dw.com/en/covid-19-pandemic-to-transform-china-africa-relations/a-53724530.

Dahir, A. L. (2020, July 9). Used clothes ban may crimp Kenyan style. It may also lift local design. *New York Times*. https://www.nytimes.com/2020/07/09/world/africa/kenya-secondhand-clothes-ban-coronavirus.html

Daily Nation (2020, July 22). From Nakuru to innovating ventilators at Kenyatta University. *Daily Nation*. https://nation.africa/kenya/brand-book/innovation-ventilators-kenyatta-university-1904562

Davies, A. (2020, April 27). A coronavirus silver lining: Less driving, fewer crashes. *WIRED*. https://www.wired.com/story/coronavirus-silver-lining-less-driving-fewer-crashes/.

Deutsche Welle. (2020, March 6). Kenyans make medical equipment locally as virus spreads. *Deutsche Welle News*. https://www.dw.com/en/kenyans-make-medical-equipment-locally-as-virus-spreads/av-53666983.

Dijkstra, A. (2020, September 5). Coronavirus in Kenya: From salon to sewer worker. *BBC News*. https://www.bbc.com/news/world-africa-54162923.

Feleke, B. (2020, July 8). Google launches balloon-powered internet service in Kenya. *CNN*. https://www.cnn.com/2020/07/08/africa/google-kenya-balloons/index.html.

Feng, Z. (2020, June 5). George Floyd death: China takes a victory lap over US protests. *BBC News*. https://www.bbc.com/news/world-us-canada-52912241.

Gitaa, T. (2020a, May 18). Beloved Kenyan-American community leader in Minnesota dies of coronavirus. *Mshale*. https://mshale.com/2020/05/18/beloved-kenyan-american-community-leader-in-minnesota-dies-of-coronavirus/.

Gitaa, T. (2020b, July 24). African immigrant candidates run for office in record numbers in Minnesota. *Mshale*. https://mshale.com/2020/07/24/african-immigrant-candidates-run-for-office-in-record-numbers-in-minnesota/.

Gitaa, T. (2020c, August 12). Strong election night for African immigrant candidates in Minnesota primary. *Mshale*. https://mshale.com/2020/08/12/strong-election-night-for-african-immigrant-candidates-in-minnesota-primary/.

Hornsby, K. (2011). *Spatial Diffusion: Conceptualizations and Formalizations.* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.36.8177&rep=rep1&type=pdf.

Jewell, R. T., & Brown, R. W. (1995). Alcohol availability and alcohol-related motor vehicle accidents. *Applied Economics, 27*(8), 759-765. https://doi.org/10.1080/00036849500000066

Kabale, N. (2020, July 15). Two artisans get order to supply State with 500 hospital beds. *Daily Nation*. https://nation.africa/kenya/news/two-artisans-to-supply-state-with-500-beds-1808070

Kanyinga, K. (2020, May 23). How existential flaws sink public universities. *Daily Nation*. https://nation.africa/kenya/news/education/how-existential-flaws-sink-public-universities-306350

Kebaso, G. (2020, June 18). [Nairobi Metropolitan Services] – NMS sinks 25 boreholes in city since inception. *People Daily Online*. https://www.pd.co.ke/news/national/nms-sinks-25-boreholes-in-city-since-inception-41319/.

Kenya National Bureau of Statistics. (2019). *Statistical Abstract 2019*. Nairobi: Kenya National Bureau of Statistics.

KTN News Kenya (2018, July 11). *Kenyan government now defends Chinese bosses who are allegedly mistreating Kenyans at SGR workplace*. YouTube. https://youtu.be/wFN6_7Jkv44.

Li, H. (2020, April 22). The mistreatment of Africans in Guangzhou is a big threat to China's coronavirus diplomacy. *Quartz Africa*. https://qz.com/africa/1842768/racism-to-africans-in-guangzhou-hurts-china-coronavirus-diplomacy/.

Manyara, C. G. (2016). Combating Road Traffic Accidents in Kenya: A Challenge for an Emerging Economy. In: M. M. Koster, M. M. Michael & J. P. Rotich (Eds.), *Kenya After 50: African Histories and Modernities*. Palgrave Macmillan, New York. https://doi.org/10.1057/9781137574633_7.

Merab, E. (2020, May 28). Kenyans to wait longer for production of local ventilators. *Daily Nation*. https://nation.africa/kenya/news/kenyans-to-wait-longer-for-production-of-local-ventilators-308310

Mudi, M. (2020, April 2). Kenyan who died of Covid-19 in US buried. *The Star*. https://www.the-star.co.ke/counties/coast/2020-04-02-kenyan-who-died-of-covid-19-in-us-buried/.

National Center for Immunization and Respiratory Diseases. (2020a, June 25). *Older Adults*. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html.

National Center for Immunization and Respiratory Diseases. (2020b, July 24). *Health Equity Considerations and Racial and Ethnic Minority Groups.* https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html.

Ombuor, R. (2020, March 13). Kenya Confirms First COVID-19 Infection. *VOA*. Retrieved from https://www.voanews.com/science-health/coronavirus-outbreak/kenya-confirms-first-covid-19-infection.

Oppong, J. R. (2020). The African COVID-19 anomaly. *African Geographical Review*, *39*(3), 282-288. https://doi.org/10.1080/19376812.2020.1794918

Otiso, K. M., Derudder, B., Bassens, D., Devriendt, L., & Witlox, F. (2011). Airline connectivity as a measure of the globalization of African cities. *Applied Geography*, *31*(2), 609-620. https://doi.org/10.1016/j.apgeog.2010.12.002

Peters, J. (2020, May 27). In healthcare work, African immigrants feel brunt of COVID-19. *Sahan Journal*. https://sahanjournal.com/health/in-healthcare-work-african-immigrants-feel-brunt-of-covid-19/.

Powell, A. (2020, June 2). Africa rises in rage over George Floyd death in US. *VOA.* https://www.voanews.com/africa/africa-rises-rage-over-george-floyd-death-us.

Reiter-Palmon, R., Tang, M., & Ivcevic, Z. (2020). Creativity and innovation in times of crisis (COVID-19). *Frontiers*. https://www.frontiersin.org/research-topics/13833/creativity-and-innovation-in-times-of-crisis-covid-19.

Richardson, S., Hirsch, J. S., Narasimhan, M., Crawford, J. M., McGinn, T., Davidson, K. W., ... & Cookingham, J. (2020). Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City area. *JAMA*, *323*(20), 2052-2059. https://doi.org/doi:10.1001/jama.2020.6775

Ruvaga, L. (2020, May 22). Kenya researchers explore herbal COVID-19 cure. *VOA*. https://www.voanews.com/covid-19-pandemic/kenya-researchers-explore-herbal-covid-19-cure.

Salaudeen, A. (2020, August 18). This chip-eating Kenyan comic is keeping Africans entertained on social media. *CNN*. https://www.cnn.com/2020/08/18/africa/kenyan-comic-sensation-intl/index.html.

Singh, M. (2020, May 26). Tracing 'patient zero': why America's first coronavirus death may for ever go unmarked. *The Guardian*. https://www.theguardian.com/world/2020/may/26/us-coronavirus-patient-zero-100000-deaths.

Star Team and Agencies. (2020, April 3). Pandemic tolls death knell for traditional burial rites. *The Star*. https://www.the-star.co.ke/news/2020-04-03-pandemic-tolls-death-knell-for-traditional-burial-rites/

U.S. Census Bureau. (2017). S0201: Selected Population Profile of Kenyans and Americans in the United States - ACS 2017-1YR-S201. https://www.census.gov/

Wafula, P. (2018, July 8). Exclusive: Five ways Kenyan SGR workers are mistreated by Chinese 'masters'. *The Standard*. https://www.standardmedia.co.ke/entertainment/local-news/2001287324/exclusive-five-ways-kenyan-sgr-workers-are-mistreated-by-chinese-masters.

Worldometer. (2020). Reported Cases and Deaths by Country, Territory, or Conveyance. Retrieved July 27, 2020, from https://www.worldometers.info/coronavirus/

International Development Cooperation, Corruption, and COVID-19 in Kenya: Lessons for Infectious Disease Control

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Abstract

The novel coronavirus poses a grave danger to human populations, healthcare systems and world economies. These threats are more pronounced in developing countries with ill-prepared healthcare systems to manage such a pandemic. International development partners have responded by supporting them with financial, technical, and in-kind support. A review of local and international mainstream media reveals a very disturbing picture: Kenya's corrupt officials, particularly in the health ministry, were mismanaging and diverting foreign aid meant for COVID-19 mitigation and control efforts. In addition, the country missed valuable opportunities to improvise and innovate its health systems. It also failed to use cost-effective interventions that could have delivered stronger outcomes, such as using schools as isolation centers and deploying the *Nyumba Kumi* initiative. To successfully mitigate against future infectious disease outbreaks, partners would need to help developing countries: establish, equip and staff a fit-for-purpose healthcare infrastructure; grow domestic capacity for manufacturing drugs, vaccines and medical equipment; upgrade medical research capacity; and develop a surveillance system that is driven by Big Data and Artificial Intelligence. It is imperative that they combat corruption by seeking value for money and embracing the principles of aid effectiveness – both of which are missing in the ongoing flows to Kenya.

Keywords: COVID-19, development cooperation, South-South cooperation, development effectiveness, corruption, mitigation

INTRODUCTION

The mounting economic impact from the novel coronavirus is only comparable, in scale and magnitude, to major global disasters of the last century including World Wars, the Great Depression, and the Spanish flu pandemic. As of August 15, 2020, there had been 21.5 million confirmed cases, 14.2 million recoveries and 766,027 deaths around the world (Worldometer, 2020). Nearly half of all known cases and fatalities had been in Europe and North America, with Africa accounting for a modest 5 percent. The pandemic is decimating economies as global Gross Domestic Product (GDP) is projected to contract by about 5.2 percent, with per capita income falling 3.6 percent. The economies of the U.S. and Japan are forecast to contract by 6.1 percent while output from the Eurozone will contract by 9.1 percent (World Bank, 2020). While Sub-Saharan Africa's GDP is expected to decline to negative 2.1 percent in 2020, Kenya's economic growth is projected to decline from an average of 5.7 percent in 2019 to 1.5 percent in 2020 (World

Bank, 2020). This contraction would adversely affect critical sectors including health, education, agriculture, and housing, all of which are part of the country's Big Four Agenda.

The role of development cooperation in alleviating poverty, fighting hunger, inequality and social exclusion remains as critical today as it was in 1971 when the United Nations formalized it. That year, the General Assembly adopted a Resolution that required industrialized nations to provide foreign assistance of at least 0.7 percent of their Gross National Income (Reality of Aid, 2018). Traditional North-South cooperation, practiced by the West, is aid driven, emphasizes social development, good governance, and clear donor-recipient dichotomy. There is greater coordination and consultation among donors who ascribe to the principles of aid effectiveness, namely: advancing country ownership; a focus on results; fostering inclusive partnerships; transparency and mutual accountability (OECD/UNDP, 2019).

Emerging economies and other developing countries, among them, China, India, South Africa, Brazil, and Turkey champion South-South Cooperation as a unique, separate, and parallel development cooperation framework. They stress that their cooperation is a multi-faceted demonstration of solidarity, with social, economic, environmental, technical, and political interactions (Amorim, 2016). South-South cooperation is a business-oriented approach with development, humanitarian, commercial, financial, political, cultural, and strategic interests. Although there is a proliferation of South-South institutions, many of them remain informal, which indicates difficulty in establishing common definitions, rules, and principles of the framework (Stuenkel, 2013). Against the COVID-19 outbreak, the United Nations Committee for Development Policy called for international development cooperation actors to create a targeted package of support measures such as concessional financial flow, debt cancellation, food aid, market access of exports, and availability of drugs and vaccines (United Nations, 2020).

There is a strong push for partners to enhance their development cooperation in the health sector, especially by helping poor countries establish appropriate systems of surveillance and data gathering, developing teams and institutions to undertake data analysis, and in formulating effective responses to global health threats (McKee et al., 2005). The Lancet Commission on Investing in Health suggested that donor financing should increasingly support international collective action for health or global functions that aim to deal with transnational challenges (Watkins et al., 2018). It has been noted that in countries where external assistance is important, national health policies, strategies, and plans are crucial in improving development effectiveness (Collins et al., 2019).

Although Kenya is East Africa's largest economy, it faces serious debt sustainability challenges because it has borrowed heavily in recent years. The country is spending a considerable share of its revenue servicing these debts, hence threatening the sustainability of critical sectors such as healthcare. Kenya enjoys robust development cooperation from traditional development partners and more recently from emerging economies of the global south which has helped bridge its budgetary shortfalls. Whereas its current healthcare is largely financed through out-of-pocket and government expenditure, donors such as the United States Agency for International Development (USAID), World Bank, World Health Organization (WHO), UK's Department for International Development (DFID), Japan International Cooperation Agency (JICA), German Development Agency (GIZ), and Danish International Development Agency (DANIDA) have been instrumental in the provision of healthcare in Kenya (Muchemi, 2018; Munge & Briggs, 2014).

This study is based on an extensive review of local and international media sources which show that COVID-19 has triggered an inflow of financial and medical supplies from bilateral and multilateral partners as well as from Non-Governmental Organizations (NGOs). However, weak governance systems and corruption has led to the continued mismanagement and the pillage of these donated resources. Principally, the paper focuses on the role of development cooperation in mitigating the spread and impact of COVID-19 in Kenya, as a model for supporting future infectious disease outbreaks. It also explores the continuous expansion and evolution of South-South cooperation as well as the delicate balance of commercial interests and emergency assistance in the global South by the industrialized north.

Kenya's healthcare system

Healthcare is one of the major priorities of the Kenyan government. In 2018, Universal Health Coverage (UHC) was declared a national priority, and an integral part of the President's 'Big Four Agenda' for national sustainable development. The government also pledged to achieve universal access to essential health services by the year 2022 (Wangia & Kandie, 2019). To this end, several initiatives have been undertaken to boost access and demand for healthcare services which include piloting of the *Free Primary Health Coverage Services For All* in Kisumu, Nyeri, Isiolo, and Machakos counties (Ministry of Health of Kenya, 2018). The government has also prioritized free services at expanded maternity wings in most public health facilities; subsidized health insurance for the poor, vulnerable, and the elderly; health financing strategy that will ensure citizens are covered with some form of insurance; and staff and equipment through the Managed Equipment Service (MES) initiative at all levels (Ministry of Health of Kenya, 2018).

The government has strived to expand its healthcare capacity and increase personnel, especially following the 2013 devolution of healthcare services. The current ratio of practicing nurses to the total population is estimated at 122 nurses per 100,000 persons against the WHO recommended ratio of 250 (Kenya National Bureau of Statistics [KNBS], 2020). As indicated in Table 1, there are 12,090 Medical Officers (doctors), translating to approximately 25 doctors to 100,000 persons, against the WHO recommended minimum staffing level of 360 doctors (Ministry of Health of Kenya, 2015).

The COVID-19 pandemic, which the WHO declared on January 30, 2020, as "an international public health emergency that posed high risk to countries with vulnerable health systems" creates new impetus for Kenya to continue advancing quantity, quality, and access to its healthcare (Sohrabi et al., 2020, pp 71). It is an opportunity to innovate, expand and recruit more medical staff including doctors, pharmacists, lab technicians and nurses with the goal of attaining WHO staffing requirements. The country has a favorable outlook for it has 28,822 students in its nursing programs (KNBS, 2020).

In the interim, development partners are helping the country manage and contain the outbreak by providing financial and technical support that responds to the prevailing fiscal and emergency needs. The crisis offers traditional partners an opportunity to truly embrace and demonstrate their commitment to the principles of development effectiveness highlighted in the previous section. It is also an opportunity for southern partners to expand their development cooperation into human health emergencies. Before examining how partners have responded to Kenya's call for support, the next section discusses the growing COVID-19 crisis and how the government has responded thus far.

Table 1. Registered health personnel by cadre, 2019 (provisional)

Category	No. of personnel	Personnel per 100,000 population
Medical Officers	12,090	25
Dentists	1,288	3
Pharmacists	3,825	8
Pharmacy Technologists	10,815	23
BSc (Nurses)	7,242	15
Registered Nurses	58,247	122
Enrolled Nurses	28,822	61
Clinical Officers	22,626	47
Public Health Officers	4,390	9
Public Health Technicians	1,328	3
Laboratory Technologists	13,144	28
Laboratory Technicians	3,886	8
Nutrition and Dieticians	3,573	8
Nutrition and Dietician technologists	5,284	11
Nutrition and Dietician technicians	927	2
TOTAL	177,487	373

Source: Economic Survey 2020 (KNBS, 2020)

Kenya's response to COVID-19

Kenya discovered its patient zero on March 13, 2020. As of August 15, 2020, known cases had increased to more than 29,000 (Worldometer, 2020). As shown in Table 2, the country ranked fifth on the African continent in terms of screening tests. It had conducted a total of 387,670 tests, behind South Africa (3.35 million), Morocco (1.58 million), Ethiopia (589,694) and Ghana (424,315). Approximately 0.7 percent of the country's population[1] had been screened, compared to South Africa (5.6%), Morocco (4.3%), Ghana (1.4%) and Senegal (0.8%).

The country had a slow start in mass screening, likely due to a steep learning curve, and difficulty in procuring testing kits (World Health Organization, 2020). It attained a thousand tests per day nearly three months after it first began the exercise. While it has shown a potential to successfully conduct 7,000 tests a day, there are notable daily fluctuations indicating, perhaps, lingering human and institutional challenges (Figure 1). So far, the country's recovery rate of 53.5

[1] Although the 2019 Housing and Population Census, conducted by the Kenyan government, indicated a population of 47,564,296, Johns Hopkins University uses a higher figure of 53,855,211 which is a Worldometer elaboration of the latest United Nations data. This paper uses the Johns Hopkins estimates.

percent, is remarkably lower than the global (66.3%) and continental (74.0%) estimates. Overall, there is a strong positive correlation between screening and confirmed cases; and screening and reported deaths (with R score of 0.9 in both cases).

Table 2: COVID-19 screening, cases, recoveries, and deaths

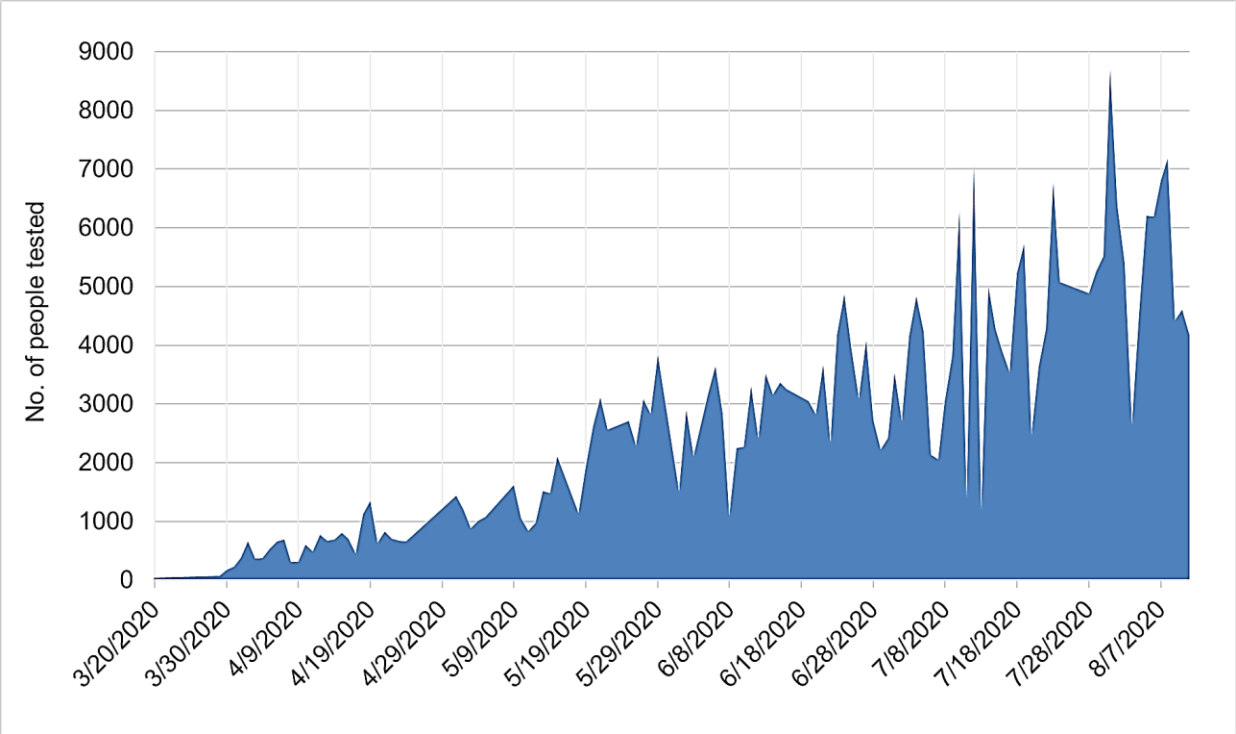
	Population (POP)	Tests (TST)	Cases (TC)	Recoveries (REC)	Deaths (DTH)	DTH/ TC (%)	REC/ TC (%)	TST/ POP (%)
Ethiopia	115,161,304	589,694	28,894	12,037	509	1.8	41.7	0.5
Ghana	31,119,277	424,315	42,210	40,147	231	0.5	95.1	1.4
Kenya	**53,855,211**	**387,670**	**29,849**	**15,970**	**472**	**1.6**	**53.5**	**0.7**
Morocco	36,943,799	1,583,234	41,017	28,566	632	1.5	69.6	4.3
Senegal	16,774,199	129,392	12,032	7,637	251	2.1	63.5	0.8
S. Africa	59,365,223	3,351,111	579,140	461,734	11,556	2.0	79.7	5.6
Uganda	45,836,124	312,792	1,434	1,142	13	0.9	79.6	0.7
Africa			1,106,364	819,192	25,213	2.3	74.0	
Asia			5,570,746	4,263,498	118,606	2.1	76.5	
Europe			3,143,933	1,902,948	202,917	6.5	60.5	
N. America			6,478,573	3,526,470	245,423	3.8	54.4	
S. America			5,162,358	3,715,028	173,448	3.4	72.0	
World			21,487,827	14,243,136	766,027	3.6	66.3	

Source: Worldometer, 2020

In an attempt to mitigate the spread and impact of the novel coronavirus, the Kenyan government invoked standard measures, such as social distancing, lockdowns, hygiene, and enforcement of the wearing of face masks. Public gatherings and in-person learning, and religious functions were suspended. There were attempts to keep international travel open by subjecting arriving passengers to a mandatory 14-day quarantine. However, this was short-lived as the government opted for a complete shutdown of local and international air travel.

On February 28, 2020, the government established the National Emergency Response Committee through an executive order No. 2 of 2020 (Government of Kenya, 2020). A month later, the Committee made a raft of precautionary measures such as issuing directives for all entertainment venues, bars, restaurants and other social spaces to close by 7:30 p.m. every day; local food markets to be disinfected regularly and to maintain high standards of hygiene; businesses were encouraged to permit staff to telecommute; and public service vehicle operators to limit passenger carrying capacity to 60 percent. These measures were to take effect on March 23, 2020 and to remain in place until further notice.

Figure 1: Daily COVID-19 screening in Kenya (March 20 – August 10, 2020)



As the crisis worsened, the government instituted more stringent measures, including dusk-to-dawn curfews, cessation of movement by persons, and the closing of national borders except for truckers of transit goods. Several directives on how to conduct public burials by capping attendance to no more than 50 individuals were also issued. A clearance certificate was required for inter-county travel and a compliance certificate for public service vehicles. Additionally, consumption of alcohol in bars and restaurants was banned. Police and public administration officials who were tasked with enforcing these measures initially acted with extreme brutality. In the first 10 days of the curfew, at least six people were reportedly killed by the police (Human Rights Watch, 2020).

COVID-19 screening sites and isolation centers were established but largely in the main urban areas and at international border points for truckers, namely Holili, Isibania, Namanga, Busia, and Malaba. Senior Ministry of Health officials conducted daily briefings, some of which were led by the President. Furthermore, there were national and county government consultative meetings to discuss strategies, assess impact and review progress. As an example of the outcomes of these meetings, the president directed that each of the 47 counties, in preparation for an expected surge in positive cases, establish at least a 300-bed isolation center. The government took part in a series of intergovernmental deliberations intended to achieve greater public policy coherence and coordination, as well as sharing of expectations and experiences. Such meetings were organized by the African Union, the Intergovernmental Authority on Development (IGAD), East Africa Community (EAC), and the Common Market for Eastern and Southern Africa (COMESA).

Development cooperation and corruption

Development cooperation

Traditional development partners, including international financial institutions have provided a mix of loans, grants, and in-kind assistance to support the country's battered economy, expand the capacity of its healthcare system in the face of a deadly infectious disease, and mitigate against fiscal shortcomings (Table 3). Emergency funding was provided for the purchase of medical supplies, such as Personal Protective Equipment (PPE) and ventilators, and recruit and deploy medical and administrative personnel. Considerable resources have been secured ostensibly to cushion vulnerable households and businesses from the economic downturn. Additionally, the country has received technical cooperation for medical research, capacity building, knowledge sharing and public awareness campaigns.

Table 3: Foreign aid for combating COVID-19 in Kenya

Date (2020)	Partner	Type of support
Mar 11	AMREF	Partnership with Ministry of Health for health workers COVID-19 education (Amref, 2020)
Mar 22	China	In-kind: Jack Ma Foundation (Endeshaw & Paravicini, 2020)
Apr 2	World Bank	USD 50 million to fight and mitigate against COVID-19. (Muthembwa, 2020)
Apr 6	China	In-kind: Jack Ma Foundation (Matengo, 2020)
Apr 10	China	In-kind: The Kenya-China Economic and Trade Association (Hongjie, 2020)
Apr 23	UNDP	In-kind: COVID-19 waste management equipment at health centers (UNDP, 2020)
Apr 28	USA	USD 6.6 million: U.S. Centers for Disease Control and Prevention (CDC) (U.S. Embassy Kenya, 2020a)
May 5	UAE	In-kind: United Arab Emirates Ministry of Foreign Affairs & International Cooperation for Covid-19 (UAE MOFAIC, 2020)
May 6	IMF	USD 739 million: COVID-19 emergency financing (Fouda, 2020)
May 9	Turkey	In-kind: The Turkish Cooperation and Coordination Agency (Wasike, 2020)
May 14	China	In-kind: Association of Chinese Business Owners in Kenya (Xinhua News Agency, 2020).
May 14	World Vision	In-kind: Medical supplies for Covid-19 support (Ooko, 2020).
May 14	European Union	EUR 15 million: Aid package humanitarian support (Ujvari, 2020)
May 20	World Bank	USD 1 billion: Budget support (Rosauer, 2020)

May 20	United Kingdom	KES 2.6 billion: To fight and mitigate against COVID-19 (Capital News, 2020).
May 22	AfDB	EUR 188 million: To fight and mitigate against COVID-19 (Terry, 2020).
June 2	USA	In-kind: Embassy donation to journalists and media professionals (U.S. Embassy Kenya, 2020b)
June 11	European Union	EUR 64.4 million: To fight and mitigate against COVID-19 (Chadrak, 2020).
Jun 29	European Union	EUR 2.57 million: From EU/WHO for covid-19 support (Mwakisha, 2020)
Jul 1	USA	USD 50 million: To fight and mitigate against COVID-19 (U.S. Embassy Kenya, 2020c).
Jul 2	WFP	USD 10 million: For Nairobi's informal settlements COVID-19 nutrition support (Karimi, 2020).
Jul 15	Cuba	In-kind: 20 Specialized doctors (Kamau, 2020)
Jul 22	China	In-kind: From First Lady of China to help mothers and children tackle the effects of COVID-19 (Xinhua News Agency, 2020b)
Jul 23	United Kingdom	KES 150 million: Grants to support Covid-19 Kenyan scientists (Wanambisi, 2020)
Jul 28	European Union	In-kind: From Slovakia (EU Civil Protection, 2020)
Aug 7	World Bank	USD 150 million: To support fight COVID-19 pandemic in informal settlements (Muthembwa, 2020b)

At a global level, the Chinese development cooperation has been truly significant in magnitude and reach. China has sent humanitarian assistance consisting of ventilators, hazmat suits and face shields, thermometers, test kits, and gloves to countries in Europe whose healthcare systems were experiencing severe stress. Supported by its entrepreneur and philanthropist, Jack Ma, China dispatched similar support to all 54 African countries as well as to other developing countries in the global south. Other southern partners that have sent aid to Kenya include Cuba, United Arab Emirates, and Turkey. Cuba, which already had a number of its radiologists, surgeons, orthopedists, neurologists, and nephrologists in the country through a government agreement, reportedly sent 20 more internal medicine, oncology, cardiology, renal and pediatrics doctors.

In monetary terms, the World Bank has provided by far the largest support - some 1.2 billion USD to help close the fiscal financing gap, support ongoing reforms, and advance the government's inclusive growth agenda, including affordable housing and support to farmers. In April 2020, the Bank had extended 50 million USD as emergency funding for medical diagnostic services, surveillance and response, capacity building, quarantine, isolation and treatment centers, medical waste disposal, risk communications and community engagement. Similarly, the International Monetary Fund gave 739 million USD to cover the balance of payments gap, catalyze financing from other donors, help develop fiscal interventions in the healthcare sector, and support households and firms affected by the crisis. The African Development Bank provided 188 million EUR to mitigate the impacts of the pandemic.

With funding from its international partners such as the United States, Finland, Poland and Sweden, the World Food program launched a cash transfer and nutrition support program that targets more than a quarter of a million individuals in informal settlements around Nairobi. It aims at providing nutritional support to 16,000 children under 5 years, 700 pregnant and breastfeeding mothers, and 6,800 elderly individuals.

The European Union's development cooperation came in the form of grants and in-kind support. The United Kingdom is funding Kenyan scientists carrying out research that involve detecting coronavirus antibodies in blood donors as well as funding healthcare workers and visits to ante-natal clinics. It is also supporting the country indirectly, through its grant to the African Union's *Anti-COVID-19 Fund* that seeks to tackle the coronavirus pandemic on the continent. This Fund will help recruit and deploy health experts to areas where they are needed most, strengthen the tracking of the pandemic, combat misinformation, train health workers, and fund a public awareness campaign program.

On its part, the Canadian government has provided a grant of 27 million Canadian Dollars (CAD) to support 47 coronavirus research projects that span two areas: medical countermeasures research such as transmission and zoonotic source of the COVID-19, development and evaluation of diagnostic tools for early case detection and surveillance, and development and evaluation of candidate vaccines, among other areas; and social and policy countermeasures research, such as examining how individuals and communities understand and react to the disease, and developing strategies to combat misinformation, stigma, and fear, among other areas. Several of these projects will involve Kenyan scientists and communities.

Corruption

Despite the robust global support highlighted above, Kenya cuts a dubious image on the world stage as one of the highly corrupt countries in the world. The 2019 *Corruption Perception Index* ranked the country the 28th most corrupt nation globally, a position it has maintained for several years now (Transparency International, 2020). This ranking and reputation are not without merit. A recent World Bank study revealed that the country's elites had diverted large sums of aid disbursements to foreign havens such as Switzerland, Luxembourg, Cayman Islands and Singapore and non-haven countries like Germany, France, and Sweden (Johannesen et al., 2020). At least 3.2 billion USD were traced in foreign accounts with deposits suspiciously coinciding with aid disbursements. This was hardly surprising, for the National Bureau of Economic Research (NBER) had estimated, in 2018, that more than 50 billion USD of public funds were hidden in offshore tax havens across the world. At the time, that amount was nearly twice the national budget, or slightly more than half the country's Gross Domestic Product (Alstadsæter et al., 2018).

The recent entrance of China as Kenya's principal financier and implementer of public infrastructure projects, through the framework of South-South cooperation, is thought to be worsening corruption. Studies have shown that Chinese aid and projects fuel local corruption. Furthermore, some argue that China's non-interference policy, while unlikely to affect prescriptive norms in delegitimizing corruption, its engagement in corrupt practices in recipient countries risk affecting descriptive norms which ends up legitimizing corruption (Isaksson & Kotsadam, 2018). In Kenya, there are widespread perceptions that the economic viability of the Chinese-funded Standard Gauge Railway (SGR) project may have been seriously undermined by corruption, opaque contracting practices, skewed financing arrangements, and serious community and labor issues (Wissenbach & Wang, 2017).

Anti-corruption campaigns and reform initiatives geared towards fostering good governance have failed to yield tangible results. Efforts by development partners, though interventions, such as strengthening accountability and transparency mechanisms, withholding funds, disbursing funds through civil society and non-governmental organizations, shaming, naming, and imposing travel restrictions on suspects, supporting anti-corruption public agencies through capacity building, and enabling and promoting activism, organizations and movements for good governance, have failed to drive change. In recent years, diplomats have oscillated between openly criticizing the government and working quietly behind the scenes.

Kenya's Ministry of Health has the overall responsibility of developing, planning, coordinating, and executing COVID-19 strategies. Although development partners are keen on supporting the government, the Ministry of Health is, unfortunately, a known hotbed of corruption. Over the years, mismanagement, and diversion of public funds by Ministry officials acting with seemingly total impunity has irked the public and the development community alike. In 2017, the United States government suspended a 21 million USD aid package to the Ministry due to corruption-related allegations. An Audit had revealed that about 50 million USD meant for free maternity care was missing and likely pillaged by Ministry officials (US Embassy Kenya, 2017). A new scandal surfaced a year later regarding the Managed Equipment Services (MES) - an initiative that was heavily promoted by the World Bank.

The MES initiative was advanced as a viable and practical way of fostering long term sustainable balance of health development through public and private partnerships. In a nutshell, MES is an arrangement where governments outsource all aspects of medical equipment to third-party companies, often manufacturers, like General Electric, Esteem Industries Inc and Phillips. These companies then provide the expertise to purchase, install, train users, manage, and maintain a portfolio of medical equipment on a long-term basis (Egan, 2018). Under this program, 98 public health facilities and hospitals in Kenya were to have access to modern health infrastructure, equipment and/or services over an agreed period. The government was to make regular, pre-arranged payments based on agreed performance parameters to participating private sector enterprises (Olotch, 2018).

In 2018, an assessment report of the country's financing system, funded and conducted by the USAID, was favorable. It stated that the MES arrangement would indeed allow the government to finally upgrade facilities, and expand its specialized services without requiring a large up-front capital investment or an increase in trained health workers and client utilization needed to justify acquisition (Dutta et al., 2018). The assessment found that although 94 of the 98 targeted hospitals had been equipped, utilization of equipment was still low due to shortage of trained staff. Despite this reality, each of the 47 counties were paying an annual fee of 2 million USD.

A subsequent audit report of the MES program was overly critical and negative. It concluded that the program lacked value for money, and that contracts between the government and manufacturers were opaque for they had been signed in secrecy. The audit also found that the cost of the project had increased from around 380 million to 680 million USD without a clear explanation or justification (Mutua & Wamalwa, 2020). The program was also found to be deeply flawed for its design was not informed by comprehensive disease burden. The health infrastructure needs assessment were not conducted yet counties are not homogeneous. Other scandals in this Ministry include: the loss of 8 million USD through a fraudulent mobile clinics program after it emerged that 100 shipping containers procured in 2015 were inflated and unsuitable and that they would have required a further 6 million USD to be remodeled into clinics (Ahmed & Wafula,

2019). More recently, the National Hospital Insurance Fund lost more than 100 million USD in false medical claims (Ombati & Obala, 2019).

Lessons learned and implications for future infectious outbreaks

The international community has responded speedily and favorably by providing financial and in-kind support to the Ministry of Health to deal with the pandemic- its corrupt reputation notwithstanding. Taxpayers and development partners have lost billions of dollars through corruption, fraud, and mismanagement, yet the government has hardly attempted to reprimand, transfer, dismiss or charge suspects. Here, audacious cartels and powerfully connected individuals operate with absolute impunity. It is a microcosm of growing state capture (Maina, 2019).

Corruption has been a major impediment in the delivery of public services. It is a risk and a cost to the Kenyan people. A disturbing picture is emerging of how these new disbursements - totally unexpected by government bureaucrats at the beginning of the year - have been pillaged. Anecdotal evidence of runaway corruption can be gathered from a desktop review of local and international mainstream media (Table 4). Some senior government officials have expressed frustration, giving credence to these claims. In the face of these malfeasance, bilateral and multilateral development partners have remained indifferent. Except for the British and American Ambassadors, development partners are yet to speak up, renewing doubts of their commitment to good governance and development effectiveness. The fact that the World Bank and the United States government praised the MES when it had been adjudged as a scam of colossal proportions only serves to reaffirm perceptions that anti-corruption message from traditional partners is empty rhetoric.

Table 4: Abuse of power and COVID-19 related corruption allegations

Date (2020)	Policy initiative	Abuse allegations	Media source	Reference
Mar 30	Covid-19 measures	Police brutality	Daily Nation	Olingo & Ahmed, 2020
Mar 31	Curfew enforcement	Innocent killing	The Star	Odenyo, 2020a
Apr 16	Curfew enforcement	Police brutality	Washington Post	Ombuor & Bearak, 2020
Apr 22	Curfew enforcement	Police brutality	H. Rights Watch	Human Rights Watch, 2020
Apr 30	Covid-19 funds	Corruption	CGTN Africa	Maema, 2020
May 13	KEMRI	Biased Staff changes	Daily Nation	Oketch, 2020a
May 13	Covid-19 funds	Misappropriation of funds	Daily Nation	Mwaura, 2020
May 14	KEMRI	Staff changes	Afronews	Afronews, 2020
May 19	Covid-19 funds	Misappropriation of funds	The Star	Otieno, 2020
May 27	Curfew enforcement	Innocent killing	New African	Collins, 2020
Jun 2	Curfew enforcement	Innocent killing	The Star	Odenyo, 2020b

Jun 2	Curfew enforcement	Innocent killing	ABC News	Odula, 2020a
Jun 5	Curfew enforcement	Police brutality	AFP News	AFP, 2020
Jun 20	covid-19 donation	Corruption	Daily Nation	Wasuna, 2020
Jun 26	Covid-19 measures	Innocent killing	The Hill	Deese, 2020
Jul 11	Kazi mtaani	Corruption	The Standard	Mungai, 2020
Jul 16	Covid-19 funds	Misappropriation of funds	Daily Nation	Okinda, 2020
Jul 16	Covid-19 tender	Corruption	Daily Nation	Wafula, 2020
Jul 17	Kazi mtaani	Bribery and nepotism	KTN News	KTN News, 2020
Jul 17	Kazi mtaani	Bribery and nepotism	People Daily	People Daily, 2020
Jul 22	Covid-19 Crisis	Police brutality	New York Review	Zhu (2020)
Jul 25	Covid-19 curfew	Health risks for pregnant women	AP News	Odula, 2020b
Jul 28	MES project	Corruption	Daily Nation	Owino, 2020a
Jul 29	KEMSA	Corruption	KBC	Munyao, 2020
Aug 2	Covid-19 tender	Corruption	Daily Nation	Oketch, 2020b
Aug 4	Covid-19 tender	Corruption	Daily Nation	Oketch & Wafula, 2020
Aug 5	MES project	Corruption	Daily Nation	Owino, 2020b
Aug 5	Kazi mtaani	Corruption	Citizen News	Citizen TV Kenya, 2020
Aug 5	Kazi mtaani	Bad programming	Kenyans.co.ke	Okubasu, 2020
Aug 6	Covid-19 tender	Bribery and nepotism	Daily Nation	Amadala, 2020
Aug 6	Kazi mtaani	Bribery & mismanagement	Daily Nation	Nanjala, 2020
Aug 7	Covid-19 measures	Bribery and poor pay	Daily Nation	Nation Team, 2020
Aug 10	Covid-19 tender	Corruption	Daily Nation	Lang'at, 2020
Aug 12	Covid-19 tender	Corruption	Daily Nation	Oketch & Mwere, 2020
Aug 12	Covid-19 tender	Corruption	Kenyans.co.ke	Mbati, 2020
Aug 12	Kazi mtaani	Payment issues	The Star	Vidija, 2020
Aug 14	Covid-19 supplies	Corruption	Daily Nation	Oketch & Wafula, 2020
Aug 16	Covid-19 tender	Corruption	Kenyans.co.ke	Mwanza, 2020

To illustrate engendered corruption, a shipment of donated PPEs and test kits from China was stolen and diverted to private hospitals (Wasuna & Oketch, 2020). It has been reported that these items were later sold back to the government at exorbitant prices. The Minister in charge has not made any attempts to dismantle cartels operating under his purview, yet he controversially removed the head of COVID-19 testing team at the Kenya Medical Research Institute, a government run medical research center (Oketch, 2020a). Critics accuse the Minister of practicing nefarious tribalism and cronyism by placing allies in strategic positions to manage and control COVID-19 funds.

Corrupt officials are blamed for letting in COVID-19 into the country through a Southern China Airline with 239 passengers from Guangzhou that landed in Nairobi in late February (Citizen, 2020). A whistleblower who reported the arrival of that flight was dismissed from his position and threatened with arrest and prosecution for making and sharing a digital recording of a restricted area. These threats were later dropped following public outcry. Since then, Kenyans have remained critical of the government. A senior Foreign Affairs official who tested positive for COVID-19 criticized the government for its handling of the pandemic. He questioned how billions of shillings could have been spent when the contact tracing system had essentially collapsed. He was concerned that the inflow of financial support had not meaningfully improved quality, quantity, and access to healthcare. Furthermore, there was no medical insurance cover for the virus (Wamochie, 2020).

Corruption undermines well-meaning efforts. It is endangering the lives of front-line workers, many of whom do not yet have protective gear. It is the cause of incompetent leadership, constrained capacity, and the inadequate public health infrastructure. Corruption is the cause for the relatively fewer tests conducted so far. Individuals seeking these tests were charged, in government facilities, an inflated fee of between 100 and 200 USD. Mandatory screening at some workplaces has been received favorably for it does not impose a financial burden on the participants. When free screening was announced, it was offered on a random basis, even when some measure of targeting could have been more effective. Furthermore, the lag time of more than 48 hours, between screening and the release of results, put unsuspecting patients at greater risk of infecting others since they continued to interact freely with the general population.

Governments are also combating the coronavirus through treatment-related interventions which include the expansion of hospital capacity and the use of ventilators (Hick et al., 2014). Before the pandemic, there was pressure to expand capacity and modernize service delivery to meet the demand of the rapidly growing Kenyan population. Although the 2013 devolution of health services to the counties has helped improve service delivery, access among rural dwellers remains a major challenge for health facilities are few, poorly staffed and stocked, and located at relatively greater distances for most users. The problem is compounded by the poor road network and collapsed community-based public healthcare programs.

Persistent urban bias in the health sector can still be seen in the government's response to COVID-19 pandemic. The government is yet to articulate a strategy on how to respond to say, a breakout of mass infections, in remote villages that do not have health facilities or isolation centers. As it turns out, a low cost-solution to a seemingly difficult challenge like this one is readily available. Since learning activities have been suspended, classrooms and dormitories in schools across the country, including in remote villages, could be identified, stocked, and designated as potential isolation centers. Such facilities could have been used by frontline staff for screening and surveillance purposes.

The crisis is an opportunity to institutionalize long term solutions that will include building up spare capacity for critical medical supplies such as ventilators, PPEs, testing kits and hospital beds. It has also demonstrated the necessity of a comprehensive and inclusive Universal Healthcare for individual and collective health security (Armocida et al., 2020). The pandemic brought to the fore the difficulty faced by poor households, marginalized communities including those in the rural settings, migrants, and undocumented workers in accessing relevant information, in this case regarding COVID-19 interventions such as screening and social distancing.

Having a functional free primary health coverage could have seen more people seek screening services yet its low uptake may suggest the government's talk of promoting UHC could simply be empty rhetoric. Besides UHC, there is little evidence that the government utilized data it collected through the 2019 Population and Housing census and the *Huduma Namba*[2], which was promoted as the central master population database and the 'single source of truth' on a person's identity. This data could have been utilized to map out, identify and target economically vulnerable populations and at-risk individuals as well as in carrying out contact tracing.

Instead of applying force to implement mitigation and control measures which, tragically resulted in loss of life, the government could have advanced participatory approaches that embrace community buy-in and deliver better outcomes. The *Nyumba Kumi* initiative, modelled along the *Ujamaa system* of Tanzania, was instituted following the Westgate terror attacks in 2013 (Ndono et al., 2019). It was meant to empower households to generate solutions to mutual problems, foster inclusivity, and community ownership, and reduce barriers to policy and program implementation. Despite these noble objectives, the initiative stalled at the pilot phase and has not been implemented countrywide. In hindsight, the *Nyumba Kumi* initiative could have socialized interventions and played a transformative role, for example, in contact tracing, enforcement of curfews, travel restrictions and surveillance of outbreaks.

The COVID-19 pandemic has spotlighted the need for a fit-for-purpose public health infrastructure (Chesoli & Maje, 2020). There is a need to channel development cooperation towards a healthcare system that is adequately funded, staffed, and with a grassroot footprint as well as capacity to collaborate with other regional and international public health organizations. It is imperative to prioritize preventive care such as in the community-based nurses, especially in remote and rural areas. Development cooperation should also equip a public health infrastructure that detects disease patterns in real time, bearing in mind that some diseases and some infectious agents may actually be novel such as the current case (Burkom, 2017). Rather than providing emergency funding, resources could be used to prevent sporadic cases from turning into outbreaks, and here, Big Data and Artificial Intelligence may play a transformative role (Thiébaut & Cossin, 2019).

Technical cooperation should be channeled towards building the capacity of recipient nations to perform medical research and general evidence that can help formulate decisions related to infection control measures, treatments, and vaccines. The explosive nature of the COVID-19 epidemic has necessitated "make-shift" science to guide choices related to control and mitigation efforts (Alexander et al., 2020). Effective partnership between the public, private and academic sectors can help nip potential future outbreak of infectious diseases in the bud (Mercer el al., 2018).

[2] Huduma Namba or the National Integrated Identity Management System (NIIMS) program was initiated through Executive Order No. 1 (2018). https://www.hudumanamba.go.ke/

The current crisis has shown that the private sector is significantly affected by disease outbreaks, yet it has played an important role in prevention and mitigation. Kenya augmented imported PPEs with locally produced facemasks and alcohol-based sanitizers. Additionally, crude prototypes of ventilators, hand sanitizer dispensing machines and hospital beds emerged - concepts that could have been improved upon with investments made to produce functional and commercially viable items. These products, and the level of observed ingenuity, offers the country the possibility of fostering domestic industrial growth. Properly tailored development cooperation, that brings together all stakeholders, can galvanize this process (Chesoli, 2020).

A primary mission of any public health infrastructure is to ensure that currently recommended public health measures that stem from centuries of knowledge and experience pertaining to food and water safety and sanitary living conditions are enforced (Corburn et al., 2020). Africa's crowded slums, informal settlements, markets and eating establishments have extremely poor physical infrastructure - a no small miracle that the continent has not suffered frequent outbreaks of food and water-borne diseases. Development cooperation should continue playing a central role in reducing poverty and inequality by focusing on the most vulnerable and funding among others, improved housing, water supply, and health infrastructure.

Kenya's runaway corruption in the Ministry of Health, undermines the effectiveness of development cooperation. As shown, aid receipts are often diverted by corrupt officials acting with complete impunity. Traditional development partners must demand value for their money by embracing and practicing the principles of development effectiveness which include focusing on results, accountability, and transparency. The crisis demonstrated the value for greater coordination among partners to avoid duplication of support and overwhelming the system with massive inflows. Besides accountability challenges, the Kenyan government lacks the capacity to prudently utilize such large inflows.

CONCLUSION

The novel coronavirus is a danger to national populations, healthcare systems and global economies. Open corruption and pillage of donated COVID-19 emergency funds and material in Kenya, and the steadfast silence by their providers reveals the limitations of good governance rhetoric. There have been no attempts by the Kenyan government to uphold transparency, accountability, and value for money considerations. Whereas the government has shown an unwillingness to address corruption – perpetuated by and for the benefit of political elites, their families, and allies – partners such as the World Bank and the United States released several aid packages in quick succession. It was only in a TV interview, that top American and British diplomats expressed their concerns over the alleged misuse of COVID-19 funds, but even then, there was a feeling that this response was weak. Whereas the United States generally channels its development cooperation through USAID, there was a slight departure from this model, with the U.S. Embassy providing PPEs to the media houses.

Despite facing COVID-19 challenges themselves, several Southern partners, namely Cuba, China, Turkey and United Arab Emirates, extended in-kind medical emergency assistance to Kenya. Chinese assistance came largely from the Jack Ma Foundation and was received, coordinated, and disbursed to member countries through the African Union in Addis Ababa. Chinese cooperation remained shrouded in mystery, especially regarding the quantities and monetary value of what was sent to Kenya. China's Ministry of Commerce (MOFCOM) that had

been central in managing the country's development cooperation in recent years was completely missing. Instead, aid came from multiple official and unofficial sources, including private foundations (Jack Ma), Business Associations, and the Office of the First Lady of China. This assistance perpetuated China's soft power and further entranced its interests on the continent by deepening existing Sino-Africa mechanisms including commercial associations.

The longstanding South-South cooperation principle of non-interference in the internal affairs of partner countries remains a major impediment in the fight against corruption. While whistleblowers notified the Chinese, through various channels including social media, that their donations had been stolen, they remained indifferent. The lack of disclosure of what had been sent prevented the public from grasping the magnitude of the theft. Furthermore, this secrecy could have led to wasteful duplication of donor efforts and material. The Chinese have not signaled a willingness to embrace the formal norms, standards and practices of traditional partners such as the principles of development effectiveness. In courting the Kenyan media houses with PPEs, the United States appears to have abandoned good governance ideals and was, instead pursuing Chinese-like soft power. This new approach could be explained by Washington's push for lucrative trade and commercial deals with Nairobi.

Besides reviewing local and international media accounts on COVID-19 support, corruption and mismanagement allegations, this paper has identified several cost-effective interventions that could have delivered stronger outcomes. These include the use of schools as isolation centers, leveraging data generated from the national census and the *Huduma Namba*, and deploying the *Nyumba Kumi* initiative. In order to mitigate against future infectious disease outbreaks, it is imperative for development partners to channel development cooperation towards helping developing countries to a) establish, equip and staff a fit-for-purpose healthcare infrastructure, b) grow domestic capacity for manufacturing drugs, vaccines and medical equipment, c) upgrade medical research capacity, and d) develop a surveillance system that is driven by Big Data and Artificial Intelligence. To be effective, development partners should work towards combating corruption by seeking value for their money, and through greater transparency and accountability.

References

AFP. (2020, June 5). Kenyan police have killed 15 since start of virus curfew. https://www.msn.com/en-us/news/world/kenyan-police-have-killed-15-since-start-of-virus-curfew/ar-BB15681K

Afronews. (2020, April 28). COVID-19: Kenya's top scientist fired after delaying results. https://afronews.eu/african-news/covid-19-kenyas-top-scientist-fired-after-delaying-results/

Ahmed, M., & Wafula, P. (2019, April 11) Mobile clinics: The face of graft and impunity in Kenya. *Daily Nation*. https://nation.africa/kenya/news/mobile-clinics-the-face-of-graft-and-impunity-in-kenya-157222

Alexander, P. E., Debono, V. B., Mammen, M. J., Iorio, A., Aryal, K., Deng, D., ... & Alhazzani, W. (2020). COVID-19 coronavirus research has overall low methodological quality thus far: case in point for chloroquine/hydroxychloroquine. *Journal of clinical epidemiology*, 123, 120–126. https://doi.org/10.1016/j.jclinepi.2020.04.016

Alstadsæter, A., Johannesen, N., & Zucman, G. (2018). Who owns the wealth in tax havens? Macro evidence and implications for global inequality. *Journal of Public Economics*, *162*, 89-100.

Amadala, B. (2020, August 6). Western region where Covid-19 tenders went to officials' friends. *Daily Nation*. https://nation.africa/kenya/counties/western-region-where-covid-19-tenders-went-to-officials-friends-1914200

Amorim, A., Baptista, F., Ippolito, A., & Djacta, S. (2016). *South-South and triangular cooperation academy: A decent work overview*. Geneva, Switzerland: International Labour Organization. http://wcmstraining2.ilo.org/wcmsp5/groups/public/---dgreports/---exrel/documents/publication/wcms_496952.pdf

Amref. (2020, March 11). Amref partners with Kenya's Ministry of Health on Covid-19 Response. https://amrefusa.org/news/amref-partners-with-kenyas-ministry-of-health-on-covid-19-response/

Andersen, J. J., Johannesen, N., & Rijkers, B. (2020). *Elite capture of foreign aid: Evidence from offshore bank accounts*. The World Bank.

Endeshaw, D., & Paravicini, G. (2020, March 22). Coronavirus supplies donated by Alibaba's Ma arrive in Africa. *Reuters*. https://www.reuters.com/article/us-health-coronavirus-africa/coronavirus-medical-supplies-donated-by-alibabas-ma-arrive-in-ethiopia-idUSKBN2190JU

Armocida, B., Formenti, B., Palestra, F., Ussai, S., & Missoni, E. (2020). COVID-19: Universal health coverage now more than ever. Journal of global health, 10(1), 010350. https://doi.org/10.7189/jogh.10.010350

EU Civil Protection. (2020, July 28). Coronavirus global response: EU sends assistance to Kenya, Bangladesh, Ecuador and El Salvador. https://ec.europa.eu/echo/news/coronavirus-global-response-eu-sends-assistance-kenya-bangladesh-ecuador-and-el-salvador_en

Burkom, H.S. (2017). Evolution of public health surveillance: Status and recommendations. *American Journal of Public Health, 107*(6), 848–850. https://doi.org/10.2105/AJPH.2017.303801

Capital News (2020, May 20). UK to work with African Union in tackling COVID-19. https://www.capitalfm.co.ke/news/2020/05/uk-to-work-with-african-union-in-tackling-covid-19/

Chadrak, A. (2020, June 11). Kenya: EU approves KSh7.8bln in aid for covid-19 response plan. *Ecofin Agency*. https://www.ecofinagency.com/public-management/1106-41466-kenya-eu-approves-ksh7-8bln-in-aid-for-covid-19-response-plan

Chesoli, K. (2020, July 27). Making ICU beds locally would kickstart industrialization drive. *Daily Nation*. https://nation.africa/kenya/blogs-opinion/letters/making-icu-beds-locally-would-kickstart-industrialisation-drive-1907070

Chesoli, K. & Maje, H. (2020, June 1). Why post-Covid-19 mitigation must have disaster prevention at its core. *Daily Nation*. https://nation.africa/kenya/blogs-opinion/opinion/post-covid-19-mitigation-disaster-prevention-378730

Citizen. (2020, February 28). Coronavirus: Why Kenya is dancing with death https://www.thecitizen.co.tz/news/africa/Coronavirus--Why-Kenya-is-dancing-with-death-/3302426-5472188-1ehn3vz/index.html

Citizen TV Kenya. (2020, August 5). Kazi mtaani missing cash [Tweet]. https://twitter.com/citizentvkenya/status/1290893258751713280

Collins, T. E., Nugent, R., Webb, D., Placella, E., Evans, T., & Akinnawo, A. (2019). Time to align: development cooperation for the prevention and control of non-communicable diseases. *bmj*, *366*, l4499. https://doi.org/10.1136/bmj.l4499

Collins, T. (2020, May 27). Kenya's proactive Covid-19 response overshadowed by police brutality. *NewAfrican*. https://newafricanmagazine.com/23320/

Corburn, J., Vlahov, D., Mberu, B., Riley, L., Caiaffa, W. T., Rashid, S. F., ... & Jayasinghe, S. (2020). Slum health: arresting COVID-19 and improving well-being in urban informal settlements. *Journal of Urban Health*, 97, 348–357.

Deese, K. (2020, June 26). 3 dead in Kenya after clash with police over masks. *The Hill*. https://thehill.com/policy/international/africa/504701-3-dead-in-kenya-after-clash-with-police-over-masks

Dutta, A., Maina, T., Ginivan, M. & Koseki S. (2018) *Kenya Health Financing System Assessment: Time to pick the best path*. Washington, DC: Palladium, Health PolicyPlus

Egan, P. (2018). Managed equipment service–Is it all it's cracked up to be*? European Journal of Medical Physics, 52*, 165.

Fouda, L. M. (2020, May 6). IMF Executive Board approves a US$739 Million disbursement to Kenya to address the impact of the COVID-19 pandemic. International Monetary Fund. https://www.imf.org/en/News/Articles/2020/05/06/pr20208-kenya-imf-executive-board-approves-us-million-disbursement-address-impact-covid-19-pandemic

Government of Kenya. (2020). *Executive Order Number 2 of 2020*. Executive Office of the President: State House, Nairobi.

Hick, J. L., Einav, S., Hanfling, D., Kissoon, N., Dichter, J. R., Devereaux, A. V., ... & Task Force for Mass Critical Care. (2014). Surge capacity principles: care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. *Chest*, *146*(4), e1S–e16S.

Hongjie, L. (2010, April 10). Chinese companies donate food to Kenyan students to fight COVID-19. *China Daily*. http://www.chinadaily.com.cn/a/202004/10/WS5e9064bba3105d50a3d15669.html

Human Rights Watch. (2020, April 22). Kenya: Police brutality during curfew. https://www.hrw.org/news/2020/04/22/kenya-police-brutality-during-curfew

Isaksson, A. S., & Kotsadam, A. (2018). Chinese aid and local corruption. *Journal of Public Economics*, *159*, 146–159.

Kamau, J. (2020, July 17). More Cuban doctors sent to Kenya. *Daily Nation*. https://nation.africa/kenya/news/more-cuban-doctors-sent-to-kenya-1874748

Karimi, M. (2020, July 2). WFP supplements Government support to poor families in Kenya hit by COVID-19. *World Food program*. https://www.wfp.org/news/wfp-supplements-government-support-poor-families-kenya-hit-covid-19

Kenya National Bureau of Statistics. (2020). Economic Survey 2020. KNBS: Nairobi, Kenya

KTN News. (2020, July 17). *Kazi mtaani queries: Section of youth raise concerns and protest over selection process and payment*. YouTube. https://www.youtube.com/watch?time_continue=11&v=k4DjZewjVfo&feature=emb_logo

Lang'at, P. (2020, August 10). Martha Karua puts Kagwe on the spot over Covid-19 funds. *Daily Nation*. https://nation.africa/kenya/news/martha-karua-puts-kagwe-on-the-spot-over-covid-19-funds-1915628

Maema, C. (2020, April 30). Kenyans react after govt spends Sh48m on airtime, tea and ambulance hire. *CGTN Africa*. https://africa.cgtn.com/2020/04/30/kenyans-react-as-sh48m-spent-on-airtime-tea-and-ambulance-hire/

Maina, W. (2019). *State Capture: Inside Kenya's Inability to Fight Corruption*. Africa Centre for Open Governance (AfriCOG). Nairobi, Kenya. https://africog.org/wp-content/uploads/2019/05/STATE-CAPTURE.pdf

Matengo, D. (2020, April 6). China's Jack Madonates second batch of medical supplies to Africa to combat COVID-19. *CGTN Africa*. https://africa.cgtn.com/2020/04/06/chinese-billionaire-jack-ma-to-donate-second-batch-of-medical-covid-19-supplies-to-africa/

Mbati, J. (2020, August 12). US, UK Ambassadors demand answers from CS Kagwe on Covid-19 funds. *Kenyans.co.ke*. https://www.kenyans.co.ke/news/56277-usuk-ambassadors-demand-answers-cs-kagwe-video

McKee, M., Gilmore, A. B., & Schwalbe, N. (2005). International cooperation and health. Part I: issues and concepts. *Journal of Epidemiology & Community Health*, *59*(8), 628–631. https://doi.org/10.1136/jech.2003.013532

Mercer, T., Gardner, A., Andama, B., Chesoli, C., Christoffersen-Deb, A., Dick, J., ... & Maritim, B. (2018). Leveraging the power of partnerships: spreading the vision for a population health care delivery model in western Kenya. *Globalization and health*, *14*(1), 1–11. https://doi.org/10.1186/s12992-018-0366-5

Ministry of Health of Kenya. (2015). *Kenya health workforce report: The status of healthcare professionals in Kenya*. Ministry of Health: Nairobi, Kenya.

Ministry of Health of Kenya. (2018, December 13). President Uhuru launches Universal Health Coverage pilot program Nairobi, (KENYA). https://www.health.go.ke/president-uhuru-launches-universal-health-coverage-pilot-program-nairobi-kenya-december-13-2018/

Muchemi, J. (2018). *Transforming health systems for universal care*. Ministry of Health: Nairobi, Kenya

Mungai, A. (2020, July 11). Claims of graft and cronyism dog welfare initiative. *The Standard*. https://www.standardmedia.co.ke/nairobi/article/2001378343/claims-of-graft-and-cronyism-dog-welfare-initiative

Munge, K., & Briggs, A. H. (2014). The progressivity of health-care financing in Kenya. *Health policy and planning*, *29*(7), 912–920. https://doi.org/10.1093/heapol/czt073

Munyao, B. (2020, July 29). Kembi Gitura downplays reports of alleged fraud in KEMSA. *KBC*. https://www.kbc.co.ke/kembi-gitura-downplays-reports-of-alleged-fraud-in-kemsa/

Muthembwa, K. (2020, April 2). Kenya receives $50 million World Bank Group support to address COVID-19 pandemic. *The World Bank*. https://www.worldbank.org/en/news/press-release/2020/04/02/kenya-receives-50-million-world-bank-group-support-to-address-covid-19-pandemic

Muthembwa, K. (2020b, August 7). Kenya receives $150 million to improve living conditions for 1.7 million residents in urban informal settlements. *The World Bank*. https://www.worldbank.org/en/news/press-release/2020/08/07/kenya-receives-150-million-to-improve-living-conditions-for-17-million-residents-in-urban-informal-settlements

Mutua, J., & Wamalwa, N. (2020). *Eight facts on the medical equipment leasing project in Kenya*. Institute of Economic Affairs: Nairobi, Kenya. https://www.ieakenya.or.ke/publications/bulletins/eight-facts-on-the-medical-equipment-leasing-project-in-kenya

Mwakisha, J. W. (2020, June 29). The EU and WHO working together to defeat COVID-19 in Kenya. *World Health Organization*. https://www.afro.who.int/news/eu-and-who-working-together-defeat-covid-19-kenya

Mwanza, E. (2020, August 16). Jack Ma donations were sold to KEMSA - Civil Society. *Kenyans.co.ke.* https://www.kenyans.co.ke/news/56443-jack-ma-donations-were-sold-kemsa-civil-society

Mwaura, M. (2020, May 13). Kagwe, Yatani summoned by MPs to explain Covid-19 funds. *Daily Nation*. https://nation.africa/kenya/news/kagwe-yatani-summoned-by-mps-to-explain-covid-19-funds-288782

Nanjala, S. (2020, August 6). This is not what we hoped for, youth in Kazi Mtaani say about pay. *Daily Nation*. https://nation.africa/kenya/news/youth-say-kazi-mtaani-pay-low-1914070

Nation Team. (2020, August 8). Nyanza faces crisis amid Covid-19 fight as county medics strike. *Daily Nation*. https://nation.africa/kenya/counties/nyanza-faces-crisis-amid-covid-19-fight-as-county-medics-strike-1914694

Ndono, P. W., Muthama, N. J., & Muigua, K. (2019). Effectiveness of the Nyumba Kumi community policing initiative in Kenya. *Journal of Sustainability, Environment and Peace, 1*(2), 63–67.

Odenyo, A. (2020a, March 31). Boy, 13, shot dead in third curfew tragedy, police blamed. *The Star*. https://www.the-star.co.ke/news/2020-03-31-boy-13-shot-dead-in-third-curfew-tragedy-police-blamed/

Odenyo, A. (2020b, June 2). Homeless, harmless and shot dead in Mathare slums. *The Star*. https://www.the-star.co.ke/news/2020-06-02-homeless-harmless-and-shot-dead-in-mathare-slums/

Odula, T. (2020, June 2). Kenyans protest as police accused of killing homeless man. *ABC News*. https://abcnews.go.com/International/wireStory/kenyans-protest-police-accused-killing-homeless-man-71017534

Odula, T. (2020b, July 25). Pregnant women at risk of death in Kenya's COVID-19 curfew. *Associated Press*. https://apnews.com/2e1a7d8b8401e4c06df52085994cf4ba

OECD/UNDP (2019), Making Development Co-operation More Effective: 2019 Progress Report, OECD Publishing, Paris. https://doi.org/10.1787/26f2638f-en

Oketch, A. (2020a, May 13). Researchers demand answers over dismissal of Kemri scientist. *Daily Nation*. https://nation.africa/kenya/news/researchers-demand-answers-over-dismissal-of-kemri-scientist-287566

Oketch, A. (2020b, August 2). Covid-19: Kenya paid double for protective kits. *Daily Nation*. https://nation.africa/kenya/news/-covid-19-kenya-paid-double-protective-kits-1911292

Oketch, A., & Mwere, D. (2020, August 12). Ministry told to clarify role of Unicef in procurement of Covid-19 PPE. *Daily Nation*. https://nation.africa/kenya/news/moh-told-to-clarify-role-of-unicef-1917390

Oketch, A. & Wafula, P. (2020, August 14). Kemsa suspends CEO, 2 directors over Covid-19 procurements probe. *Daily Nation*. https://nation.africa/kenya/news/kemsa-suspends-ceo-2-directors-over-covid-19-procurements-probe-1918402

Okinda, B. (2020, July 16). Kemsa scandal: anti-graft lobby group calls for speedy probe. *Daily Nation*. https://nation.africa/kenya/news/kemsa-scandal-anti-graft-lobby-group-calls-for-speedy-probe-1845548

Okubasu, D. (2020, August 5). Alfred Mutua criticises Uhuru's ksh10B Kazi Mtaani project. *Kenyans.co.ke*. https://www.kenyans.co.ke/news/56060-alfred-mutua-rubbishes-uhurus-ksh10b-kazi-mtaani-project

Olingo, A., & Ahmed, M. (2020, March 30). Dozens injured as police brutality marks start of curfew. *Daily Nation*. https://nation.africa/kenya/news/dozens-injured-as-police-brutality-marks-start-of-curfew-282622

Olotch, C. (2018, January 4). How Managed Equipment Services in Kenya help the private sector contribute to healthcare. *World Bank Blogs*. https://blogs.worldbank.org/ppps/how-managed-equipment-services-kenya-help-private-sector-contribute-healthcare

Ombati, C., & Obala, R. (2019, February 25). Over Sh 10 billion feared lost in new NHIF pay scandal. *The Standard*. https://www.standardmedia.co.ke/business-news/article/2001314296/over-sh10b-feared-lost-in-new-nhif-pay-scandal

Ombuor, R., & Bearak, M. (2020, April 16). 'Killing in the name of corona': Death toll soars from Kenya's curfew crackdown. *The Washington Post*. https://www.washingtonpost.com/world/africa/kenya-coronavirus-curfew-crackdown-death-toll/2020/04/15/740a8c4e-79be-11ea-a311-adb1344719a9_story.html

Ooko, S. (2020, May 14). World Vision donates medical items to boost Kenya's COVID-19 fight. *World Vision*. https://www.wvi.org/stories/coronavirus-health-crisis/world-vision-donates-medical-items-boost-kenyas-covid-19-fight

Otieno, B. (2020, May 19). Covid-19 funds shrouded in mystery, says MP Ali. *The Star*. https://www.the-star.co.ke/counties/coast/2020-05-19-covid-19-funds-shrouded-in-mystery-says-mp-ali/

Owino, S. (2020a, July 28). Senators question Health ministry's tender for legal services. *Daily Nation*. https://nation.africa/kenya/news/ministry-in-trouble-over-irregular-tender-1907632

Owino, S. (2020b, August 5). Much-awaited probe report on Sh68bn health kits scandal to delay. *Daily Nation*. https://nation.africa/kenya/news/probe-report-health-kits-scandal-delayed-1912860

People Daily. (2020, July 17). Bribery, nepotism claims stalk Kazi Mtaani project. *People Daily*. https://www.pd.co.ke/news/bribery-nepotism-claims-stalk-kazi-mtaani-project-44302/

Reality of Aid. (2018). *The changing faces of development aid an cooperation: Encouraging global justice or buttressing inequalities?* IBON International: Quezon City, Philippines

Rosauer, V. (2020, May 20). World Bank approves $1 billion financing for Kenya, to address COVID-19 financing gap and support Kenya's economy. *The World Bank*. https://www.worldbank.org/en/news/press-release/2020/05/20/world-bank-approves-1-billion-financing-for-kenya-to-address-covid-19-financing-gap-and-support-kenyas-economy

Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., ... & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*, 76, 71–76

Stuenkel, O. (2013). *Institutionalizing South-South Cooperation: Towards a New Paradigm? Background Research Paper.* Submitted to the High-Level Panel on the Post-2015 Development Agenda.

Terry, O. (2020, May 22). Kenya: €188m African Development Bank loan to boost COVID-19 response. *African Development Bank Group*. https://www.afdb.org/en/news-and-events/press-releases/kenya-eu188m-african-development-bank-loan-boost-covid-19-response-35735

Thiébaut, R., & Cossin, S. (2019). Artificial intelligence for surveillance in public health. *Yearbook of medical informatics*, *28*(1), 232–234. https://doi.org/10.1055/s-0039-1677939

Transparency International. (2020). *Kenya.* Transparency International Kenya. https://www.transparency.org/en/countries/kenya

U.S. Embassy Kenya (2017, May 9) Statement regarding the suspension of assistance to the Ministry of Health. https://ke.usembassy.gov/statement-regarding-suspension-assistance-ministry-health/

U.S. Embassy Kenya. (2020a, April 28). U.S. Government to provide additional 705 million KES to Kenya's COVID-19 response. https://ke.usembassy.gov/u-s-government-to-provide-additional-705-million-kes-to-kenyas-covid-19-response/

U.S. Embassy Kenya. (2020b, June 20). United States donates facemasks to protect Kenyan journalists on frontlines of COVID-19 reporting. https://ke.usembassy.gov/united-states-donates-facemasks-to-protect-kenyan-journalists-on-frontlines-of-covid-19-reporting/

U.S. Embassy Kenya. (2020c, July 1). United States providing KSH 5 billion to support health and economy recovery in Kenya's COVID-19 response. https://ke.usembassy.gov/united-states-providing-ksh-5-billion-to-support-health-and-economy-recovery-in-kenyas-covid-19-response/

UAE MOFAIC (United Arab Emirates Ministry of Foreign Affairs & International Cooperation). (2020, May 5). UAE sends medical aid to Kenya in fight against COVID-19. https://www.mofaic.gov.ae/en/mediahub/news/2020/5/5/05-05-2020-uae-kenya

Ujvari, B. (2020, May 14). Coronavirus: EU provides support in Horn of Africa region. *European Commission*. https://ec.europa.eu/commission/presscorner/detail/en/IP_20_880

UNDP. (2020, April 23). UNDP hands over equipment to bolster COVID-19 Medical Waste Management in Kenya.

https://www.ke.undp.org/content/kenya/en/home/presscenter/articles/2020/undp-hands-over-equipment-to-bolster-covid-19-medical-waste-mana.html
United Nations. (2020). Development Policy and Multilateralism after COVID-19. United Nations Publications, New York
Vidija, P. (2020, August 12). How fake IDs, M-Pesa lock youths out of Kazi Mtaani payments. *The Star*. https://www.the-star.co.ke/news/2020-08-12-how-fake-ids-m-pesa-lock-youths-out-of-kazi-mtaani-payments/
Wafula, P. (2020, July 16). Senior executives at Kemsa on EACC radar in graft probe. *Daily Nation*. https://nation.africa/kenya/news/senior-executives-at-kemsa-on-eacc-radar-in-graft-probe-1807596
Wafula, P., & Oketch, A. (2020, August 4). Cartels block locally made Covid-19 kits in tender wars. *Daily Nation*. https://nation.africa/kenya/news/cartels-block-locally-made-covid-19-kits-in-tender-wars-1912370
Wamochie, R. (2020, July 30). What have we done with Covid-19 billions? - Virus positive PS. *The Star*. https://www.the-star.co.ke/news/2020-07-30-what-have-we-done-with-covid-19-billions-virus-positive-ps/
Wanambisi, L. (2020, July 23). UK announces sh150 million grant to support Covid-919 research in Kenya. *Capital News*. https://www.capitalfm.co.ke/news/2020/07/uk-announces-sh150mn-grant-to-support-covid-19-research-in-kenya/
Wangia, E. & Kandie, C. (2019). Refocusing on quality of care and increasing demand for services; Essential elements in attaining universal health coverage in Kenya. *Ministry of Health of Kenya*. https://www.health.go.ke/wp-content/uploads/2019/01/UHC-QI-Policy-Brief.pdf
Wasike, A. (2020, May 9). Turkey distributes aid in Kenya's capital. *Anadolu Agency*. https://www.aa.com.tr/en/africa/turkey-distributes-aid-in-kenya-s-capital/1834967#
Wasuna, B. & Oketch, A. (2020, June 20). Scanty information on theft of donated Covid-19 equipment. *Daily Nation*. https://nation.africa/kenya/news/scanty-information-on-theft-of-donated-covid-19-equipment-733440
Watkins, D. A., Yamey, G., Schäferhoff, M., Adeyi, O., Alleyne, G., Alwan, A., ... & Goldie, S. J. (2018). Alma-Ata at 40 years: reflections from the Lancet Commission on Investing in Health. *The Lancet*, *392*(10156), 1434–1460.
Wissenbach, U., & Wang, Y. (2017). African politics meets Chinese engineers: The Chinese-built Standard Gauge Railway Project in Kenya and East Africa. *SAIS-Cari*. https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/594d739f3e00bed37482d4fe/1498248096443/SGR+v4.pdf
World Bank. (2020). *Global Economic Prospects*, June 2020. Washington, DC: World Bank. http://dx.doi.org/10.1596/978-1-4648-1553-9
World Health Organization. (2020). Coronavirus disease (COVID-19), Situation Report – 171. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200709-covid-19-sitrep-171.pdf?sfvrsn=9aba7ec7_2
Worldometer. (2020). Covid-19 Coronavirus Pandemic. https://www.worldometers.info/coronavirus/
Xinhua News Agency (2020, May 15). Chinese businessmen donate 70,000 face masks to Kenya to curb COVID-19. http://www.xinhuanet.com/english/africa/2020-05/15/c_139057619.htm
Xinhua News Agency. (2020b, July 23). Chinese embassy hands over medical supplies to Kenya to combat COVID-19. http://www.xinhuanet.com/english/2020-07/23/c_139232938.htm
Zhu, A. (2020, July 22). Kenya turns its Covid-19 crisis into a human rights emergency. *The New York Review of Books.* https://www.nybooks.com/daily/2020/07/22/kenya-turns-its-covid-19-crisis-into-a-human-rights-emergency/

COVID-19 Pandemic: Inadequate Digital Infrastructure and Shortage of Technically-Trained Teachers Hinder Schooling of Children with Disabilities in Kenya.

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Abstract

An inefficient digital infrastructure and a shortage of technically-trained teachers compounded the effects of the COVID-19 pandemic, resulting in insufficient education of children with disabilities and erosion of their disability rights. This paper uses situational analysis to examine the impact of school closure on the education of students with disabilities in the period of COVID-19 pandemic. Findings show that children with disabilities have lost ground academically because of school closures and COVID-19-related biases. Considering the consequences of this pandemic, education opportunities for learners with disabilities remain unpredictable. This generation of children with disabilities is in a precarious situation and their educational opportunities may be derailed considerably unless disability-focused mitigating measures are implemented. Since education is significant in disaster preparedness, risk management, and recovery, the government's COVID-19 mitigation efforts should include special needs learners to limit the negative effect of school closure on their schooling. Equally important, recovery programs should consider investing in both the digital infrastructure and training teachers' competence in online pedagogical practices and computer literacy.

***Keywords*:** disability, education, pandemic, digital, infrastructure, teachers

INTRODUCTION

The 1994 United Nations Educational, Scientific and Cultural Organization (UNESCO) Salamanca Statement, which Kenya adopted, require countries to design educational systems and implement educational programs that meet the needs of diverse children. It specifically calls on countries to establish education systems that support schooling of children with disabilities in regular schools with adapted education to combat and prevent biases and build up an inclusive society (UNESCO, 1994). The Salamanca Statement followed the 1990 World Conference on Education for All (EFA) that called every country to universalize adequate basic education to end poverty (World Conference on Education for All [WCEFA], 1990). In 2000 and 2009 World leaders further committed to promote inclusive education for children with disabilities (UNESCO, 2009). Because of these initiatives and Kenya's drive to achieve Education 2030 (UNESCO, 2016), there has been record student enrollment in primary and secondary schools (Kiru, 2019; Mulinya & Orodho, 2015; Nyeris & Koross, 2015). According to the Ministry of Education (MoE) 2018 Enrolment Estimates report, pupil population in the Basic Education (i.e., from early

childhood development to secondary) rose from 12.9 to 17 million between 2009 and 2018; and the total Basic Education institutions also increased from 67,051 to 96,920 during the same period (MoE, n.d.). Equally, according to the UNESCO Institute for Statistics 2014-18 data, Kenya Basic Education has seen declining numbers of repeaters, decreased student-teacher ratio, increased school retention rate, a low school dropout rate, increased rate of transition from primary to secondary school, and an increased literacy rate of the population, especially in the age bracket of 15–24 years (UNESCO, n.d. -c). Increased population of Kenyan learners attending school is attributed to the implementation of free primary education in 2003 and secondary education in 2008 and a liberalized higher education in 1990s (Mulinya & Orodho, 2015; Oketch & Rolleston, 2007). Despite improved schooling, the 2014 report of the survey conducted by the Ministry of Education Science and Technology and Volunteer Service Oversees (MoEST & VSO) and UNESCO (n.d. -a), showed that millions of children and youth with disabilities remain illiterate as education remains inaccessible. Due to cultural and infrastructural barriers, a few are able to access schools or quality education meant to prepare them for adulthood (Kiru, 2019; MoE, 2009; Nyeris & Koross, 2015). This low school attendance for children with disabilities has been exacerbated by natural disasters (Muhumuza, 2020; UNESCO, 2020; United Nations Office for Disaster Risk Reduction [UNISDR], 2015).

As COVID-19 pandemic evolved in a nonlinear manner, learning institutions are likely to remain closed for the better part of academic year 2020-2021 (BBC, 2020), keeping learners at home, if projections of how the coronavirus may spread are borne out. Learning loss will be greater the longer the school interruption persists. Already, the suspension of learning in all education institutions has negatively impacted children with disabilities, leaving them predisposed to failure in later life. Even though children with disabilities are typically left behind in disasters (Muhumuza, 2020; UNISDR, 2015), lack of a playbook and scarcity of information make matters worse. The novelty of COVID-19 pandemic means there are no studies on its impact on the education of children with disabilities in Kenya. Considering present and future harm to the wellbeing of learners with disabilities, this paper examines the consequences of COVID-19-induced school closures on the wellbeing of children with disabilities. The purpose of the study is to assess the impact of this pandemic on Basic Education of learners with disabilities and support disaster preparedness and risk reduction and recovery programs (UNISDR, 2015). Therefore, the objective is to identify factors affecting implementation of digital learning in Basic Education for learners with disabilities in order to make them accessible. To achieve this objective, the study was guided by the question: What are the short- and long-term impacts of COVID-19 pandemic on schooling of children and youth with disabilities in Kenya?

Education and children and youth with disabilities

Disability prevalence

There is no precise population data for Kenyans with disabilities in previous censuses—1948 (when Kenya was a colony administered by the British), 1969, 1979, 1989, 1999, 2009, and 2019 (Kenya National Bureau of Statistics [KNBS], 2019; MoEST & VSO, 2014). The Kenyan population in 2019 was 47.6 million with 0.9 million people living with disabilities (2.2% national disability rate) (KNBS, 2019). This rate is quite below the World Health Organization (WHO) estimate that suggests that about 15% of any population are people living with disabilities (2011).

Based on the 15% estimate, this would translate to 7.14 million Kenyans with disabilities (WHO, 2011). It is estimated that out of this 15% prevalence rate, 25% are school aged children with disabilities (i.e., 1.785 million learners with disabilities). Also, the 2019 census revealed that about 18 million Kenyans attended pre-kindergarten through college (Owino, 2020). Going by the 2014 MoEST and VSO Report that showed 13.5% disability prevalence among children ages 3–24, roughly 2.43 million students have a disability.

Access to education and (dis)empowerment of children with disabilities

In the past five decades, Kenya has invested in education to improve literacy and quality of life for its citizens, including those with disabilities (UNESCO, n.d.-c). Special Needs Education (SNE) in Kenya was first established by missionaries (African Union of the Blind [AFUB], 2007); but, since its independence from Britain, the Kenyan government has expanded education opportunities for children with disabilities. For example, with the introduction of universal education in 2003, the government has provided US$30 per child per year to support their basic education (MoEST & VSO, 2014). School enrollment has, therefore, risen since independence, but the number of learners has increased drastically, especially with the introduction of universal primary and secondary education and the emphasis on accessible and quality tertiary education (Kiru, 2019; Nyeris & Koross, 2015; Oketch & Rolleston, 2007). Still, education remains inaccessible for children and youth with disabilities. It is estimated that over 90% of children with disabilities did not access Basic Education pre-COVID-19 pandemic (MoEST & VSO, 2014). The MoE (2009) estimated that 750,000 school-aged children with disabilities were not accessing Basic Education.

The 2019 population and housing census revealed that the number of students in pre-primary school was 3.3 million, 10 million in primary school, 3.4 million in secondary school, 500,000 in middle-level colleges, and 471,000 in universities (KNBS, 2019). Based on the 15% WHO population estimate, learners with disability may be 2.7 million, or 2.43 million based on the 13.5% MoEST and VSO disability prevalence rate (2014). Going by MoEST and VSO rate, there are 1.75 million children with disabilities in primary school, 570,000 in secondary school, and 110,000 in tertiary institutions. The 2009 MoE report revealed that in 2003, 86,424 children with disabilities were in school—13,303 were enrolled in special schools, and 73,121 were in special units and integrated programs attached to regular schools. That number in 2008 had increased to 37,202 students in special schools and 171,079 in special units. During the same year, there was a total of 8,563,821 primary school students and a total of 1,382,211 secondary school students (MoEST & VSO, 2014). The total enrolment of students with disabilities in primary school was 22,000 in 1999, 26,885 in 2003, and 45,000 in 2008. Also, Special Schools Heads Association of Kenya reported that over 100,000 children with disabilities were out of primary and secondary school (i.e., had not attended or had dropped out) and only 645 students with disabilities of the 450,000 total student population were in over 70 public and private universities (Wanzala, 2016).

In all instances, the disability prevalence rate is below 13.5% (MoEST & VSO, 2014). The discrepancy in access to Basic Education between children with and without disability has been ongoing since independence, and after the government implemented free universal education (MoEST & VSO, 2014). Overall, discrepancies in the data is due to underreporting as well as

challenges with data collection including insecurity and limited resources (e.g., vehicles, trained personnel). Lack of actual population of people with disabilities or statistics of children with disabilities aged 0-21 years make SNE planning difficult and contributes to insufficient implementation and ineffectual management of disability programs. According to the MoEST & VSO (2014) report, children with disabilities lag behind their peers without disabilities in education mostly because of inaccessible physical structures (e.g., classrooms, libraries, toilets), lack of or limited resources (e.g., special education teachers, laptops), and inadequate services (e.g., assessments services). As a result, Kenya did not achieve the 2015 EFA goals (WCEFA, 1990).

Disaster education for children with disabilities

Education is instrumental in the empowerment of people with disabilities, particularly in the 21st century where technology use has sky-rocketed in virtually every realm of life—education, health, agriculture, commerce, and the sports industry (Crockett et al., 2019). Improved technology has enabled people with disabilities to participate in various activities, such as learning, employment, community participation, leisure and recreation, and even gaining a post-secondary education. All these have led to improved quality of life for people with disabilities who manage to access these opportunities. Even though there are greater opportunities today for people with disabilities in comparison to earlier years, they are still vulnerable to environmental factors. Often, the limited gains people with disabilities have made, especially in the education sector, can be lost when disasters occur. Unfortunately, there are increased disasters globally, mostly attributed to climate change (Field et al., 2012; Tanaka, 2005; UNISDR, 2015). Disasters such as droughts (Willett & Sears, 2018), wildfires, floods (Krause & Otenyo, 2005), earthquakes (Muttarak & Pothisiri, 2013), hurricanes, plagues, pandemics, and terrorism (Field et al., 2012) have serious consequences on individuals, communities, and the country, affecting the economic, physical, political, social, and cultural structures of many societies (Hoffmann & Muttarak, 2017; International Monetary Fund [IMF], 2020; Krishna et al., 2018). Disasters can be very devastating (Krishna et al., 2018); therefore, it is critical to prepare individuals and communities for disasters because those who are aware of them tend to cope and recover much better than unprepared individuals and communities (Chan, 2014; Krishna et al., 2018; Tanaka, 2005; UNISDR, 2015). The occurrence of disasters exposes children to all kinds of harm and exploitation, especially those with disabilities (Masten, 2014; Masten & Narayan, 2012; McDermott & Cobham, 2014; Mitchell & Borchard, 2014).

The government has taken measures, mostly legislative, to support the inclusion of individuals with disabilities in Kenya (Kiru, 2019). The right to education is espoused by the Persons with Disabilities Act of Kenya 2003 and the 2010 Constitution of Kenya (Republic of Kenya, 2010). Also, Kenya is party to many international treaties, including the UN Convention on the Rights of People with Disabilities (CRPD), ratified in 2008, and the 1994 UNESCO Salamanca Statement (Centre for Studies on Inclusive Education, 2020). Global leaders (including the Kenyan President) adopted the UN 17 SDGs 2030 on September 25, 2015 to end poverty among other intentions (B1G1 Business for Good, n.d.). Besides, Kenya has implemented policies to support inclusion. In 2016, Kenya adopted the Eurocode for its construction industry (Kimani

& Musungu, 2010). The Eurocode is intended to harmonize practices within structural, civil engineering, and building works and to address the needs of people with disabilities. The Eurocode on *Safety and accessibility* states, in part that "construction works must be designed and built taking into consideration accessibility and use for disabled persons" (EUR-Lex, 2011, p. L 88/34). Still, increased awareness of disability rights has not matched practice as big gaps persist between the laws and implementation. Kenyans with disabilities are failed at many levels, especially by government agencies; for example, the Kenya Bureau of Standards fails to enforce codes to ensure development of accessible environments, including schools (Republic of Kenya, 2009).

The responsibility of the Kenyan government to protect and advance the rights of citizens with disabilities have been instrumental in provision of SNE, which have contributed to their increased school enrollment. Still, millions of children and youth with disabilities do not access or receive a quality education to be prepared for college and for a career. Unfortunately, there is little effort to address educational issues such as school closure due to COVID-19 pandemic owing to inadequate disability data and poor planning. Whereas education is part of disaster management and recovery process (UNISDR, 2015), there is dearth of information on disaster impacts, preparedness, and risk reduction and recovery on learners with disabilities. Given that most Kenyans with disabilities live in poverty due to a lack of formal education and are vulnerable to disasters (UNISDR, 2015), this study takes a closer look at the impact of school closure on the few learners with disabilities to postulate their post-COVID-19 education and, therefore, support their recovery process.

Accessing and using archival materials

This research used disability studies framework (Danforth, 2014), which postulates that people with disabilities are economically, socially, culturally, linguistically, and politically marginalized by societally established hegemonic tools (e.g., inaccessible education, negative attitudes, culture of deficit, and inaccessible infrastructure) rather than their disability to sustain nondisabled people's dominance. Considering that multiple factors impact Kenya at individual and systemic levels, this study also used a situational analysis framework to examine the schooling of children with disabilities during COVID-19 pandemic. Situational analysis suggests that research of a phenomenon impacting individuals and organizations and authentic solution to the problems, can be achieved when the researcher focuses on the ecological happenings (Annan, 2005).

Publicly available archival data from various databanks—KICD, KNBS, Kenya MoE, Transparency International, UNESCO, UNICEF, IMF, World Bank, WHO and publicly-available electronic information about Kenya from national media (i.e., *Daily Nation, The Standard*) and international e-media (i.e., *EduMonitor, Reuters*) —was used. In addition, social media platforms (e.g., Facebook, YouTube) and the researcher's personal experiences (Ressa, 2009) were used to assess the Kenyan system of education in times of disaster. Finally, previous studies on the state of Kenya's ICT (e.g., Njenga, 2018; Obiero et al., 2020) were reviewed. These multiple sources helped with triangulation of the data.

Guided by disability studies and using the NVivo software, the data was thematically coded to delineate the spaces learners with disabilities occupy in Kenya as the government fights the spread of the virus through multiple measures, including closing of schools. The keywords used

to retrieve information while coding included COVID-19, coronavirus, disability, special needs, education, government, and funding. These words helped to delineate relevant factors that impacted education of school-aged children with disabilities.

Barriers to education of learners with disabilities during COVID-19 pandemic

Two major factors hinder education of children with disabilities in Kenya as the country deals with the COVID-19 pandemic: limited digital infrastructure and shortage of technically-trained teachers.

Inaccessible digital infrastructure

Following the outbreak of COVID-19, the Kenyan government instituted preventive measures that included restrictions of movement of people within and outside the country, use of cashless transactions, prohibited the assembly of more than ten people, and required maintaining a distance of two meters apart and burial of the deceased within 24 hours. Essential institutions were required to provide soap, water, and hand sanitizers for users and to clean and disinfect their premises. The most necessary measure, but devastating on the lives of learners, was the closure of learning institutions on March 16, 2020. Following this decision, the central government issued a directive to county governments to designate 20 residential schools in each county as isolation health facilities—hospitals, testing centers, and quarantine centers (Waita & Njehia, 2020).

Closure of schools greatly limited the opportunities of learners with disabilities to receive proper education needed to bridge the gap between them and their nondisabled peers. Faced with the reality that school closure would lead to mass repeating of classes and the possibility of causing academic failures and school dropouts, the government-initiated distance learning in early April 2020 to mitigate against negative effects (KTN, 2020a, 2020b). This involved investing in digital infrastructure using part of the USD 739 million loan from the IMF (IMF, 2020). Local companies (e.g., Safaricom, Longhorn Publishers, Eneza Education, Viusasa) and international companies (e.g., Google) boosted internet coverage, particularly in remote rural parts of Kenya, where the majority of citizens and children live, by flying balloon transmitters that allow residents to access 4G internet capable of streaming video on YouTube and placing and receiving uninterrupted calls (Etherington, 2020; Reuters, 2020a; World Bank, n.d.). Improved digital and energy infrastructures allowed various individuals and agencies, local and international, to provide various lessons in different subjects (e.g., English, Kiswahili, drug abuse, geography) via media—television, radio, and online (e.g., YouTube). The Kenya Institute of Curriculum Development (KICD) started broadcasting lessons via radio, television, and the Kenya Education Cloud on weekdays targeting primary and secondary school students (BBC, 2020). Also, individuals and organizations, both local and international (e.g., *EduMonitor*), provided online learning opportunities via social media (e.g., YouTube, Facebook, WhatsApp) free of charge. Despite these initiatives to develop digital infrastructure and promote e-learning, the adoption of digital learning remains wanting in all levels of schooling (BBC, 2020; Reuters, 2020b), mostly because the digital infrastructure is inefficient and inaccessible to most families. While many Kenyan students have limited or no infrastructure (e.g., internet, electricity) and tools (e.g., computers) to participate in online learning (KTN, 2020a, 2020b, 2020f), the most affected are citizens with disabilities because they come from poverty-stricken households (*Daily Nation*, 2020a).

The less developed e-learning infrastructure is denying learners with disabilities education, predisposing them to health issues and pushing them further into oblivion in an education system that has long considered their schooling and community participation low priority. Children with disabilities are still left out of the schooling process (BBC, 2020; Njung'e, 2020) because they lack computers, internet, and electricity besides unconducive home environment. Some families live in grass-thatched houses in the rural areas, or one-bedroom houses, or shacks in informal settlements in cities without these utilities (Daily Nation, 2013; Mureithi, 2020). Most e-learning happened in the public cybercafes, many inaccessible to learners with disabilities. Cybercafes are situated in trading centers far away from villages or homes and so learners need transportation and user fee that many families struggle to get (KTN, 2020a, 2020b, 2020f). Others are located on upper floors of buildings without elevators and ramps or in congested and noisy settings and, therefore, unsuitable for learners who are sensitive to certain stimulants (e.g., noise for children with autism), or those with mobility issues. Also, most computers are outdated and lack many requisite features, such as Microsoft Word, spell checkers, dictation applications, or webcam. Similarly, many cybercafes are operated by individuals with little experience in disability pedagogy. Cybercafes are unregulated and do not adhere to accessibility codes, primarily because the general public is not familiar with the regulations. Access to education is likely to worsen peri- and post-COVID-19 pandemic considering the social, economic, political, and infrastructural challenges students with disabilities already face (Daily Nation, 2013; Mureithi, 2020) and lack of reliable population data for planning.

Schools may remain shut for the rest of the 2020 academic year (*Daily Nation*, 2020b) following COVID-19 transmission trend (UNESCO, 2020). The government's response to a call for it to provide direction on when schools will reopen remains ambivalent. The government's ambivalent decision on July 6, 2020 to postpone schools until 2021 and subsequent communique to open schools in September 2020 or late 2020 after it has trained teachers in a Community Learning Program caused confusion for teachers and families (BBC, 2020; KTN, 2020c, 2020d, 2020e, 2020f). As reported by Oduor et al. (2020), the President rescinded the decision of the Education Response Committee and Ministry of Education to reopen schools in September 2020 on the account of children's safety. Also, many schools had not met the COVID-19 protocols of providing sinks and additional classes to help enforce social distancing. Besides, the government had neither disbursed USD 120 million capitation funds for running schools since March 2020, nor released to the public the structure of how the money would be used. Some schools are in a bad state after months of neglect—leaking roofs, broken doors and windows. Others have been vandalized during the lockdown or occupied by herders, therefore, they need refurbishment before classes can start.

Moreover, schools designated as health facilities are hazardous and unavailable for schooling (Waita & Njehia, 2020). Even if schools were to be reopened, they would need thorough decontamination before the students' return (KTN, 2020d). Additionally, COVID-19 is communally transmitted and schools are considered high-risk settings because of congregation of learners from different places. Although the government is cautiously easing restrictions on movement introduced in March 2020, public transportation remains restricted between counties known to have high COVID-19 cases. At the same time, the small number of passengers on

matatus and buses due to the rules of physical and social distancing make traveling expensive, difficult, and unaffordable to most families with children with disabilities, and the risks involved make it unappealing to passengers and proprietors of public service vehicles. These factors mean that about 18 million learners are kept at home. Unfortunately, children with disabilities are confined at home without learning opportunities, services, and resources (Wanzala, 2016). Because their families are poor and the educators are traumatized, the teachers have limited access to personal protective equipment (PPE), teaching resources and are unable to provide services to their learners efficiently. This challenge adds to children with disabilities' desperation, frustration, and abuses, which has overburdened families trying to eke out a living in a shrinking economy (KTN, 2020c, 2020d, 2020e, 2020f; Njung'e, 2020).

School closure caused logistical problems (Daily Nation, 2020b). The disruption of the 2020 academic calendar means that students in all learning institutions will have to repeat classes the following year. Already, the national summative examinations—Kenya Certificate of Primary Education (KCPE) and Kenya Certificate of Secondary Education (KCSE)—that were to begin in October 2020 have been postponed until 2021. Stakeholders welcomed this decision, considering the limited time for teachers and learners to cover the curriculum in the remainder of the 2020 academic year. Although the Kenya National Examinations Council (KNEC) manages the national examination, tests are printed in the United Kingdom (Oduor, 2020), which is equally affected by COVID-19 measures, including lockdown. Having students take the KCPE and KCSE in 2021 means there will be 1.2 million students in standard eight and 752,000 in form-1 in 2022 (Wanzala, 2020). These figures are creating a planning problem with the administration of the national examination and placement of students in form 1, as more than 438,000 spaces will be needed. The backlog is also worrying families and students as to whether they will have access to schools (KTN, 2020c, 2020d, 2020e, 2020f). Even learning in tertiary institutions is negatively impacted by the pandemic, since a few programs opened in September 2020 (Nyerere, 2020). Additionally, only those institutions that met the strict Ministry of Health safety guidelines were allowed to open.

Technically-trained teacher shortages

Data from the Teachers Service Commission (TSC), a government agency responsible for hiring of teachers, already shows an oversupply of unemployed teachers (TSC, n.d.). According to the TSC, a total of 317,010 teachers are employed by the government—216,517 in primary schools and 100,493 in secondary schools while over 400,000 are unemployed (TSC, n.d.; Wanzala, 2019). Most teachers do not have any computer skills since they have had limited exposure to online pedagogical practices and no capability to effectively provide distance learning. Moreover, most unemployed teachers have Primary Teacher Education (P1) status. What happens to them in the future is unclear, considering the government has introduced a new teacher curriculum to match the 2-6-3-3-3 structure introduced in 2017. In early 2020, the government ended the P1 and Early Childhood Development Education (ECDE) courses, and suspended teacher training for a year, while the Ministry of Education develops a new curriculum for the new diploma courses, tailored to meet the 2-6-3-3-3 education, which replaces the current 8-4-4 education system (Wanzala, 2020). The plan was to enable teacher training colleges (TTCs) to admit the first cohort of students seeking a diploma in education in 2021 and by which time the KICD will have developed the curriculum. The training will take three years to earn a diploma instead of the two-year certificate

course. The extended duration will allow teacher candidates to master the theory and work as interns before deployment to the schools. The plan was designed to cushion the current teacher shortages in primary schools across the country, but due to the effects of the COVID-19 pandemic, the 2020 locust invasion, and the flooding (Muhumuza, 2020), beginning the curriculum and training in September 2020 or early next year is not guaranteed. Moreover, of the 27 public TTCs in Kenya, only three offer diploma training—Kagumo, Lugari, and Kibabii (Wanzala, 2020). It is unclear how the remaining 24 colleges will either be resourced to support new training or how long it will take the government to absorb the newly-trained teachers.

The closure of schools to contain the spread of COVID-19 reduced the capacities of stakeholders—parents, teachers, administrators, and suppliers of school resources— in providing support for students with disabilities (KTN, 2020c, 2020d, 2020e). The spread of coronavirus has not only caused fear among students, families, and teachers, but also perpetuated COVID-19-related stigma, aggressions, and violence against the disability community (Waita & Njehia, 2020). Educators and families feel their concerns are not addressed by the government (KTN, 2020c, 2020d, 2020e, 2020f). Although children with disabilities already deal with structural barriers in schools, community deferment of learning is causing further hardship and psychological damage, leaving them behind in all realms of life.

Disaster management and recovery process

This study sought to assess the impact of this pandemic on Basic Education of learners with disabilities and to support disaster preparedness, risk reduction and recovery programs, since education is key to disaster management (UNISDR, 2015). The study reveals that inadequate digital infrastructure and shortage of technically-trained teachers makes implementation of distance learning difficult and inaccessible to learners with disabilities, despite increased government investment in education and energy infrastructure (Moner-Girona et al., 2019), and the new digital infrastructure (KTN, 2020a, 2020b). While factors related to geography, infrastructure (e.g., roads), technology (e.g., computers), and utilities (e.g., internet, power, water, and transportation) have hindered efficient distance learning (KTN, 2020a, 2020b), the underlying problem that makes realization of digital learning difficult is the shortage of technically-trained teachers. A combination of these issues are predisposing children and youth with disabilities to academic failure, exacerbating the education divide between learners in the period of the COVID-19 pandemic, and condemning those with disabilities to a failed adult life.

Addressing inadequate digital infrastructure

To achieve the SDG 4 on Quality Education, countries ought to invest in education programs as a means of ending poverty (B1G1 Business for Good, n.d.; UNESCO, 2020). Already, Kenya has committed to supporting the educational needs of children and youth with disabilities (Kiru, 2019; Oketch & Rolleston, 2007). This initiative has contributed to the implementation of free Basic Education (Mulinya & Orodho, 2015; Ngugi et al., 2015; Ohba & Malenya, 2020). Still, learners with disabilities are left behind by inaccessible education systems and insufficient infrastructure that existed even before the outbreak of COVID-19. School enrollment of learners with disabilities lags behind that of students without disabilities due to limited government investment in SNE (MoEST & VSO, 2014). Although there are more children with disabilities attending school than two decades ago, this gain might be eroded by the consequences of this pandemic. Already,

Kenyan children with disabilities are profoundly impacted by the COVID-19 pandemic, and the situation is becoming dire as school closures continue to disrupt their education. Some children with disabilities may experience long-term or permanent effects if recovery programs sideline them. As previously reported, disasters predispose children to crime, drug abuse, unwanted teenage pregnancies, academic failures, school dropouts, injuries, trauma, poverty, and even death (UNESCO Institute for Statistics, 2019; UNISDR, 2015; Winters et al., 2017). These factors would negatively affect transitions at all levels of schooling (e.g., home-to-nursery, primary-to-secondary schools, technical/trade schools or colleges to universities) and post-school outcomes, such as employment, pursuance of post-secondary education, and community participation. Furthermore, learning disruptions and negative consequences, for example, academic failures, are likely to aggravate conflict at home, deteriorate school–home partnerships, disrupt collaborations between teachers and other professionals, aggravate economic hardships and encourage corruption, and exacerbate biases against people with disabilities, which would eventually contribute to their lower quality of life (Danforth, 2014; Transparency International, 2020).

The realization of post-school outcomes depends on improved enrollment and graduation rates at primary and secondary schools, and transitioning to higher education. This is dependent on improving inclusion of learners with disabilities, which is determined by accessible infrastructure, digital learning, increased government funding of education and disability programs, increased purposeful research, disability advocacy, increased awareness of disability rights, and implementation of disability legislation (Chiwandire & Vincent, 2019). Unfortunately, the outbreak of COVID-19, has coincided with reduced government funding of learning institutions, making education unaffordable to children with disabilities, especially those from low-income families (Ohba & Malenya, 2020; Oluremi & Olubukola, 2013). Individuals with disabilities and without any formal education, have limited opportunities in the digital economy era. Thus, access to digital learning is critical for learners with disabilities, especially with the COVID-19 pandemic. However, this digital infrastructure remains inefficient and inaccessible to many households (Mutisya & Makokha, 2016; Wambaria, 2019) and, therefore, affects education of learners with disabilities, not to mention the shortage of teachers remains a barrier to implementation of SNE.

Addressing the shortage of technically-trained teachers

Education quality is compromised by the inconsistent policies and practices that affect teachers. The rising population of learners, growing number of schools, and more diverse classes require the employment of highly qualified teachers (HQTs) to meet these needs. Training HQTs is key to addressing current teacher shortages and to respond to the increasing learner population. Kenya has seen increased enrollment of learners since the government introduced the free Basic Education (Kiru, 2019; Ngugi et al., 2015; Ohba & Malenya, 2020). Still, gaps in schooling and quality education persist in many under-resourced schools. Educational quality and access remain a challenge for children with disabilities who are often forgotten in the education planning process.

COVID-19 pandemic has revealed mismanagement of the teaching force in and out of the school structure. There are over 750,000 trained teachers and more than 30,000 enrolled in teacher preparation programs in various public and private TTC and universities (TSC, n.d.)—enough to significantly lower the teacher–pupil ratio. Therefore, it is ironic that a teacher shortage persists

when the labor market is saturated with unemployed teachers. According to 2019 Kenya population census data, the average teacher–student ratio in primary and secondary schools is 1:40, which is quite high in comparison to previous years (KNBS, 2019). The pupil–teacher ratios by total (based on headcount) in 2014, 2015, and 2016 were 26.30%, 29.55%, and 28.87%, respectively (UNESCO, n.d. -c). The percentage of qualified teachers was 82.32% in 2014 (UNESCO, n.d. -c). While many general education teachers support inclusive education and the placement of children with disabilities into community schools, previous studies show that few are pedagogically prepared to teach them, more so in under-sourced schools (Chikati et al., 2019; Gathumbi et al., 2015). Moreover, most teachers are not computer literate or pedagogically prepared to teach children with disabilities online or remotely. The effect of COVID-19 on schooling has exacerbated the problems with teaching, and most likely the percentage of qualified teachers in primary and secondary schools is lower, considering that many cannot conduct distance learning.

As it frequently happens, when infectious diseases hit a region (Chan, 2014; Heymann et al., 2015), it induces fear in people's lives. COVID-19 has certainly heightened fear in many Kenyans' lives, especially in schools with inadequate PPEs, and plans to protect teachers over the age of 58 from in-person teaching (if coronavirus persists) (MoE, 2020), exacerbates teacher shortages. This challenge is happening just now when more teachers are required to implement a split classroom schedule to facilitate physical and social distancing requirements. Because of increased enrollment of students in subsequent years, all learners will remain in the classes they were in pre-COVID-19. It is anticipated, therefore, that more students who repeat classes (e.g., a new batch for class 1 in 2021) will create further congestion that will require more teachers and resources. Besides, more teachers will be mandated to teach required subjects (i.e., mathematics, English, Kiswahili, biology, chemistry, physics, geography, history and government, and physical education) and optional subjects (e.g., business studies, agriculture, home science, Arabic, French, German, music, art and design, and computer studies). Initially, the MoE planned to offer online classes to current students, but have Class 8 and Form 4 candidates repeat classes in 2021. This would have led to a double intake in Form 1 in 2022, requiring more resources such as new classrooms and more teachers to teach more than 11 subjects (KICD, 2019).

The teacher shortage can further be attributed to mismanagement of the education sector by both local and global partners. Current teacher shortages can be traced to the teacher employment freeze initiated in the 1990s by the Structural Adjustment Programs sponsored by the World Bank and IMF (Barnes & Sheldon, 2010). It is also associated to teacher preparation curricula that did not mandate digital learning. While training HQTs is important for successful learning, the Kenyan government has dealt with education reactively rather than proactively. Seldom does the government develop transitional mechanisms or engage the public in the planning, development, and implementation of new education measures, even though education systems need smooth transitions to avoid hiccups that hurt children and the broader society. The top-down approach is seen as necessary due to the adversarial nature of governance and administration caused by the competing interests of individuals and communities that make implementation of worthy programs difficult. Nonetheless, solicitation of public opinion in education matters is vital in ensuring that the curricula addresses societal matters. Currently the

KICD is working on teacher preparation curriculum with the input of "experts" only. Unfortunately, mistakes, such as teaching for the test experienced in the 8-4-4 system, are likely to be repeated now that KICD is preparing the teacher curriculum without public input. As COVID-19 has shown, it is important for teacher preparation programs to factor in digital learning skills and for the government to involve families in decision making.

Paradoxically, the teaching sector suffers from both surplus and shortage of teachers. TSC already shows an oversupply of teachers. Unfortunately, there are 309,000 unemployed trained teachers, including those teaching in public and private schools across the country, but employed by the schools' board of governors, working in informal sectors (e.g., hawking or running small farming businesses), and those seeking jobs (KNBS, 2019). Nonetheless, these challenges can be attributed to the frequent changes in the education system that implicitly keeps invalidating certificates of graduates making it hard for them to qualify for training and be hired. For instance, with the introduction of the new Basic Education Curriculum, only teachers with diploma will teach at primary school level. To qualify for diploma certificate training, a candidate must have a minimum aggregate KCSE grade C with similar score in the possible teaching subjects (TSC, n.d.). This abrupt change means that students interested in becoming teachers, but with a lower grade will not attend diploma colleges. Unfortunately, changes in education systems, though aimed at improving the quality of education, might adversely affect quality at all levels of learning when done too frequently and without consideration of unforeseen variables, such as pandemics. The public TTCs are scheduled to open in September 2020 or early in 2021; there should be a path for P1 certificate holders to transition to diploma, and their training should emphasize whole-child and inclusive education (Ohba & Malenya, 2020). This would ensure that teachers are prepared for all children, including those with disabilities, in a classroom that is a microcosm of the community. Even though previous data show the percentage of qualified teachers by total to be high (e.g., 82.32% in 2014; UNESCO, n.d. -c), current school closures and the shortage of teachers competent in distance learning point to a serious shortcoming in the teacher training curriculum.

In 2008, the Kenyan government launched Vision 2030 to spur economic growth and development to eradicate poverty (Kenya National Bureau of Statistics, n.d.; Mulinya & Orodho, 2015). To achieve Vision 2030's goal, the government committed to modernizing TTCs in readiness for training teachers with a diploma for primary education who will implement the new 2017 curriculum. Currently, of the 27 public TTCs, only three offer diploma training (i.e., Kagumo, Kibabii, and Lugari). Since 309,000 unemployed trained teachers include primary 1 (P1) status teachers (TSC, n.d.), what will happen with them is unknown. The hurried change in the teacher training program never factored in the COVID-19 pandemic, the qualifications of the teacher trainers, or what the graduates of these colleges with P1 certificate status will do. It is important to have clear plans and resource allocation to facilitate the modernization of the other 24 colleges to support teacher training. Also needed is a clearly-defined government projection on when the newly-trained teachers can expect to be absorbed into employment. Unfortunately, most employed and unemployed teachers are ill-prepared pedagogically to conduct distance learning, which is necessary to offer education to millions of learners idling at home. Moreover, it is crucial that the curriculum being developed by KICD (2016) consider the variables that may affect the training of HQTs capable of working with all learners, including those with disabilities, in order to avoid a surplus of teachers unable to function in the 21st century structure. It is important that the curricula prepare teachers to be competent in online and remote teaching. They must develop

competency in operating computers and using various (digital) tools to carry out research soundly and use online materials appropriately to enrich learners' experiences (Crockett et al., 2019; Ludlow, 2001).

Investing in disaster preparedness and risk management and recovery education

With the COVID-19 ravaging across Kenya and the eagerness of the government to contain it before it overwhelms the inadequate healthcare system, the question of when schools will reopen for learning remains indeterminate. This is causing unquantifiable academic, health, economic, and social impacts on children with disabilities and their families. Pandemics disrupt normal life, cause suffering and death, and break down the social order, which may contribute to economic recession (Chan, 2014; Heymann et al., 2015; UNISDR, 2015). According to the Global Education Monitoring Report Team, "There is a USD 148 billion annual financing gap in low- and lower-middle-income countries to achieve SDG 4 from now until 2030" (UNESCO, 2020, p. 1). Negative impact on the economy due to COVID-19 pandemic means limited resources and services for children with disabilities. For instance, two decades of underfunding of the Education Assessment Resource Centers, which are tasked with identification of students and placing them in appropriate programs, is likely to be extended. This will decrease disability services and increase students with disabilities' chances of academic failure and failed adult life. Uniqueness of COVID-19 and disruption of life has caused panic and negative attitude towards people with disabilities who are suspected to be vectors and forced to carry the stigma of the disease. Considering that over 90% of children with disabilities were not in school pre-COVID-19 (MoE, 2009; MoEST & VSO, 2014), some children may not resume school at all when this pandemic is over, causing harm that will reverberate for decades factoring that they will be unprepared for postsecondary education and career. Already, Kenya missed the 2015 UN SDGs and is unlikely to achieve SDG 4 of 2030 unless drastic measures are taken to provide education to all children (UNESCO, 2020).

Taming effects of COVID-19 and supporting recovery process require resources—human and material. In the event of disasters like this pandemic, various stakeholders must be involved in the management, prevention, cure, and recovery process (Hoffmann & Muttarak, 2017). Both individual and collective efforts are instrumental in the management of immediate and long-term effects, including rapid deployment of teams to provide resources and services and accurate information to reduce the spread of rumors that may aggravate insecurity (Chan, 2014; Heymann et al., 2015). Since learners with disabilities and their families and educators are often left out by the government, addressing their concerns rather than forcing them back to class can assuage societal fears. School community should be reassured about the government's support in the implementation of COVID-19 preventive guidelines before schools reopen in 2021.

Achievement of Vision 2030 now depends on how the government manages the COVID-19 pandemic. Investment in digital infrastructure should go hand in hand with training teachers on the use of digital learning tools so they can contribute to addressing education and pandemic problems (Wambaria, 2019). With USD 739 million from the IMF (IMF, 2020), the government has instituted pandemic mitigating measures to address the impact of school closure by investing in digital infrastructure and utilities and health among other realms. Therefore, the appropriate use of this money to address the needs of all citizens, including those with disabilities who are often

left behind by such programs, is crucial. One area to factor in is education, and this demands that the real problem affecting learners with disabilities and the teaching force be appropriately examined and effective measures taken. For now, there is the problem of the shortage of HQTs, while the labor market is saturated with trained teachers. A plethora of unemployed teachers with little experience in distance learning may not be beneficial to the education system now and, therefore, may not be on hand to participate in the empowerment of learners with disabilities. For this reason, there is need to retrain educators in online pedagogical practices and then ensure that they are absorbed into the teaching force. This shortfall has made access to services and online education difficult. Since most teachers are pedagogically ill-prepared to provide distance learning to students with disabilities, teacher education curricula should be structured to address these oversights.

Disasters tend to have greater negative impacts on individuals in low-income countries and those with a limited disposable income because they have insufficient resources to cope with the circumstances (Hoffmann & Muttarak, 2017). The most affected persons tend to be those with disabilities, yet they are never on the radar of program developers, response teams, or rescuers. Kenyan children and youth with disabilities have educationally been left behind before, during, and likely post- COVID-19 pandemic. Now that low income countries are projected to experience huge financial gaps (UNESCO, 2020), COVID-19 would likely be used by the government and communities to deny those with disabilities an education. However, it is essential to recognize that education is part of the recovery process (UNISDR, 2015). Therefore, the government and response teams must invest in people with disabilities to support a collective recovery process.

CONCLUSION

Natural disasters are known to create humanitarian crises in Kenya for people with disabilities, compounding existing problems due to failed social, cultural, linguistic, economic, and political structures. Learners with disabilities are adversely affected by the COVID-19 pandemic that has magnified educational barriers as a result of disability biases and fears, issues of inaccessible infrastructure, poverty, and teacher shortages. Addressing the educational needs of learners with disabilities is vital to mitigating the effects of COVID-19 and engaging them in the recovery process critical for Kenya's achievement of Vision 2030 plan that aims to turn Kenya into a high-income country through poverty eradication. Although recovery programs require the involvement of all stakeholders in education, children with disabilities are often left out of the recovery process, especially with the current teacher shortages and inadequate digital infrastructure. This shortage has made it impossible for children with disabilities to access digital learning since many teachers are computer illiterate; however, this technical problem requires technical solutions. Over 300,000 employed and unemployed teachers, when well-trained and deployed, can lower the teacher–pupil ratio and empower them to teach both in-person and online. Therefore, there is a need for simultaneous training of teachers for in-person as well as distance teaching and learning in conjunction with investment in digital infrastructure.

The EFA initiatives are threatened by Kenya's closure of schools to control the spread of the coronavirus pandemic. Thus, education sector reforms demand a big-picture approach and constructive engagement with different stakeholders, majorly students with disabilities and their

families, if it is to succeed and positively impact society. It is counterproductive to ambush citizens with programs whose success depends on the input of every member of the society. Instead, government programs need to be planned to seamlessly fit and garner nationwide support, especially of key players—parents, students, tax payers, and donors. Addressing biases and infrastructural barriers is key to empowering learners with disabilities. Logistical problems emanating from COVID-19 and school closures require the government to invest in the digital infrastructure and training of HQTs competent in distance teaching.

Limitation and future research

This study focused on the impact of limited digital infrastructure and the shortage of technically-trained teachers in the era of the COVID-19 pandemic on the schooling of children with disabilities. Critical was how preventive measures, including school closures, have impacted the education of children with disabilities. Future studies should examine the unemployment rate of special education and general education teachers and their competency in digital instruction to create genuine data that can inform policy formulation about teachers. In 2020, Kenya dealt with disasters—floods, droughts, and the locust invasion (Muhumuza, 2020)—besides civil disobedience, corruption, mismanagement of resources, uncertainties related to the economic situation, and biased cultural practices against children with disabilities and girls. Therefore, future studies should look at the impact of these factors to determine their influence on the schooling of children with disabilities in different regions and grade levels. Also, future studies might compare children with disabilities in special schools versus those in general classrooms. Finally, future studies should consider the relationship between children with disabilities in special schools and those in general classrooms relative to their special education and general education teachers. Despite its limitations, this study identifies investment in digital infrastructure and training of HQTs as paramount to addressing the effects of COVID-19 and the low school enrollment of children with disabilities.

References

African Union of the Blind (AFUB) (2007). State of disabled peoples rights in Kenya. Retrieved from https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/african-union-of-the-blind-Kenya-Report-2007-FINAL.pdf

Annan, J. (2005). Situational Analysis: A framework for evidence-based practice. *School Psychology International*, *26*(2), 131–146. https://doi.org/10.1177/0143034305052909

Barnes, C., & Sheldon, A. (2010). Disability, politics and poverty in a majority world context. Disability & Society, 25(7), 771–782. https://doi.org/10.1080/09687599.2010.520889

BBC. (2020, July 7). Coronavirus: Kenyan schools to remain closed until 2021. Retrieved from https://www.bbc.com/news/world-africa-53325741

B1G1 Business for Good. (n.d.). SDG4: Quality education. Retrieved from https://www.b1g1.com/businessforgood/sustainable-development-goals-guide?gclid=EAIaIQobChMI88rPpIGC7AIVFz2tBh1N5wr-EAAYASAAEgIHQPD_BwE#Quality-Education

Centre for Studies on Inclusive Education. (2020). The UNESCO Salamanca statement. Retrieved from http://www.csie.org.uk/inclusion/unesco-salamanca.shtml

Chan, M. (2014). Ebola virus disease in West Africa—no early end to the outbreak. *New England Journal of Medicine, 371*(13), 1183–1185. https://doi.org/10.1056/NEJMp1409859

Chikati, D. K., Wachira, L. N., & Mwinzi, J. M. (2019). The development of teacher education for teachers of the visually impaired learners in Kenya: A Historical perspective. *Journal of Education and Practice, 10*(32), 111–114.

Chiwandire, D., & Vincent, L. (2019). Funding and inclusion in higher education institutions for students with disabilities. *African Journal of Disability, 8, a336.* https://doi.org/10.4102/ajod.v8i0.336

Crockett, J., Griffith, L., Evans, G., Baad, A., Hardin, S., Segovia, K., & Booth, P. & AT Guidelines Task Force. (2019, July 30). Assistive technology (AT) handbook for education professionals: Guidance for addressing compliance consideration and provision of assistive technology (AT) devices and services in Michigan. Retrieved from https://www.natenetwork.org/wp-content/uploads/ATHandbook_Accessible-Version_7_30_19_final.pdf

Daily Nation. (2013, July 24). Sh21bn bank loan to offer safety net in poverty war. Retrieved from https://nation.africa/kenya/news/sh21bn-bank-loan-to-offer-safety-net-in-poverty-war-878122

Daily Nation. (2020a, April 21). *Online learning yet to pick up in the remote areas of Marsabit - County Commissioner Achoki* [Video]. YouTube. https://www.youtube.com/watch?v=IpBWw8DTGfs&feature=emb_title

Daily Nation. (2020b, July 7). *Schools to reopen in 2021: Magoha* [Video]. YouTube. https://www.youtube.com/watch?v=x8crXoPsknA

Danforth, S. (2014). *Becoming a great inclusive educator.* New York, NY: Peter Lang.

EUR-Lex (2011, March 9). Regulation (EU) No 305/2011 of the European Parliament and of the Council. laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC. *Official Journal of the European Union*. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0305&from=EN

Etherington, D. (2020, July 7). Alphabet's Loon launches its balloon-powered Kenyan internet service. *TechCrunch*. https://techcrunch.com/2020/07/07/alphabets-loon-launches-its-balloon-powered-kenyan-internet-service/

Field, C. B., Barros, V., Stocker, T., Dahe, Q., Dokken, D. J., Ebi, K. L., & Mastrandrea, M. D. (2012). *Managing the risks of extreme events and disasters to advance climate change adaptation*. Cambridge University Press.

Gathumbi, A., Ayot, H., Kimemia, J., & Ondigi, S. (2015). Teachers' and school administrators' preparedness in handling students with special needs in inclusive education in Kenya. *Journal of Education and Practice, 6*(24), 129–138.

Heymann, D. L., Chen, L., Takemi, K., Fidler, D. P., Tappero, J. W., Thomas, M. J., ... & Kalache, A. (2015). Global health security: the wider lessons from the west African Ebola virus disease epidemic. *The Lancet, 385*(9980), 1884–1901. https://doi.org/10.1016/S0140-6736(15)60858-3

Hoffmann, R., & Muttarak, R. (2017). Learn from the past, prepare for the future: Impacts of education and experience on disaster preparedness in the Philippines and Thailand. *World Development, 96*, 32–51. https://doi.org/10.1016/j.worlddev.2017.02.016

International Monetary Fund (IMF). (2020, May 6). IMF executive board approves a US$739 million disbursement to Kenya to address the impact of the COVID-19 pandemic. https://www.imf.org/en/News/Articles/2020/05/06/pr20208-kenya-imf-executive-board-approves-us-million-disbursement-address-impact-covid-19-pandemic

Kenya Institute of Curriculum Development (KICD). (2016). Report on needs assessment for primary level school curriculum in Kenya. Retrieved from https://kicd.ac.ke/wp-content/uploads/2018/01/PRIMARY-REPORT.pdf

Kenya Institute of Curriculum Development (KICD). (2019). Basic education curriculum framework. https://kicd.ac.ke/curriculum-reform/basic-education-curriculum-framework/

Kenya National Bureau of Statistics (KNBS). (2019, November 4). 2019 Kenya population and housing census results. Retrieved from https://www.knbs.or.ke/?p=5621

Kenya National Bureau of Statistics (KNBS). (n.d.). Kenya Vision 2030. https://vision2030.go.ke/

Kimani, M., & Musungu, T. (2010). Reforming and Restructuring Planning and Building Laws and Regulations in Kenya for Sustainable Urban Development, 46th ISOCARP Congress. Retrieved from http://www.isocarp.net/Data/case_studies/1813.pdf

Kiru, E. W. (2019). Special education in Kenya. *Intervention in School and Clinic*, *54*(3), 181–188. https://doi.org/10.1177/1053451218767919

Krause, V., & Otenyo, E. E. (2005). Terrorism and the Kenyan Public. *Studies in Conflict & Terrorism*, *28*(2), 99-112. https://doi.org/10.1080/10576100590905075

Krishna, R. N., Ronan, K.R., & Alisic, E. (2018). Children in the 2015 South Indian floods: community members' views. *European Journal of Psychotraumatology*, 9(sup2), 1486122. https://doi.org/10.1080/20008198.2018.1486122

KTN. (2020a, March 23). Google loon and Telkom Kenya to ensure all Kenyans receive high-speed Internet amidst coronavirus [Video]. YouTube. https://www.youtube.com/watch?v=qDpPBdt_sIY&feature=emb_logo

KTN. (2020b, Aug 7). Internet penetration: Government to boost internet access in counties, Google loon project on course [Video]. YouTube. https://www.youtube.com/watch?v=uZ-0ZKYJ5Uo&feature=emb_logo

KTN. (2020c, August 14). Teachers to register for the community learning program, magoha says it won't be academic work [Video]. YouTube. https://www.youtube.com/watch?v=doX6_EDJY3Q&feature=emb_logo

KTN. (2020d, August 28). Ready to open schools: Magoha tells parents to be ready as reopening to be determined by COVID-19 [Video]. YouTube. https://www.youtube.com/watch?v=Qc_1QrV_rg0&feature=emb_logo

KTN. (2020e, September 1). CS Magoha under pressure to reopen schools as WHO and UNICEF recommend safe reopening [Video]. YouTube. https://www.youtube.com/watch?v=-k-Z-s1xwTA&feature=emb_logo

KTN. (2020f, September 21). "We are not ready for school re-opening," Parents tell education CS George Magoha [Video]. YouTube. https://www.youtube.com/watch?v=sG7PMZBBTOs&feature=emb_logo

Ludlow, B. L. (2001). Technology and teacher education in special education: Disaster or deliverance? *Teacher Education and Special Education*, *24*(2), 143–163. https://doi.org/10.1177/088840640102400209

Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6–20. https://doi.org/10.1111/cdev.12205

Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual Review of Psychology*, *63*, 227–257. https://doi.org/10.1146/annurev-psych-120710-100356

McDermott, B. M., & Cobham, V. E. (2014). A stepped care model of post-disaster child and adolescent mental health service provision. *European Journal of Psychotraumatology*, 5(1), 24294. https://doi.org/10.3402/ejpt.v5.24294

Ministry of Education (MoE). (2009, July). *The national special needs education policy framework*. Republic of Kenya. Retrieved from http://www.unesco.org/education/edurights/media/docs/446808882707702aafc616d3a2cec918bfc186fc.pdf

Ministry of Education (MoE). (n.d.). 2018 Education enrolment estimates. Retrieved from https://education.go.ke/images/NESSP/ENROLMENT_ESTIMATES.pdf

Ministry of Education (MoE). (2020). Guidelines on health and safety protocols for reopening of basic education institutions amid COVID-19 pandemic. Retrieved from https://education.go.ke/images/COVID-19_GUIDELINES.pdf

Ministry of Education Science and Technology & Volunteer Service Oversees (MoEST & VSO). (2014). *Kenya national special needs education survey report.* Retrieved from https://www.vsointernational.org/sites/default/files/SNE%20Report_Full%20-2.pdf

Mitchell, P., & Borchard, C. (2014). Mainstreaming children's vulnerabilities and capacities into community-based adaptation to enhance impact. *Climate and Development, 6*(4), 372–381. https://doi.org/10.1080/17565529.2014.934775

Moner-Girona, M., Bódis, K., Morrissey, J., Kougias, I., Hankins, M., Huld, T., & Szabó, S. (2019). Decentralized rural electrification in Kenya: Speeding up universal energy access. *Energy for Sustainable Development, 52*, 128–146. https://doi.org/10.1016/j.esd.2019.07.009

Muhumuza, R. (2020, May 21). Locusts, COVID-19, flooding pose 'triple threat' in Africa. *AP News.* https://apnews.com/4d7f07d32115ce62f02c7c090b49f78e

Mulinya, L. C., & Orodho, J. A. (2015). Free primary education policy: Coping strategies in public primary schools in Kakamega South District, Kakamega County, Kenya. *Journal of Education and Practice, 6*(12), 162–172.

Mureithi, F. (2020, June 16). Covid-19: Disabled Nakuru residents seek State support. *Daily Nation*. Retrieved from https://nation.africa/kenya/counties/nakuru/covid-19-disabled-nakuru-residents-seek-state-support--664798

Muttarak, R., & Pothisiri, W. (2013). The role of education on disaster preparedness: Case study of 2012 Indian Ocean earthquakes on Thailand's Andaman coast. *Ecology and Society, 18*(4), 51. http://dx.doi.org/10.5751/ES-06101-180451

Mutisya, D. N., & Makokha, G. L. (2016). Challenges affecting adoption of e-learning in public universities in Kenya. *E-Learning and Digital Media, 13*(3-4), 140–157. https://doi.org/10.1177/2042753016672902

Ngugi, M., Mumiukha, C., Fedha, F., & Ndiga, B. (2015). Universal primary education in Kenya: Advancement and challenges. *Journal of Education and Practice, 6*(14), 87–95.

Njenga, J. K. (2018). Digital literacy: The quest of an inclusive definition. *Reading & Writing, 9*(1), 1–7. https://doi.org/10.4102/rw.v9i1.183

Njung'e, C. (2020, July 20). Learning from home: What parents of children with special needs go through. *Daily Nation.* https://nation.africa/kenya/news/education/-learning-from-home-what-parents-of-children-with-special-needs-go-through-1902400

Nyerere, J. (2020, April 29). Kenya's university students and lecturers face huge challenges moving online. *The Conversation*. https://theconversation.com/kenyas-university-students-and-lecturers-face-huge-challenges-moving-online-136682

Nyeris, R., & Koross, B. T. (2015). Factors influencing the efficacy of free primary education policy in relation to the enrolment of children with special needs education in West Pokot County, Kenya. *Journal of Education and Practice, 6*(7), 64–70.

Obiero, J. O., Kimamo, C., & Assey, A. (2020). Social guidance and counselling support services on the study habits of distance learners: A case of learners in Bachelor of Education programmes by distance learning of University of Nairobi, Kenya. *International Journal of Psychology and Counselling, 12*(1), 1–12. https://doi.org/10.5897/IJPC2019.0581

Oduor, A. (2020, March 24). Pandemic may disrupt KCPE and KCSE exams. *The Standard*. https://www.standardmedia.co.ke/education/article/2001365397/pandemic-may-disrupt-kcpe-and-kcse-exams

Oduor, A., Shilitsa, J., Murithi, O., Mbenywe, M., & Nzuma, V. (2020, September 29). Teachers back to school as re-opening uncertain. *The Standard*. https://www.standardmedia.co.ke/education/article/2001388081/teachers-back-to-school-as-re-opening-uncertain

Ohba, A., & Malenya, F. L. (2020). Addressing inclusive education for learners with disabilities in the integrated education system: the dilemma of public primary schools in Kenya. *Compare: A Journal of Comparative and International Education*, 1–18. https://doi.org/10.1080/03057925.2020.1726727

Oketch, M., & Rolleston, C. (2007). Chapter 5 policies on free primary and secondary education in East Africa: Retrospect and prospect. *Review of Research in Education*, *31*(1), 131–158. https://doi.org/10.3102/0091732X07300046131

Oluremi, F. D., & Olubukola, O. O. (2013). Impact of facilities on academic performance of students with special needs in mainstreamed public schools in Southwestern Nigeria. *Journal of Research in Special Educational Needs*, *13*(2), 159–167. https://doi.org/10.1111/j.1471-3802.2011.01228.x

Owino, E. (May 6, 2020). Status of disability in Kenya: Statistics from the 2019 census. *Development Initiatives (DI)*. https://www.devinit.org/resources/status-disability-kenya-statistics-2019-census/

Republic of Kenya. (2009). Building code of the Republic of Kenya. https://ia801906.us.archive.org/27/items/ke.building.2009/ke.building.2009.pdf

Republic of Kenya. (2010). The Constitution of Kenya. http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010

Ressa, T. (November 20, 2009). "My journey across ridges": An interview with Theodoto Ressa. *Disability Studies Quarterly*, 29, 4. https://doi.org/10.18061/dsq.v29i4.1007

Reuters. (July 9, 2020a). Alphabet's internet balloons launched over Kenya. https://www.yahoo.com/news/alphabets-internet-balloons-launched-over-105143922.html

Reuters. (September 19, 2020b). Millions of African children rely on TV education during pandemic. The Standard. https://www.standardmedia.co.ke/sci-tech/article/2001386982/millions-of-african-children-rely-on-tv-education-during-pandemic

Tanaka, K. (2005). The impact of disaster education on public preparation and mitigation for earthquakes: a cross-country comparison between Fukui, Japan and the San Francisco Bay Area, California, USA. *Applied Geography*, *25*(3), 201–225. https://doi.org/10.1016/j.apgeog.2005.07.001

Teachers Service Commission (TSC). (n.d.). Growth and development. Retrieved from https://www.tsc.go.ke/index.php/about-us/growth-and-development

Transparency International. (2020). Corruption perceptions index 2019. Retrieved from https://www.transparency.org/files/content/pages/2019_CPI_Report_EN.pdf

United Nations Educational, Scientific and Cultural Organization (UNESCO). (1994, June 7-10). The Salamanca statement and framework for action on special needs education. *UNESDOC Digital Library*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000098427

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2009). Towards inclusive education for children with disabilities: A guideline. *UNESDOC Digital Library*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000192480

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2016). Education 2030: Incheon declaration and framework for action for the implementation of Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. *UNESDOC Digital Library*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000245656

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2020). Act now: Reduce the impact of COVID-19 on the cost of achieving SDG 4. *UNESDOC Digital Library*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000374163

United Nations Educational, Scientific and Cultural Organization (UNESCO). (n.d. -a). Education during COVID-19 and beyond: The global education coalition in action. Retrieved from https://events.unesco.org/event?id=1286296203&lang=1033

United Nations Educational, Scientific and Cultural Organization (UNESCO). (n.d -b). Education: From disruption to recovery. Retrieved from https://en.unesco.org/covid19/educationresponse

United Nations Educational, Scientific and Cultural Organization (UNESCO). (n.d. -c). Sustainable Development Goals. Retrieved from http://data.uis.unesco.org

United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics. (2019, September). *New methodology shows that 258 million children, adolescents and youth are out of school*. http://uis.unesco.org/sites/default/files/documents/new-methodology-shows-258-million-children-adolescents-and-youth-are-out-school.pdf

United Nations Office for Disaster Risk Reduction (UNISDR). (2015). Disaster risk reduction and resilience in the 2030 Agenda for sustainable development. Retrieved from https://www.undrr.org/publication/disaster-risk-reduction-and-resilience-2030-agenda-sustainable-development

Waita, E., & Njehia, J. (2020, May 27). Kenya rolls out testing in Nairobi slums, but some fear stigma. *Reuters*. Retrieved from https://www.reuters.com/article/us-health-coronavirus-kenya-testing/kenya-rolls-out-testing-in-nairobi-slums-but-some-fear-stigma-idUSKBN2331HZ

Wambaria, M. W. (2019). Accessible digital textbook for learners with disabilities: Opportunities and challenges. *The Educational Review, USA, 3*(11), 164–174.

Wanzala, O. (2020, July 08). When Covid-19 took school away from Kenyan children. *Daily Nation.* https://nation.africa/kenya/news/education/virus-takes-school-away-from-kenyan-children-1446782

Wanzala, O. (2019, March 01). Shortage of trained teachers crippling learning in schools. Daily Nation. https://nation.africa/kenya/news/shortage-of-trained-teachers-crippling-learning-in-schools-144076

Wanzala, O. (2016, August 28). Concern over thousands of disabled children locked out of school. *Daily Nation*. Retrieved from https://nation.africa/kenya/news/education/concern-over-thousands-of-disabled-children-locked-out-of-school--1232836

Willett, J., & Sears, J. (2018). Complicating our understanding of environmental migration and displacement: The case of drought-related human movement in Kenya. *International Social Work*, 63(3), 364–370. https://doi.org/10.1177/0020872818799431

Winters, N., Langer, L., & Geniets, A. (2017). Physical, psychological, sexual, and systemic abuse of children with disabilities in East Africa: Mapping the evidence. *PloS One, 12*(9), e0184541. https://doi.org/10.1371/journal.pone.0184541

World Bank. (n.d.). Disability Inclusion. Retrieved from https://www.worldbank.org/en/topic/disability

World Conference on Education for All (WCEFA). (1990, March 5-9). World conference on education for all: Meeting basic learning needs. Jomtien, Thailand: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000097551

World Health Organization. (2011). World report on disability. Retrieved from https://www.who.int/disabilities/world_report/2011/en/.

The COVID-19 Pandemic: A Wake-up Call to Address the Burden of Diabetes and Hypertension in Kenya

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Abstract

Emerging data from Kenya and other parts of the world show that diabetes and hypertension are the leading risk factors for COVID-19 hospitalizations and death. Even though efforts are underway to develop a vaccine, a cure for COVID-19 could take years. Understanding the science and proper management of these chronic diseases could thus minimize the death rates suffered from COVID-19. This is important because developing countries like Kenya have limited resources and intensive care unit (ICU) beds for handling large numbers of severely impacted COVID-19 patients. The prevalence of diabetes and hypertension in Kenya has steadily increased over the last three decades standing at approximately 3.7% for diabetes and 5.5% for hypertension. The actual rates are much higher because data for most regions is not available and the real number of Kenyans living with diabetes and hypertension is unknown. Furthermore, a significant proportion of Kenyans with diabetes and hypertension are undiagnosed. For those diagnosed, the cost of care is a major barrier to effective management of diabetes and hypertension in low-income families who cannot afford health insurance. The challenge for diabetes and hypertension care is compounded by a lack of specialized training for physicians and primary healthcare workers. Mitigating the burden of diabetes and hypertension requires a two-pronged multi-sector engagement approach, specialized training in the management of diabetes and hypertension for healthcare workers, and increasing the health literacy of Kenyans at the grass root level. This is urgent because COVID-19 is likely to be here for years to come.

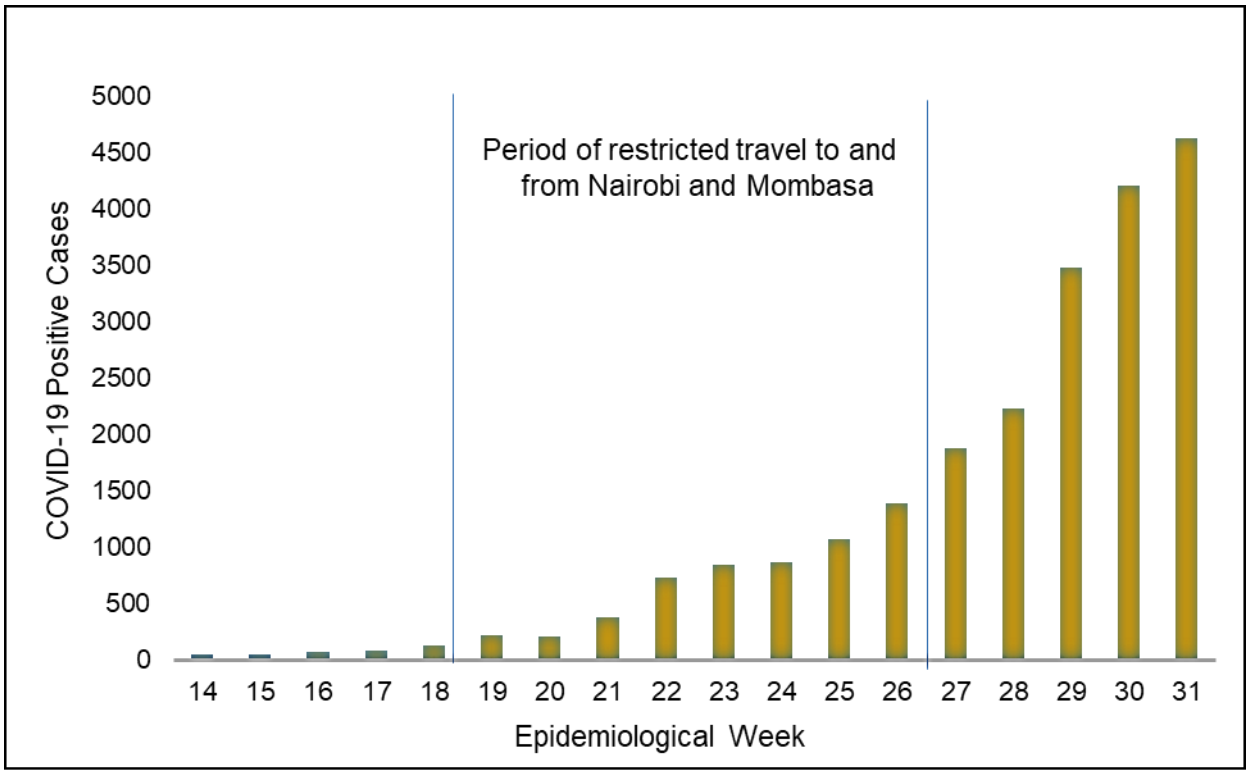
***Keywords*:** COVID-19, Diabetes, hypertension

INTRODUCTION

Severe acute respiratory syndrome coronavirus (SAR-CoV-2) causes coronavirus disease 2019 (COVID-19). First reported in Wuhan, China in December 2019, COVID-19 has become a major world-wide pandemic, infecting over 17.3 million and with over 674,000 deaths as of July 31st, 2020. During the same period, Kenya reported 20,636, with 341 deaths. It is likely that the numbers are much higher. Due to limited testing supplies, asymptomatic people are not routinely tested. Furthermore, social stigma is keeping Kenyans and other Africans with COVID-19 symptoms from being tested (Muhumuza, 2020). The Kenyan statistics through August 3rd 2020 (tracked by the Ministry of Health; https://www.health.go.ke) also reflect the impact of the early shutdown, imposed curfews, and travel restrictions from hotspots like Nairobi and Mombasa. Recent lifting of the travel restrictions is likely to result in increased community spread in small towns and rural

areas, which are often under resourced. The data (Figure 1) suggests that the period of curfew and restricted movements, allowed Kenyans to gain knowledge on the COVID-19 disease transmission and develop strategies for prevention, including: social distancing, use of masks, and washing of hands.

Figure 1: Weekly COVID-19 positive cases in Kenya



Source: Ministry of Health

Furthermore, it allowed time for production and distribution of personal protection equipment (PPEs) such as face masks. For this reason, the country did not experience a dramatic increase in the number of positive cases in the five weeks (weeks 11 to 15) after travel restrictions were imposed. The weekly fold-change in COVID-19 positive cases and death rates remained stable at approximately 1.3-fold and 1.2-fold respectively. A more concerning number, and better indicator of community spread, is the positivity rate that has steadily increased. When mass testing started at week 18, the positivity rate was approximately 2.0%, but increased to 11.9% by week 31, a 9-fold increase in 3 months (Table 1, Figure 2).

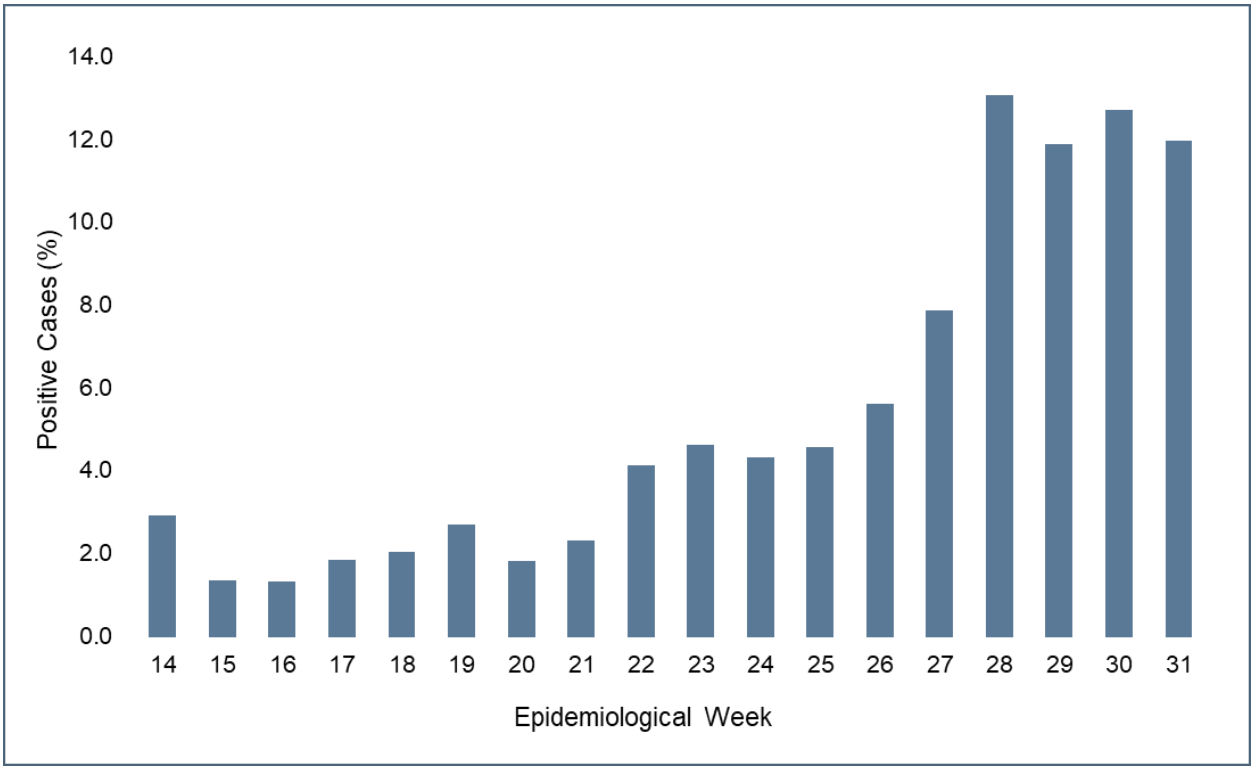
Table 1: Weekly positivity rates between weeks 14 and 31 of COVID-19 tracking. No testing was done in Kenya in weeks 1 through 13 of the COVID19 outbreak.

Week	Total Tests	Negative	Positive	Positivity (%)
14	1,705	1,656	49	2.9
15	3,846	3,796	50	1.3
16	5,749	5,676	73	1.3
17	4,522	4,441	81	1.8

18	6,398	6,271	127	2.0
19	8,146	7,930	216	2.7
20	11,999	11,787	212	1.8
21	16,618	16,243	375	2.3
22	18,083	17,348	735	4.1
23	18,382	17,541	841	4.6
24	20,265	19,400	865	4.3
25	23,665	22,595	1,070	4.5
26	25,051	23,658	1,393	5.6
27	23,977	22,100	1,877	7.8
28	17,101	14,874	2,227	13.0
29	29,413	25,936	3,477	11.8
30	33,251	29,047	4,204	12.6
31	38,764	34,142	4,622	11.9

Source: Ministry of Health

Figure 2: Weekly positivity rates starting from week 14 of tracking, calculated as a percentage of positive cases relative to total number of tests done.



Source: Ministry of Health

More worrisome is the fact that majority of those tested (84.4-96.2%) were asymptomatic (Table 2). With limited testing supplies, the asymptomatic COVID-19 infected are impossible to identify and track, thus they are unknowingly spreading the disease in their communities.

Table 2: Percentage of symptomatic and asymptomatic positive cases starting week 18 of the COVID-19 pandemic.

Week	Positive	Asymptomatic Cases	Asymptomatic (%)	Symptomatic Cases	Symptomatic (%)
18	162	139	85.8	23	14.2
19	180	152	84.4	28	15.6
20	249	218	87.6	31	12.4
21	382	346	90.6	36	9.4
22	746	664	89.0	82	11.0
23	894	845	94.5	49	5.5
24	880	811	92.2	69	7.8
25	1,071	1,011	94.4	60	5.6
26	1,414	1,251	88.5	163	11.5
27	1,884	1,638	86.9	246	13.1
28	2,541	2,316	91.1	225	8.9
29	3,377	3,235	95.8	142	4.2
30	4,413	4,160	94.3	253	5.7
31	4,016	3,862	96.2	154	3.8

Source: Ministry of Health

Currently, there is no cure for COVID-19 and vaccine development is months away from fruition. Access to vaccines will take even longer for developing countries like Kenya. Understanding the pathophysiology of SARS-CoV2 infection and susceptibility risk factors is key to mitigating the severity of COVID-19 and informing the development of drug development. In addition to the health implications, COVID-19 has dealt havoc to the world economy and its consequences will be felt for years to come. While severity of COVID-19 symptoms vary, by all accounts it is a life-threatening infection. Non-communicable disease (NCD) conditions such as diabetes, hypertension, and cancer have emerged as comorbidities for COVID-19 severity. At a daily briefing on July 22nd, Kenya's acting Ministry of Health Director General, Dr. Patrick Amoth, indicated that one in three COVID-19 patients who died (33%) had diabetes or hypertension; with hypertension leading at 17%, diabetes 15%, chronic lung diseases 10%, cancer 10%, and HIV 4%. According to the International Diabetes Federation (IDF) 2020 report, 552,400 Kenyans (2.2% of the population) are diabetic.

A recent study based on the 2015 Kenya STEPS survey of 4,485 participants aged 18-69 years documented a 24.5% prevalence of hypertension (Mohamed et al., 2018). Nearly 58% of diabetic patients have hypertension as a comorbidity (Oyando et al., 2019). Clearly, COVID-19 is a major burden to the most vulnerable.

Strategies for developing COVID-19 drugs

At the beginning of the COVID-19 pandemic, little was known about potential treatment approaches. The race to get a drug for treatment for COVID-19 could thus not be over emphasized and there was a rush to test existing drugs to mitigate the severity of this virus and improve patient

outcomes. There was palpable excitement when preliminary reports indicated that hydroxychloroquine, a drug widely used to treat malaria in the 80's and 90's, was effective in treating COVID-19. This prompted the Federal Drug Administration (FDA) to grant emergency approval for the use of hydroxychloroquine in patients with severe cases of COVID-19. Those hopes were dashed when clinical trials in the UK and the US showed that it was either ineffective and, in some cases, caused arrhythmia in the patients treated, leading to withdrawal of the emergency FDA approval for use of hydroxychloroquine in the US. The declaration of a herbal treatment for COVID-19 by Madagascar generated a new wave of excitement, especially in African communities, and even led to discussion regarding its use by the Madagascar delegation at the United Nations (UN). Many from African countries did not understand why the World Health Organization (WHO) was not promoting the Madagascar herbal medication and even accused the WHO of bias against African inventions. While it is possible the herbal medicine has active ingredients, the truth is that the ingredients had not been extracted and characterized, making it impossible to design clinical trials with quantifiable doses. Furthermore, a herbal medicine could not be scaled up to meet the world demand. Remdesivir, a drug previously developed to treat the Ebola virus, but found to be ineffective in clinical trials for Ebola, has been shown to reduce the length of hospitalization for severely ill COVID-19 patients (Antinori et al., 2020; Wang et al., 2020). However, remdesivir is intravenously administered in a hospital setting and often reserved for the most severely ill patients. An estimate by the drug manufacturer indicated that in the US, a full dose of remdesivir would cost $9,000 (KES 900,000) and in developing countries, it would cost $2,000 (KES 200,000). This literally keeps remdesivir out of reach for the average Kenyan patient who relies on public health facilities. Dexamethasone, a common corticosteroid, reduced the death rate of patients on oxygen therapy or mechanical ventilators (Rayman et al., 2020). To develop strategies for COVID-19 drug development, it is important to first understand mechanisms of SARS-CoV-2 infection.

The SARS-CoV virus has a structural protein (S) located on the virus envelop surface. The SARS-CoV-2 virus uses a membrane bound protein called angiotensin-converting enzyme II (ACE2) to gain entry into cells that line our body cavities (epithelial cells), then spreads to other organs through the bloodstream (P. Zhou et al., 2020; Wrapp et al., 2020). The S protein binds to ACE2, the host cells, causing fusion of membranes of the virus and host cells, and thus internalizing the virus, an essential step in iSARS-CoV2 infection. Binding of the S protein to the ACE2 is, therefore, the first step in infection. High expression of ACE2 could thus increase susceptibility to SARS-CoV-2 infection. ACE2 was previously shown to serve as a receptor for other severe acute respiratory syndrome coronaviruses (SARS-CoV) (Kuba et al., 2005; Li et al., 2003). In vitro studies showed that overexpression of ACE2 protein resulted in more efficient replication of SARS-CoV (Li et al., 2003). ACE2 is expressed in all human cells and is part of the renin-angiotensin-aldosterone system, a key pathway for hormonal regulation of blood volume and blood pressure. ACE2 cleaves off two amino acids from angiotensinogen I to form the angiotensin II. When blood pressure falls below normal, angiotensinogen II acts on smooth muscle cells lining blood vessels to cause constriction and thus increase blood pressure. Angiotensinogen II also stimulates the adrenal cortex to produce aldosterone, a hormone that enhances water and sodium reabsorption in the kidneys, thus increasing blood volume and ultimately raising the blood pressure. For this reason, cells that line blood vessels express receptors for ACE2 and ACE inhibitors are routinely used to treat hypertension. A British Columbia University study recently showed that patients who used ACE inhibitors had lower ACE2 expression in lungs (Milne et al., 2020).

Because virus interaction with ACE2 is a key step in COVID-19 infection, blocking SARS-CoV-2 interaction with ACE2 are viable therapeutic approaches. Earlier studies showed that anti-ACE2 antibodies blocked SARS-CoV replication in a dose-dependent manner (Li et al., 2003). Furthermore, in vitro studies showed that susceptibility to SARS-CoV infection positively correlated with ACE2 expression in tested cell lines (Hofmann et al., 2004; Jia et al., 2005). Ongoing studies include peptide-based therapies such as Angiotensin II receptor blockers (ARBs), small compound inhibitors. Peptide based therapies develop short proteins that bind to ACE2 and block the binding site for the S protein, thus prevent interacting with the host cells. Peptide based drugs are, therefore, expected to have minimal side effects when compared to chemical based drugs. Studies are also testing ACE2 based inhibitors. A mutated ACE2 that lacks neck and transmembrane domain produces a soluble form of ACE2 (sACE2) that blocked entry of SARS-CoV-2 into host cells (Procko, 2020). Truncation of the human ACE2 also produced a peptide (tACE2) with a higher binding affinity for the S protein when compared to the wild-type ACE2 receptor, which also produced a more stable complex once bound to ACE2 (Basit et al., 2020). A recent study produced a 23 amino acid ACE2-derived peptide shown to also block SARS-CoV-2 at nanomolar concentrations (Zhang et al., 2020). There are encouraging results from a Chinese study to determine the effect of renin-angiotensin system (RAS) inhibitors on COVID19 patients with hypertension. Patients receiving ACEI or ARB therapy were shown to have less severe disease and a trend toward lower levels of interleukin 6 (IL-6), in their blood (Meng et al., 2020), suggesting that a dampening of the inflammatory response. The same study showed that ACEI and ARB had the beneficial effect of increasing two types of immune cells, CD3 and CD8 T cell counts, both important in mitigating COVID-19. While these initial studies are promising, it will take time to determine the efficacy of drugs developed and bring them to production. Clinical outcomes for diabetic COVID-19 patients who used ACE-inhibitors (ACEI) or angiotensin II type-I receptor blocker (ARB) were comparable to those of control diabetics who did not use ACE1 or ARB (Chen et al., 2020).

Until a drug is available, our best hope lies on developing a vaccine. Because of the urgency, a multipronged approach has been adopted to develop a vaccine for COVID-19, leveraging partnerships between governments and industry. Several vaccine candidates have shown promise in the US, raising hope for a vaccine by early 2021. However, such a vaccine is not likely to be widely available to countries like Kenya, which did not directly contribute to the vaccine development and do not have the resources for purchasing millions of doses for their citizen.

Without drugs and vaccines, mitigating the outcomes for COVID-19 is going to rely on preventive strategies and paying attention to patients with chronic conditions that put them at higher risk. In Kenya, this calls for renewed sustained efforts at controlling diabetes and hypertension, two chronic non-communicable diseases associated with worse outcomes for COVID-19 patients.

Diabetes in Kenya

Diabetes is a chronic non-communicable disease (NCD) condition that is largely preventable. Patients with diabetes mellitus lose the ability to regulate blood sugar (glucose). Normal fasting blood glucose levels (normoglycemia) are 140 mg/dL (7.8 mmol/L). Hypoglycemia refers to glucose levels below normal and hyperglycemia is a term for glucose levels above normal. Blood glucose levels between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L) indicate prediabetes, and levels above 200 mg/dL (11.0 nmol/L) are considered diabetic. A more reliable test for blood

glucose, which does not require fasting, is the glycated hemoglobin (A1c), a measure of the average blood sugar attached to hemoglobin for the past two to three months. An A1c below 5.7 is considered normal, between 5.7 and 6.4 percent indicates prediabetes, and an A1c level of 6.5 percent or higher indicates diabetes. Blood glucose is controlled by a hormone called insulin, synthesized by cells (beta cells) found in the pancreas. Complete loss of pancreatic beta cells can be triggered by autoimmune disease resulting in insulin deficiency and subsequent type 1 diabetes, also known as juvenile diabetes because of its onset at an early age. Type 1 diabetes is commonly treated with insulin injections. In type 2 diabetes, the most common type of diabetes, the pancreas still produces insulin but the patient's cells lose the ability to respond to the insulin, a condition known as insulin sensitivity. Obesity is the leading cause of type 2 diabetes. A body mass index (BMI) above 30 is considered obese. However, racial and ethnic variations have been documented in normal BMI range. Belly fat, which affects the waist to hip circumference ratio is a better predictor of the risk for developing type 2 diabetes. Pregnant women are also at risk for developing gestational diabetes. Other cases of diabetes are neither type 1 nor type 2, and are generally referred to as atypical diabetes. Regardless of cause, diabetes is associated with a variety of complications. These include kidney disease, cardiovascular disease (hypertension and heart disease), blindness, nerve damage which leads to impaired wound healing and amputations, and urinary tract infections. Inflammation is also an underlying factor in the development of diabetes and diabetes-associated complications.

Diabetes is the 18th cause of death in Kenya, accounting for 0.9% of all deaths in 2018. A substantial proportion (60%) of people with diabetes are undiagnosed diabetes and at risk of developing complications (Malanda et al., 2020; Mohamed et al., 2018). Furthermore, most people living with diabetes are diagnosed too late, when intervention do not prevent complications (World Health Organization, 2014). More concerning is the fact that an increasing proportion of Kenyans diagnosed with diabetes are young (under 25 years of age). Diabetes lowers the quality of life for patients and is a major financial burden to patients and their families. A recent study in two Kenyan counties estimates the annual direct cost (medicine and doctor's fees) of diabetes at KES 53,907 per patient who seek care from public facilities. The patients incur additional indirect costs (e.g., transport, food, accommodation) averaging KES 23,174 annually (Oyando et al., 2019). The cost was even higher for diabetics with hypertension as a comorbidity. Furthermore, the impact on the economy is significant in terms of missed work days. Although diabetes-specific policies existed in Kenya well before 2011, when the United Nations (UN) declared a NCD health strategic plan, a 2019 Global Health Action report found major gaps between how diabetes is addressed within the NDC policy agenda and tackling diabetes in reality (Shiroya et al., 2019). The report found weak monitoring systems and little involvement of the non-health sector, and calls for population-wide multi-sector diabetes prevention and control approaches that include the highest political level.

Associations between COVID-19 outcomes and diabetes

Several studies have demonstrated that people with diabetes are at higher risk for severe COVID-19 illness and death. Previous studies had demonstrated that diabetics have higher infection risks for influenza and pneumonia (Muller et al., 2005; Shah et al., 2003), the 2009 H1N1 influenza (Yang et al., 2006), and the Middle East respiratory syndrome-related coronavirus (MERS-CoV) (Alqahtani et al., 2018). A recent study combining data from a Genome-wide association study (GWAS) and proteome-wide Mendelian randomization (MR) analysis demonstrated that diabetes related traits associated with increased ACE2 expression (Rao et al., 2020), suggesting that

diabetes is a risk factor for more severe COVID-19 patients. A nationwide multi-center observational study of 1,317 participants (64.9% men) in France showed that a majority (88.5%) had type 2 diabetes (Cariou et al., 2020). Of the patients with diabetes as a comorbidity, a significant number were found to have microvascular and macrovascular diabetic complications (46.8% and 40.8% respectively). Furthermore, the French study showed that body mass index (BMI), a measure of obesity, was positively associated with assisted mechanical ventilation (tracheal intubation) and/or death within 7 days. Earlier reports from China showed that 5% - 20% of patients with COVID-19 were diabetic (Yang et al., 2020). Other studies in the city of Wuhan, China, the first epicenter for this virus, showed the proportion of COVID-19 patients with comorbid diabetes at 22% (F. Zhou et al., 2020) and 16.2% (Guan et al., 2019). Furthermore, diabetes prevalence rose to 31% among deceased people in Wuhan, China when compared to 14% of those who survived (F. Zhou et al., 2020). Earlier data from Wuhan had shown over 3-fold difference in mortality rate among diabetic COVID-19 patients when compared to non-diabetic patients (7.3% vs 2.3%) (Wu et al., 2019). Studies in Italy showed that 17% of patients in intensive care units (ICUs) were diabetic (Grasselli et al., 2020) and 28.3% of hospitalized COVID-19 patients in the USA were diabetic (Garg et al., 2020). Meta-analysis data also shows that diabetes more than doubled the risk for admission to ICUs and more than tripled the risk of death (Roncon et al., 2020). A retrospective study of 904 patients with COVID-19 in Wuhan, China showed that among diabetic patients, age, elevated C-reactive protein (CRP), and insulin usage associated with poor prognosis (Chen et al., 2020). A study of 59 of COVID-19 patients demonstrated that hyperglycemia (glucose> 7.77 nmol/L) at time of admission had higher baseline levels of two markers on inflammation, IL-6 and D-dimer, than patients with normoglemia, and had higher risk of severe disease (Sardu et al., 2020). Interestingly, long-term glycemic control (assessed by A1c levels) did not associate with COVID-19 severity (Cariou et al., 2020). Although data from Kenyan hospitals is limited at this point, majority of patients who died from COVID-19 in Kenya had diabetes (15%), hypertension (17%), or both.

Hypertension in Kenya

Hypertension, commonly known as high blood pressure (BP), is the 19th leading cause of death in Kenya, accounting for 0.71% of deaths in 2018. Blood pressure is recorded as two numbers (e.g., 120/76 mm Hg) where the top number (systolic) represents the BP when the heart beats and the lower number (diastolic) represents the BP when the heart relaxes between beats. The normal systolic BP is equal to or less than 120 (≤120) and the normal diastolic BP is equal to or less than 80 (≤80). The kidneys play a central role in the control of blood pressure. This is achieved via regulation of blood salt levels, which in turn impact water reabsorption and blood volume. The mechanism triggered in the kidney involves a cascade of hormones called the renin-angiotensin-aldosterone system (RAAS). In this cascade ACE2 converts angiotensin I to angiotensin II, which is ultimately responsible for blood vessel constrictions, synthesis of aldosterone which then leads to increased sodium chloride and water reabsorption by the kidneys.

Hypertension is considered a silent killer disease because one can be hypertensive for years without symptoms, while damage to blood vessels occurs. Prolonged hypertension is a major cause of chronic kidney disease, ultimately leading to kidney failure and dialysis. Hypertension is also a major risk factor for cardiovascular diseases and ultimately causes heart failure. Several recent studies indicate that the prevalence of hypertension is on the rise in Kenya. A cross-sectional study

using 43,898 individuals from the 2014 Kenya Demographic and Health Survey reported a 5% hypertension prevalence (Mkuu et al., 2019). An earlier study based on the 2015 Kenya STEPS survey of 4,485 participants aged 18-69 years documented a 24.5% prevalence of hypertension (Mohamed et al., 2018). Interestingly, only 15.5% of hypertensive participants were aware of their high blood pressure status. More worrisome was the finding that only 26.9% of those aware of their hypertensive condition were on treatment to control the blood pressure, and only 51.7% of those on treatment effectively managed their blood pressure. A Cross-sectional screening of 5,138 Kenyans on World Kidney Day from 2011 to 2019 documented a 17.5% prevalence of hypertension, with most of the hypertensive participants being under 50 years of age (Kabinga et al., 2019).

Like diabetes, managing hypertension is a major financial drain to families and the public health system. A 2019 study of the costs associated with hypertension reported a mean annual direct cost to patients (for medicines, services fees, transport etc.) of $304.8 (~KES 31,700) (Oyando et al., 2019). Other indirect costs such as emergency hospitalizations and missed work days make the economic impact even higher.

Association of COVID-19 outcomes and hypertension

Several studies have shown an association between hypertension and COVID-19 outcomes. COVID-19 patients have high levels of angiotensin II, a key regulator of blood pressure, when compared to non-hypertensive controls (Liu et al., 2020). Angiotensin II was previously shown to increase expression of inflammatory cytokines (Xianwei et al., 2012), and recent data has demonstrated that very high levels of inflammatory cytokines exacerbate outcomes in COVID-19 patients. A retrospective study of 1,161 patients at two hospitals in Wuhan, China showed that hypertension was an independent risk factor for in-hospital death of patients with diabetes (Shi et al., 2020). A second cross-sectional observational study in Milan, Italy showed that the presence of pulmonary hypertension was also associated with a higher rate of in-hospital death or ICU admission (41.7%) when compared to those without pulmonary hypertension (Pagnesi et al., 2020). A recent study in China showed that treating COVID-19 patients who had hypertension with RAS inhibitors improved outcomes in part via increasing immune cells (CD3 and CD8) and lowering the levels of IL-6 (Meng et al., 2020). While extensive studies have not been conducted in Kenya, reports from the Ministry of Health have shown that a significant proportion of hospitalized COVID-19 patients were hypertensive (17%). Worse still, the death rates for hypertensive COVID-19 patients were higher than those for non-hypertensive.

Mitigating COVID-19 outcomes

The COVID-19 pandemic is a major threat to life as we know it and a burden to public health systems throughout the world. There is no current cure for COVID-19 and vaccine development is going to take a while. This leaves prevention: social distancing, use of personal protection equipment (PPEs) such as face masks, and personal hygiene (frequent washing of hands) as the best strategy. Additional attention should be paid to patients with non-communicable chronic disease conditions such as diabetes and hypertension since they are associated with more severe COVID-19 disease outcomes. To mitigate COVID-19 outcomes, diabetic patients need to better manage blood glucose levels as they could impact the immune response. Healthcare providers

should be especially attentive to diabetic patients with COVID-19 who use insulin. Biomarkers associated with diabetes related characteristics (e.g. use of insulin and CRP levels) could also be used to identify patients at risk. A majority of patients with diabetes and or hypertension seek care from public facilities (Karinja et al., 2019). Improving healthcare services could thus promote better management of disease and improve health outcomes. Long-term control of diabetes and hypertension calls for adequate training of healthcare professionals. Of the 9,121 regular registered medical doctors in Kenya, only 12 are endocrinologist specialized in diabetes care (Kenya Medical Board, 2020). This means that diabetic patients seek care from General Practitioners who lack specialized training in diabetes management. A recent survey of 1,501 general practitioners (doctors) conducted by Malanda et al. (2020) found that 74% of them lacked training in diabetes. More worrisome was the finding that patient education resources were not available at the work setting for 60.8% of the doctors, and diabetes nurse educators or podiatrists were not available at 60.8% of their work facilities. Interestingly, 53% of the doctors surveyed reported screening at least 10% of people with diabetes each month. With regard to hypertension, it is been shown that healthcare provider-directed hypertension education, and provision of basic resources improve hypertension care in Kenya (Ogola et al., 2019). An equally important task is increasing health literacy at the grass root level. The government of Kenya has established the community health strategy that aims to empower communities and households to practice positive health behaviors and play a role on managing health initiatives at that levels. Efforts should be stepped up to raise awareness with regard to diabetes and hypertension; their prevention, encouraging testing and early diagnosis, and adherence to interventions thereafter. This should adopt an all-hands-on-deck approach that engages the health services private sector which plays a big role in healthcare service provision, other non-government sectors, and other community stakeholders such as faith-based communities (e.g., Churches, Mosques).

CONCLUSION

The COVID-19 pandemic has laid bare the inadequacies in managing chronic non-communicable disease conditions such as diabetes and hypertension. Addressing this need calls for training in diabetes management for doctors and healthcare workers coupled with patient health literacy for patients. Emerging data also points to high infection rates among doctors and frontline healthcare workers including clinical officers and nurses. It is imperative that this essential healthcare workforce is protected; ensuring that they get adequate PPE supplies and training on the proper use of PPEs.

References

Alqahtani, F. Y., Aleanizy, F. S., Ali El Hadi Mohamed, R., Alanazi, M. S., Mohamed, N., Alrasheed, M. M., Abanmy, N., & Alhawassi, T. (2018). Prevalence of comorbidities in cases of Middle East respiratory syndrome coronavirus: a retrospective study. *Epidemiol. Infect., 147,* 1–5. https://doi.org/10.1017/S0950268818002923

Antinori, S., Cossu, M. V., Ridolfo, A. L., Rech, R., Bonazzetti, C., Pagani, G., ... & Borghi, B. (2020). Compassionate remdesivir treatment of severe Covid-19 pneumonia in intensive care unit (ICU) and Non-ICU patients: Clinical outcome and differences in post_treatment hospitalisation status. *Pharmacological Research*, 104899. https://doi.org/10.1016/j.phrs.2020.104899

Basit, A., Ali, T., & Rehman, S. U. (2020). Truncated human Angiotensin Converting Enzyme 2; a potential inhibitor of SARS-CoV-2 spike glycoprotein and potent COVID-19 therapeutic agent. *Journal of Biomolecular Structure and Dynamics*, 1-17. https://doi.org/10.1080/07391102.2020.1768150

Cariou, B., Hadjadj, S., Wargny, M., Pichelin, M., Al-Salameh, A., Allix, I., ... & Borot, S. (2020). Phenotypic characteristics and prognosis of inpatients with COVID-19 and diabetes: the CORONADO study. *Diabetologia*, 1–16. https://doi.org/10.1007/s00125-020-05180-x

Chen, Y., Yang, D., Cheng, B., Chen, J., Peng, A., Yang, C., ... & Zheng, L. (2020). Clinical characteristics and outcomes of patients with diabetes and COVID-19 in association with glucose-lowering medication. *Diabetes Care*, *43*, 1399–1407.

Garg, S., Kim,L., Whitaker, M., O'Halloran, A., Cummings, C., Holstein, R. … & Fry, A. (2020). Hospitalization rates and characteristics of patients hospitalized with laboratory-confirmed coronavirus disease 2019—COVID-NET, 14 States, March 1–30, 2020. *MMWR Morbidity and mortality weekly report*, *69*(15), 458–464

Grasselli, G., Zangrillo, A., Zanella, A., Antonelli, M., Cabrini, L., Castelli, A., ... & Iotti, G. (2020). Baseline characteristics and outcomes of 1591 patients infected with SARS-CoV-2 admitted to ICUs of the Lombardy Region, Italy. *Jama*, *323*(16), 1574-1581. https://doi.org/10.1001/jama.2020.5394

Guan, W. J., Ni, Z. Y., Hu, Y., Liang, W. H., Ou, C. Q., He, J. X., ... & Du, B. (2020). Clinical characteristics of coronavirus disease 2019 in China. *New England journal of medicine*, *382*(18), 1708–1720.

Hofmann, H., Geier, M., Marzi, A., Krumbiegel, M., Peipp, M., Fey, G. H., ... & Pöhlmann, S. (2004). Susceptibility to SARS coronavirus S protein-driven infection correlates with expression of angiotensin converting enzyme 2 and infection can be blocked by soluble receptor. *Biochemical and biophysical research communications*, *319*(4), 1216–1221.

Jia, H. P., Look, D. C., Shi, L., Hickey, M., Pewe, L., Netland, J., ... & McCray, P. B. (2005). ACE2 receptor expression and severe acute respiratory syndrome coronavirus infection depend on differentiation of human airway epithelia. *Journal of virology*, *79*(23), 14614–14621.

Kabinga, S. K., McLigeyo, S. O., Twahir, A., Ngigi, J. N., Wangombe, N. N., Nyarera, D. K., ... & Moturi, G. M. (2019). Community Screening for Diabetes, Hypertension, Nutrition, and Kidney Disease Among Kenyans. *Kidney international reports*, *4*(10), 1482–1484.

Karinja, M., Pillai, G., Schlienger, R., Tanner, M., & Ogutu, B. (2019). Care-seeking dynamics among patients with diabetes mellitus and hypertension in selected rural settings in Kenya. *International journal of environmental research and public health*, *16*(11), 2016. https://doi.org/10.3390/ijerph16112016

Kenya Medical Board (2020). KMPDC Local practitioners online retention register as at 01/11/2020. https://medicalboard.co.ke/LP_index.php

Kuba, K., Imai, Y., Rao, S., Gao, H., Guo, F., Guan, B., ... & Bao, L. (2005). A crucial role of angiotensin converting enzyme 2 (ACE2) in SARS coronavirus–induced lung injury. *Nature medicine*, *11*(8), 875–879.

Li, W., Moore, M. J., Vasilieva, N., Sui, J., Wong, S. K., Berne, M. A., ... & Choe, H. (2003). Angiotensin-converting enzyme 2 is a functional receptor for the SARS coronavirus. *Nature*, *426*(6965), 450–454.

Liu, Y., Yang, Y., Zhang, C., Huang, F., Wang, F., Yuan, J., ... & Zhang, Z. (2020). Clinical and biochemical indexes from 2019-nCoV infected patients linked to viral loads and lung injury. *Science China Life Sciences*, *63*(3), 364–374.

Malanda, B., Burgaz, C., Njenga, E., Muga, J., Acharya, K., Gardete, L., ... & McLaughlin, S. (2020). Diabetes care and education training audit for primary care physicians–Results from

IDF Diab-CET Kenya study needs assessment survey. *Diabetes Research and Clinical Practice, 159*, 108012. https://doi.org/10.1016/j.diabres.2020.108012

Meng, J., Xiao, G., Zhang, J., He, X., Ou, M., Bi, J., ... & Gao, H. (2020). Renin-angiotensin system inhibitors improve the clinical outcomes of COVID-19 patients with hypertension. *Emerging microbes & infections, 9*(1), 757–760. https://doi.org/10.1080/22221751.2020.1746200

Milne, S., Yang, C. X., Timens, W., Bossé, Y., & Sin, D. D. (2020). SARS-CoV-2 receptor ACE2 gene expression and RAAS inhibitors. *The Lancet Respiratory Medicine, 8* (2020), e50–e51

Mohamed, S. F., Mutua, M. K., Wamai, R., Wekesah, F., Haregu, T., Juma, P., ... & Ogola, E. (2018). Prevalence, awareness, treatment and control of hypertension and their determinants: results from a national survey in Kenya. *BMC public health, 18*(3), 1-10. https://doi.org/10.1186/s12889-018-6052-y

Mkuu, R. S., Gilreath, T. D., Wekullo, C., Reyes, G. A., & Harvey, I. S. (2019). Social determinants of hypertension and type-2 diabetes in Kenya: A latent class analysis of a nationally representative sample. *PloS One, 14*(8), e0221257. https://doi.org/10.1371/journal.pone.0221257

Muhumuza, R. (2020, August 2). In Africa, stigma surrounding coronavirus hinders response. *AP News*. https://apnews.com/b12f98423f0495589c7e4680dde4c115

Muller, L. M. A. J., Gorter, K. J., Hak, E., Goudzwaard, W. L., Schellevis, F. G., Hoepelman, A. I. M., & Rutten, G. E. H. M. (2005). Increased risk of common infections in patients with type 1 and type 2 diabetes mellitus. *Clinical infectious diseases, 41*(3), 281–288. https://doi.org/10.1086/431587

Ogola, E. N., Barasa, F., Barasa, A. L., Gitura, B. M., Njunguna, B., Beaney, T., ... & Poulter, N. R. (2019). May Measurement Month 2017: the results of blood pressure screening of 14 845 individuals in Kenya—Sub-Saharan Africa. *European Heart Journal Supplements, 21*(Supplement_D), D71–D73. https://doi.org/10.1093/eurheartj/suz059

Oyando, R., Njoroge, M., Nguhiu, P., Kirui, F., Mbui, J., Sigilai, A., ... & Barasa, E. (2019). Patient costs of hypertension care in public health care facilities in Kenya. *The International Journal of Health Planning and Management, 34*(2), e1166–e1178.

Pagnesi, M., Baldetti, L., Beneduce, A., Calvo, F., Gramegna, M., Pazzanese, V., ... & Ajello, S. (2020). Pulmonary hypertension and right ventricular involvement in hospitalised patients with COVID-19. *Heart, 106*(17), 1324–1331. http://dx.doi.org/10.1136/heartjnl-2020-317355

Procko, E. (2020). The sequence of human ACE2 is suboptimal for binding the S spike protein of SARS coronavirus 2. bioRxiv, 2020. https://doi.org/10.1101/2020.03.16.994236

Rao, S., Lau, A., & So, H. C. (2020). Exploring diseases/traits and blood proteins causally related to expression of ACE2, the putative receptor of SARS-CoV-2: A Mendelian Randomization analysis highlights tentative relevance of diabetes-related traits. *Diabetes Care, 43*(7): 1416–1426. https://doi.org/10.2337/dc20-0643

Rayman, G., Lumb, A. N., Kennon, B., Cottrell, C., Nagi, D., Page, E., ... & Higgins, K. (2020). Dexamethasone therapy in COVID-19 patients: implications and guidance for the management of blood glucose in people with and without diabetes. *Diabetic Medicine.* 2020;00:e14378. https://doi.org/10.1111/dme.14378

Roncon, L., Zuin, M., Rigatelli, G., & Zuliani, G. (2020). Diabetic patients with COVID-19 infection are at higher risk of ICU admission and poor short-term outcome. *Journal of Clinical Virology*, 107, 104354. https://doi.org/10.1016/j.jcv.2020.104354

Sardu, C., D'Onofrio, N., Balestrieri, M. L., Barbieri, M., Rizzo, M. R., Messina, V., ... & Marfella, R. (2020). Outcomes in patients with hyperglycemia affected by Covid-19: Can we do more on glycemic control? *Diabetes Care, 43*(7), 1408–1415. https://doi.org/10.2337/dc20-0723

Shah, B. R., & Hux, J. E. (2003). Quantifying the risk of infectious diseases for people with diabetes. *Diabetes care, 26*(2), 510–513. https://doi.org/10.2337/diacare.26.2.510

Shi, Q., Zhang, X., Jiang, F., Zhang, X., Hu, N., Bimu, C., ... & He, G. (2020). Clinical characteristics and risk factors for mortality of COVID-19 patients with diabetes in Wuhan, China: a two-center, retrospective study. *Diabetes Care*, *43*(7), 1382–1391

Shiroya, V., Neuhann, F., Müller, O., & Deckert, A. (2019). Challenges in policy reforms for non-communicable diseases: the case of diabetes in Kenya. *Global health action*, *12*(1), 1611243. https://doi.org/10.1080/16549716.2019.1611243

Wang, Y., Zhang, D., Du, G., Du, R., Zhao, J., Jin, Y., ... & Hu, Y. (2020). Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial. *The Lancet*, *395*(10236),1569–1578

World Health Organization. (2014). *Global status report on noncommunicable diseases 2014: attaining the nine global noncommunicable diseases targets; a shared responsibility*. World Health Organization, Geneva. https://www.who.int/nmh/publications/ncd-status-report-2014/en/

Wrapp, D., Wang, N., Corbett, K. S., Goldsmith, J. A., Hsieh, C. L., Abiona, O., ... & McLellan, J. S. (2020). Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation. *Science*, *367*(6483), 1260–1263.

Xianwei, W., Magomed, K., Ding, Z., Sona, M., Jingjun, L., Shijie, L., & Mehta, J. L. (2012). Cross-talk between inflammation and angiotensin II: studies based on direct transfection of cardiomyocytes with AT1R and AT2R cDNA. Experimental biology and medicine, 237(12), 1394–1401.

Yang, J. K., Feng, Y., Yuan, M. Y., Yuan, S. Y., Fu, H. J., Wu, B. Y., ... & Xu, X. (2006). Plasma glucose levels and diabetes are independent predictors for mortality and morbidity in patients with SARS. *Diabetic medicine*, *23*(6), 623–628. https://doi.org/10.1111/j.1464-5491.2006.01861.x

Yang, J., Zheng, Y., Gou, X., Pu, K., Chen, Z., Guo, Q., ... & Zhou, Y. (2020). Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: a systematic review and meta-analysis. *International journal of infectious diseases*, *94*, 91-95. https://doi.org/10.1016/j.ijid.2020.03.017

Zhang, G., Pomplun, S., Loftis, A. R., Loas, A., & Pentelute, B. L. (2020). The first-in-class peptide binder to the SARS-CoV-2 spike protein. *bioRxiv*. https://doi.org/10.1101/2020.03.19.999318

Zhou, P., Yang, X. L., Wang, X. G., Hu, B., Zhang, L., Zhang, W., ... & Chen, H. D. (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*, *579*(7798), 270–273. https://doi.org/10.1038/s41586-020-2012-7

Zhou, F., Yu, T., Du, R., Fan, G., Liu, Y., Liu, Z., ... & Guan, L. (2020). Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *The Lancet*, *395*(10229),1054–1062

Effects of Coronavirus Control Measures on Economic and Social Rights in Kenya: Evaluating Legal and Policy Responses

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Abstract

The advent of the coronavirus disease has disrupted health, economic and social systems worldwide. Although the first case was reported in Wuhan, China in December 2019, the disease has since spread throughout the globe. Many governments have had to respond by taking an array of interventions to prevent and suppress the spread of the disease. These measures varied from total lockdowns to stay at home orders. In Kenya, the government opted to slow down the spread of the disease by instituting curfews, localized and partial lockdowns aimed at restricting the movement of people. It also ordered the closure of educational institutions and advised employees to work from home. The Ministry of Health issued social distancing and hygiene guidelines aimed at protecting public health. Public order mechanisms were deployed by the police through the prohibition of public gatherings to reinforce social distancing and to suppress community transmission. These containment measures impacted enjoyment of human rights in many ways. This study, therefore, examines the effects of coronavirus control measures contained in the laws and policies (both public health and non-public health) on people's human rights, especially on the economic, social and cultural rights. The study evaluates the legality and constitutionality of pertinent coronavirus laws and regulations. It also examines the challenges in the enforcement of such laws and assesses the implications of these measures on Kenyans' enjoyment of social and economic rights.

***Keywords**: Coronavirus disease, Human Rights, Constitution, Public Health, Public Order*

INTRODUCTION

The advent of COVID-19 has impacted all spheres of life in different ways. First reported in Wuhan, China in December 2019, the infectious disease has since spread throughout the globe. As of July 28, 2020, the virus had infected over 16,341,920 million people and led to 650,805 deaths. At the same time, the total number of confirmed cases in Kenya were 17,975 with 7,908 recoveries and 285 deaths (WHO, 2020). The nature of the pandemic in terms of its spread, transmission, treatment and death rates necessitated governments to institute measures aimed at containing the spread of the disease. Some of the measures adopted in Kenya were a nationwide curfew, localized and partial lockdowns aimed at restricting the movement of people. Social distancing and hygiene protocols were also set by the Ministry of Health towards securing public health. Public order mechanisms were set in motion prohibiting public and social gatherings as a precaution against transmission of the disease and as a safeguard to the general health and safety of the public. In aggregate, these measures, affected people's rights in different ways.

This study examines the effects of the government's COVID-19 control measures on people's rights. It also evaluates the legality, constitutionality and gaps of pertinent COVID-19 control measures and related enforcement challenges and their respect for Kenyans' economic and social rights.

Economic and social rights are primarily provided for in Chapter IV of the Constitution of Kenya, 2010 (African Women's Studies Centre, 2013). Article 43 of the Constitution provides for a wide array of economic and social rights, namely, the right to the highest attainable standard of health, adequate housing, food, clean and safe water, social security and education. Article 41 of the Constitution provides that, everyone has a right to fair labor practices, fair remuneration, reasonable working conditions and the right to participate in the activities of a trade union. This study, therefore, seeks to address these questions: what legislative and policy responses were adopted in containing the coronavirus disease, and, what effect did these measures have on the enjoyment of economic and social rights?

MATERIALS AND METHODS

The study primarily relied on secondary data in the form of documents that were examined and mined through documentary analysis. Documentary analysis is a procedure for evaluating select documents to extract data, which is then analyzed to understand and develop empirical knowledge (Bowen, 2009). The data sourced from these documents varied from excerpts, phrases, quotations to entire passages. The data was then analyzed and organized into themes or categories related to the central question of research (Bowen, 2009). Specifically, this study collected data on the laws and policies used to institute measures and interventions to contain, prevent and suppress the spread of COVID-19. The data was sourced from Acts of Parliament such as the Public Health Act and the Public Order Act. Executive orders, policies, rules and regulations were also reviewed. The study also relied on a review of relevant Constitutional provisions and laws pertaining to economic, social and cultural rights of all Kenyans. The study reviewed the constitutionality of subsidiary legislation, including orders, rules and regulations, such as the State Curfew Orders and court decisions concerning the limitation of human rights. The study examined institutional reports, newspaper articles, editorials, survey reports, memoranda and press releases. The study also conducted informal interviews with key informants on the effects of coronavirus on access to education. Table 1 provides a summary of the documents selected for study, the data collected and relevant information analyzed from each source.

Table 1: Summary of documentary analysis framework

Documents Selected	Data	Scope of Analysis
Constitution	Provisions on the enjoyment of array rights relating to health, education, food, social security, labor and fair remuneration	Chapter IV of the Constitution of Kenya, 2010
Public Health Act	Minister's Powers to make Rules and Regulations; Control Measures on Infectious disease for public health protection	Sections 35, 169 of the Public Health Act
Public Order Act	Rationale for Restriction of Movement and Imposition of State Curfew	Section 8 of the Public Order Act

Case Law	Court interpretation and reasoning on disputes on legality of administrative actions in enforcing curfew	Analysis of Court's Decision in LSK v Inspector General 2020 [eKLR]
Rules, Regulations and Orders	Subsidiary legislation on restriction of movement	Restriction of Movement Orders (Nairobi Metropolitan, Mombasa, Kwale and Kilifi)
Executive Order	Executive Authority in instituting National responses to COVID -19	Executive Order No. 2 of 2020
Media reports	Emergent issues relating to COVID-19 measures and enjoyment of economic and social rights	Pertinent newspaper articles and editorials

RESULTS

To contain the spread of COVID-19, since the announcement of the first case in Kenya in March 2020 (Ministry of Health, 2020), the government used different response mechanisms such as public health, public order and various and fiscal and non-fiscal measures as outlined below.

Containment of coronavirus: Legal responses

In view of the threat posed by COVID-19, the government of Kenya issued a nationwide curfew restricting movement before 5:00 a.m. and after 7:00 p.m. effective March 27, 2020 for an initial period of 30 days. The curfew, issued by the Cabinet Secretary of the Ministry of Interior and Coordination of National Government, under section 8 of the Public Order Act, prohibited public gatherings, processions or movement, except when permitted by a police officer in writing. The State Curfew Order also provided a list of essential service providers who were exempted from the curfew.

Section 8(1) of the Public Order Act reads:

> The Cabinet Secretary, on the advice of the Inspector-General of the National Police Service may, if he considers it necessary in the interests of public order so to do, by order (hereinafter referred to as a curfew order) direct that, within such area and during such hours as may be specified in the curfew order, every person, or, as the case may be, every members of any class of persons specified in the curfew order, shall, except under and in accordance with the terms and conditions of a written permit granted by an authority or person specified in the curfew order, remain indoors in the premises at which he normally resides, or at such other premises as may be authorized by or under the curfew order.

Pursuant to section 8(1) of the Public Order Act, the Cabinet Secretary for Interior and Coordination of National Government issued through Legal Notice number 36, the Public Order (State Curfew) Order 2020 ("State Curfew Order").

The Law Society of Kenya (LSK) moved to court to challenge the State Curfew Order of March 27, 2020 on grounds that the manner in which the curfew was enforced was unconstitutional. In the case of *Law Society of Kenya vs Hillary Mutyambai, Inspector General of Police Services and 4 Others (interested parties) 2020,* the LSK successfully challenged the State Curfew Order for failing to include all persons that provide essential services, including Advocates and members of the Independent Police Oversight Authority (IPOA). The court declared that the

use of excessive force by the police in the enforcement of the State Curfew Order was unconstitutional. It also ordered that the advocates or members of LSK and IPOA be included in the list of those exempted in curfew.

Public health measures- April 2020

On April 3, 2020, the Cabinet Secretary for Health published the Public Health (Prevention, Control and Suppression of COVID-19) Rules, which outlined: the powers of control of COVID-19, the powers vested in the medical and public health officers to control the disease and regulate the safe disposal of bodies, and outlined the sanctions for anyone escaping from isolation and quarantine facilities. These rules are summarized in Table 2.

Table 2: Summary of the main provisions of Public Health (Prevention, Control and Suppression of COVID-19) Rules, 2020

Rule	Legal Provision	Objective
Rule 2	Duty of owner or premises to notify authorities suspect resident suffering from COVID-19	Rapid notification
Rule 4	Medical Officer of Health Inspect premises where COVID-19 patient resides	Isolation and transfer of contact
Rule 6/7	Medical Officer/Public Health Officer powers to disinfect premises	Prevent spread of virus
Rule 8	Time and mode of disposal of bodies Restriction of number of persons at burial/transportation of bodies	Prevent transmission from persons succumbed to COVID-19 Social distancing
Rule 10	Escape from isolation or quarantine facilities	Punitive measures to prevent transmission from persons in isolation

Rule 2 of the *Prevention, Control and Suppression of COVID-19 Rules* places primary responsibility on the occupier or owner of premises to notify authorities where suspected COVID-19 patient(s) reside. Rule 4 mandates the medical officer of health to visit and inspect premises where a COVID-19 positive patient resides and order the isolation and transfer of the individual to quarantine facility. Rule 6 and 7 mandates a medical officer and public health officers to disinfect premises to prevent the spread of the virus.

Rule 8 provides for the modalities for removal and disposal of bodies. It prescribes the time of burial or cremation ceremonies (9:00 a.m. to 3:00 p.m.), limits the number of attendees to 15 and restricts the age limit (12 years and above) for those in attendance. It also provides for the fumigation of the body and vehicle used in transportation immediately after the procession. Rule 10 specifies that in the event persons placed in isolation and quarantine facilities escape, they will be liable on conviction to a fine of Kenyan Shillings (KES) 20,000 or imprisonment of up to 2 months.

Containment measures in high risk areas

The Cabinet Secretary for Health on April 6, 2020 published a raft of measures designed to contain the spread of COVID-19 in counties like Nairobi deemed to be high risk areas. (Ministry of Health, 2020) The five orders published on April, 6, 2020 marked the highest number of measures

published in a day since the start of the anti-coronavirus disease campaign (Table 3). The main objective of the Orders was to contain the pandemic by restricting movement in and out of areas which had recorded higher daily rates of infection since reporting of the first case and were thus considered *hotspots*.

Table 3: Summary of COVID-19 containment measures in subsidiary legislation for high risk areas: April 2020

Containment Measure	Legislative Provision (Source)	Objective	Geographical Area
Social distancing capacity limits in vehicles	Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules, 2020	• Restrict movement • Capacity limits in vehicles • Social distancing • Limits to large gatherings	National
Restriction of movement in and out of Nairobi	Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Nairobi Metropolitan Area) 2020	• Restrict movement • Delineate Nairobi Metropolitan area	County (Multiple) Nairobi, Kajiado Machakos Kiambu
Restriction of movement in and out of Mombasa	Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Mombasa County) 2020	• Restrict movement • Delineate Mombasa	County (Single)
Restriction of movement in and out of Kwale	Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Kwale County) 2020	• Restrict movement • Delineate Kwale County	County (single)
Restriction of movement in and out of Kilifi	Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Kilifi County) 2020	• Restrict movement • Delineate Kilifi area	County (single)

The overarching subsidiary legislation was the Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules, 2020 which was of general application to all 47 counties, while the other Orders were specific to the counties of Nairobi Metropolitan, Mombasa, Kwale and Kilifi. The main provisions introduced by the Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules, 2020 were in regard to restriction of capacities in public and private transport, protocols on social distancing, guidelines on wearing of masks, speedy interment of dead bodies and prohibition of large gatherings (public and private).

The Restriction of Movement Orders specific to the *high-risk counties* had similar provisions. They included the provision that defined the geographical area with specific location in which the specific Order was to apply. The difference was that the Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules, 2020 (Nairobi Metropolitan

Area) became effective on April 6, 2020, while the others for Mombasa, Kwale and Kilifi took effect on April 8, 2020.

The *Restriction of Movement of Persons Rules 2020* mandates the Cabinet Secretary to make a declaration of an infected area, restrict movement of persons and make restrictions on the use of transport services. Rule 6 provides for preventive measures such as maintaining one-meter social distance, wearing of masks in public to cover the mouth and nose. Rule 7 prohibits large public gatherings, including weddings and funerals. This rule restricts attendance at funerals to a maximum of fifteen persons.

Rule 8 of the *Restriction of Movement of Persons Rules 2020* provides that a person who dies of COVID-19 to be interred or cremated within 48 hours. In rule 10, the Cabinet Secretary for health may exempt in writing a person from these rules. In rule 4, the transport of food and cargo should go on uninterrupted. Rule 5 stipulates that a public transport provider should carry 50% of their licensed capacity, a private car to carry 60% of its capacity, a motor cycle, bicycle and tricycle to carry one passenger and all users of public and private transport should wear masks. Rule 11 provides a penalty for contravening these rules, which is a maximum fine of twenty thousand Kenya shillings or a maximum imprisonment of six months.

Partial reopening of the economy - July 6, 2020

Due to the relative success of these measures in slowing the spread of COVID-19, the government moved to reopen the economy. In his address to the nation on July 6, 2020, President Uhuru Kenyatta sought to institute a phased reopening of the economy through a number of measures. The President lifted cessation of movement in and out of Nairobi, Mombasa and Mandera (Mutanu, 2020). Public transport out of the restricted areas was required to get clearance with the Ministry of Interior and Coordination of National Government (Kahongeh et al., 2020). Other measures taken included a phased reopening of churches, resumption of domestic flights from July 14, and resumption of international flights from August 1, 2020. The President also announced that colleges, technical and vocational training institutions and universities would be permitted to start reopening as from September provided that they would have complied with the Ministry of Health inspections and directives.

A number of bans announced in the previous presidential statement in June 2020 were extended. The President directed that bars would remain closed for an additional 30 days, but could offer take away services. The ban on weddings, political and other social gatherings was extended for a further 30 days. The night curfew running from 9:00 p.m. to 4:00 a.m. was also extended for a period of 30 days.

The President also announced that the phased reopening would be subject to review after twenty-one days and called on Kenyans to observe these measures. In the event there were spikes in infection rates, the government would reinstate restrictions on movement and containment measures.

Stalling of phased reopening of the economy - July 27, 2020

President Kenyatta announced further measures on the control of coronavirus on July 27, 2020 (Office of the President, 2020). The nationwide curfew was extended for a further 30 days as follows: The sale of alcoholic beverages in eateries was banned; the indefinite closure of bars instituted; and the closing time for restaurants was amended from 8:00 p.m. to 7:00 p.m.

Furthermore, the Ministry of Health was directed to develop a protocol to temporarily retain retired anesthetists and intensive care unit (ICU) staff to support the medical staff assigned to dealing with serious COVID-19 cases in the counties. The phased reopening of universities and other tertiary institutions for face-to-face learning was suspended until January 2021.

Fiscal measures

The President announced several fiscal measures to cushion Kenyans from adverse economic impacts of the coronavirus disease. A number of the proposals in the form of tax measures were captured in the Tax (Amendment) Bill, 2020, which was passed into law, assented to by the President on April 25, 2020 and published in the *Kenya Gazette* on April 27, 2020. The Tax Law (Amendment) Act, 2020 amended the related tax laws such as: Income Tax Act; Value Added Tax Act, 2013; Exercise Duty Act, 2015; The Tax Procedure Act, 2015; Retirement Benefit Act, 1997; and Miscellaneous Levies and Fee Act, 2016.

The new tax measures were primarily aimed at providing relief to employees and borrowers by reducing the rates on income tax, the cost of credit, and reducing the cost of goods and services. The Central Bank Rate (CBR) was lowered from 8.25 % to 7.25 % so that commercial banks could lower interest rates to borrowers. Borrowers were further given a reprieve as loan defaulters were blocked from being listed at the Credit Reference Bureau. This reprieve applied to both individual and small and medium sized enterprises (SMEs). Companies and SMEs were also afforded relief through reduction on turnover tax and corporate tax. Cash revenue ratios were also reduced to free up more funds to the banks, which would in turn enable them to avail more funds for loans to new and existing borrowers. The cash revenue ratio requirement was lowered from 5.25 % to 4.25 % to provide additional KES 35 billion to enable commercial banks to directly support borrowers distressed by the effects of COVID-19.

Under the new Act, employees earning less than KES 24,000 were exempted from paying Income Tax. The Act also provides that: Pay-As-You-Earn (PAYE) tax be reduced from 30% to 25% for the highest tax band; corporate tax be reduced from 30% to 25%; turnover tax reduced from 3% to 1% for micro, small and medium enterprises, and value added tax reduced from 16% to 14%.

Further financial measures taken by the government included the establishment of the COVID-19 Emergency Response Fund dedicated to the allocation and management of funds, specifically for financing supplementary expenditure due to the additional costs brought about by the coronavirus disease. Under the mandate provided in section 24(4) of the Public Finance Management Act, the Cabinet Secretary for National Treasury published the Public Finance Management (COVID-19 Emergency Response Fund) Regulations, 2020. Regulation 3 established COVID-19 Emergency Response Fund, which was made up of monies voted and appropriated by Parliament and voluntary contributions, gifts and donations.

Social security policies

The government has put in place a number of social programs to assist the public from the shocks of COVID-19. Social assistance and protection programs have been implemented through new mechanisms or by re-directing existing resources to cushion vulnerable groups. For example, *Inua Jamii*, a cash transfer program, has been enhanced during this period of the pandemic. (Oyunge & Chebii, 2020). This program has been redesigned to enable the elderly and the most vulnerable members of society to meet their daily essential needs like buying food, while coping with the

effects of COVID-19 (Ministry of Labor and Social Protection, 2020). The program is administered jointly by the Ministry of Labor and Social Protection, the National Drought Management Authority, the Ministry of Health, and the Council of Governors.

The coming into force of the Tax (Amendment) Act, 2020 had a favorable impact on the social security of pensionable employers and pensioners, which amended the Retirement Benefits Act by enabling beneficiaries to access part of their retirement savings and use some of their pension to purchase a residential property. As a result of the amendment to the Retirement Benefits Act, the Retirement Benefits Authority has drafted regulations to govern the new mechanism for accessing pension savings. A worker can use up to 40% of his or her savings to purchase a residential property.

DISCUSSION

The results above show the health, security, and financial measures the government used to control the spread of COVID-19. The central question of this study was to evaluate how these measures impacted the economic and social rights of Kenyans.

The discussion below focuses on the effects of the coronavirus pandemic on the main constitutional rights and responsibilities in Article 41 (fair labor practices), Article 43 (health, housing, food, water, social security and education), Article 45 (family), and Article 53 to Article 57 (protection of special groups). The findings in this study, in general, indicate that COVID-19 containment measures adversely affected citizens' economic and social well-being. However, in some instances, legal and policy interventions worked to mitigate the impact of the disease on Kenyans.

Unfair labor practices and remuneration

Although Article 41 provides that every person has a right to fair labor practices and remuneration, the actions by both public and private employers in Kenya have limited the workers' rights in the period of the coronavirus pandemic. For instance, in April, 2020 the management of Fairmont Norfolk decided to lay off its employees due to the negative impacts of the coronavirus disease on its business (Wambu, 2020). This was before the intervention of the Solicitor General, which forced Fairmont Norfolk to reverse its decision until a consultative meeting with relevant stakeholders had taken place. Later, when a meeting between Fairmont Norfolk and the Kenya Union of Domestic, Hotels, Educational Institutions and Hospital Workers (Kudheiha) failed to resolve the issue on the payment of May salaries, the hotel sent its entire staff on an unpaid leave (Wambu, 2020).

The Standard Group, a leading media house, also announced a salary reduction for its entire staff due to depressed economic activities brought about by the coronavirus. Salary reduction went into effect on April 1, 2020 as follows: staff earning over KES 100,000 took a 25% salary reduction; those earning below KES 100,000 took a 20% salary reduction; and some employees went on leave until when needed (Oroo, 2020). Instead of cutting salaries, other institutions extended working hours. For instance, the Nairobi Hospital increased its employees' working hours from 40 to 45; however, the Kenya Medical Practitioners, Pharmacists and Dentists Union successfully challenged this decision in court (Kabale, 2020). From the foregoing, it was clear that the actions of employers to reduce or withhold pay, and increase working hours without adjustment of pay, violated Article 41 on fair labor practices and remuneration.

Effect of containment on access to health facilities and reproductive health care

Article 43(1)(a) provides for the right to the highest attainable standards of health care, a right to access health care services, including reproductive health. The implementation of COVID-19 containment measures, which restricted movement adversely, impacted access to health care services and reproductive health. A study conducted jointly by the African Medical and Research Foundation (AMREF), the Ministry of Health, Population Council and Youth in Action, revealed that COVID-19 containment measures, which restricted movement, also heightened sexual risks among the youth (Aradi, 2020). The report noted that 5% of women were unable to access emergency pills or sanitary towels while 8% of men reported a lack of access to condoms. Youth living with HIV/AIDS were also affected negatively with 2.3% saying that coronavirus cut off their access to anti-retroviral medications while 4.7% were unable to access counseling (Aradi, 2020).

It has also been noted that as the coronavirus pandemic rages on, the number of patients seeking services in public and private hospitals has declined (Standard Editorial, 2020). Private hospitals, including those run by churches, have experienced a decline in the number of patients who are unable to foot their bills and have sought government bailouts. The restrictions have reduced hospital visitations because some people: (i) fear that going to the hospital would expose them to coronavirus; (ii) have either lost their jobs or sources of income and have no money to spend on doctors or medications; and (iii) who used to seek treatment in Nairobi no longer have access to the city (Standard Editorial, 2020). This has, therefore, endangered Kenyans with COVID-19 and other diseases that are not being treated.

COVID-19 has also compromised Kenyans' right to health by negatively impacting their health insurance coverage. For instance, the National Hospital Insurance Fund (NHIF) recently announced that it will only provide cover for coronavirus positive patients admitted to designated public hospitals, including Kenyatta National Hospital, Mbagathi Hospital, Kenyatta University Hospital, and other County hospitals designated by the Ministry of Health (Alushula, 2020). On their part, private health insurance companies have also excluded coronavirus positive patients from accessing insurance cover for their treatment expenses, thereby further compromising Kenyans' right to health.

Standards of housing, water, and food

According to a recent survey by the Kenya National Bureau of Statistics, about 70% of households had difficulty paying rent in May 2020 due to the economic effects of the coronavirus disease (Mutua, 2020). Out of the respondents interviewed, 31.6% paid rent on time in May, compared to 41.7% in April. About 37% of rent defaulters were unable to pay any rent while 23% paid partially and 8.5% were hopeful of paying it later that month. The reasons why majority of the households in the survey were unable to pay rent included reduced income or earnings, closure of businesses like bars and restaurants due to COVID-19 social distancing mandates, job cuts, and unpaid leave for many workers (Mutua, 2020).

Social security

The Kenya National Safety Net program (*Inua Jamii*) comprises cash transfers to orphans and vulnerable children, older persons over seventy years old, and persons with disability. With the outbreak of COVID-19, the President ordered disbursement of an additional KES 12 billion to

these vulnerable members of society. To this end, the government has taken significant steps in meeting the requirement in Article 43 (e) of providing social security to Kenyans. However, there have been complaints that the disbursements under the cash transfer program have not reached the intended beneficiaries, while some have complained of not receiving any funds since the program started in March, 2020 (People Daily Online Editorial Team, 2020).

Education

Effects of COVID-19 containment measures on primary and secondary school children

COVID-19 containment measures included closure of all educational institutions in the country, with classes expected to resume in January 2021 (Wanzala, 2020). This extended closure of educational institutions has negatively affected the academic progress and social lives of school-aged children in the country. Even with projected resumption of studies in January 2021, the number of school-aged children who will be unable to complete their studies due to unplanned pregnancies, early marriages, and other factors will be high. According to Plan International (2020), unintended teenage pregnancies significantly distort the affected girls' lives, education, and future income since they have to drop out of school to raise their children. School-aged girls dropping out of school has a number of negative consequences. For example, girls dropping out school leads to low education attainment which, in turn, negatively impacts the country's effort to achieve universal primary education for all students (Subramanyam, 2016). Women who acquire qualifications and skills are more likely to be employed and earn a higher level of income than those with low education. According to Subramanyam (2016), low academic achievement amongst women results in their decreased labor participation in the workforce as fewer are likely to get good employment opportunities. This, in turn, reduces national economic growth and poverty reduction efforts.

Effect of containment measures on university education

The closure of schools and institutions of higher learning was among the first COVID-19 control measures announced by the Kenyan government in March 2020. University education has been greatly disrupted by the closure order, although some have managed to switch to online learning and virtual graduation ceremonies.

Although many Kenyan universities have shifted to online and virtual learning, this strategy is not workable for all students, especially those from rural areas. The shift to online education has created disparities in learning experiences due to a number of factors, such as lack of money for internet bundles, limited or no access to digital devices, internet access, and electricity (B. Gisore, personal communication, July 2020). They also lack a conducive home learning environment. This digital divide, between students from rich and poor backgrounds, urban and rural areas, is a major drawback to the potential benefits of e-learning in Kenya. Furthermore, these inequalities have the potential of perpetuating and reproducing Kenya's already wide socioeconomic inequalities and limiting Kenyans' right to education as envisaged in Article 43 (1) (f) of the Constitution. As online learning takes a central place in university education, the government ought to establish funding mechanisms to enable students to purchase laptops or smart phones. The student loan to purchase digital devices can be channeled through public institutions such as the Higher Education Loans Board (HELB).

CONCLUSION

The objective of this study centered on the effects of coronavirus control measures on Kenyans' enjoyment of economic and social rights. The initial COVID-19 control measures such as the enforcement of a nationwide curfew, focused on reducing the number of infections by policing and limiting public movement in the name of public health protection. These measures will be remembered for their disproportionate use of force by law enforcement officers against the public and journalists. Media reports of police brutality on the first day of the curfew in Likoni Ferry, Mombasa grabbed national headlines because little thought was given to helping the public to practice COVID-19 preventive measures (e.g., providing sanitation points, releasing employees early from work, ensuring adequate access to water and quarantine facilities). Although the prohibitive laws and policies were firmly, if not enthusiastically enforced, the measures to facilitate citizens' adjustment to the *new normal*, including tough economic times and restricted economic opportunities, were accorded little attention by the government.

Since the issuance of the State Curfew Order in response to the outbreak of COVID-19, a number of public and private measures have had disruptive effects on the well-being of Kenyans in a variety of ways. Though COVID-19 control measures were intended to contribute to the wellbeing of Kenyans' enjoyment of their rights, they have had the opposite effect in terms of limiting access to healthcare services and reproductive health. Similarly, the closure of educational institutions, for some students, has limited their access to education. With some universities resorting to online learning, inequalities have been laid to bear between rural and urban students. Moreover, these measures have reduced working hours for many Kenyans, leading to depressed economic activities, in turn, contributing to unfair labor practices and remuneration. The labor market has been characterized by COVID-19 related layoffs, retrenchment and variation of working conditions to the detriment of workers.

On the other hand, the government has undertaken certain measures to help cushion the welfare of workers and its vulnerable members from the negative effects of its COVID-19 measures. In the process, these measures have contributed to the promotion and protection of Kenyans' economic and social rights (e.g., tax reduction measures increased access to credit and greater access to social security savings). Despite the efforts of the government and private sector to counter the effects of COVID-19 and related effects, these measures have not been adequate for the protection and realization of Kenyans' economic and social rights. The disease has limited people's access to health care services, housing, education, food, water, and fair labor practices. More interventions and funding need to be set aside to counteract coronavirus induced impacts on Kenyans.

References

African Women's Studies Centre (2013) Implementation of Article 43 of the Constitution on economic social rights in Kenya, *University of Nairobi*. http://erepository.uonbi.ac.ke/bitstream/handle/11295/61404/FINAL%20PROGRAMME%20REPORT%20pdf.pdf?sequence=2&isAllowed=y

Alushula, P. (2020, July 28). NHIF stops Covid-19 bill payout in private hospitals. *Business Daily*. https://www.businessdailyafrica.com/economy/NHIF-stops-Covid19-bill-private-hospitals/3946234-5600660-14ve0yo/index.html

Aradi, G. (2020, May 26). Covid-19 battering Kenyan youth into poverty, depression. *The Standard*. https://www.standardmedia.co.ke/article/2001372787/study-covid-19-battering-kenyan-youth-into-poverty-depression

Bowen, G. A. (2009). Document Analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27-40

Kabale, N. (2020, June 2). Pay cut in private hospitals as business slumps. *Daily Nation*. https://nation.africa/kenya/news/pay-cuts-in-private-hospitals-as-business-slumps-489294

Kahongeh, J., Okinda, B., Wafula, C., Ayienda, B., Luvega, D., Odiwuor, G. & Wasonga, D. (2020, July 7). Lockdown lifted but Kenyans still can't travel over lack of guidelines. *Daily Nation*. https://nation.africa/kenya/news/lockdown-lifted-but-kenyans-cant-travel-1446750

Ministry of Health (2020, March 13) First case of coronavirus disease confirmed in Kenya. https://www.health.go.ke/first-case-of-coronavirus-disease-confirmed-in-kenya

Ministry of Health (2020, April 7). Government announces extra measures to prevent spread of coronavirus, Nairobi, Monday April 6, 2020. https://www.health.go.ke/govt-announces-extra-measures-to-prevent-spread-of-coronavirus-nairobi-monday-april-6-2020

Ministry of Labor and Social Protection (2020, April 19). Press release on Inua Jamii. https://www.socialprotection.go.ke/wp-content/uploads/2020/04/PRESS-RELEASE-INUA-JAMII.pdf

Mutanu, B. (2020, July 7). It's now up to you to protect yourself and family from virus. *Daily Nation*. https://nation.africa/kenya/news/protect-yourself-family-from-covid-19-uhuru-1446022

Mutua, G. (2020, July 9). 70pc of households struggle to pay rent. *Business Daily.* https://www.businessdailyafrica.com/bd/economy/70pc-of-households-struggle-to-pay-rent-2295466

Ochunge, N. (2020, July 14). Teachers sent on unpaid leave as private schools grapple with prolonged closure. *The Standard*. https://www.standardmedia.co.ke/education/article/2001378749/teachers-sent-on-unpaid-leave-as-private-schools-risk-permanent-closure

Office of the President. (2020, March 23). Presidential Address on the State Intervention to Cushion Kenyan's against Economic Effect of Covid-19. Retrieved from https://www.president.go.ke/2020/03/25/presidential-address-on-the-state-interventions-to-cushion-kenyans-against-economic-effects-of-covid-19-pandemic-on-25th-march-2020/

Oroo, V. (2020, April 7). Standard Group slashes staff salaries. *Kenyans.co.ke* https://www.kenyans.co.ke/news/51772-standard-group-slashes-staff-salaries

Oyunge, P. & Chebii M. (2020). Kenya enhance its cash transfer programmes in response to the COVID-19 pandemic. *Financial Sector Deepening Kenya.* https://fsdkenya.org/blog/kenya-enhances-its-cash-transfer-programmes-in-response-to-the-covid-19-pandemic

People Daily Online Editorial Team (2020, May 19). Accountability key in use of COVID-19 pandemic cash. *People Daily Online.* https://www.pd.co.ke/news/national/accountability-key-in-use-of-covid-19-pandemic-cash-37086/

Plan International. (2020, June 25). Covid-19: lockdown linked to high numbers of unintended teen pregnancies in Kenya. Retrieved from https://plan-international.org/news/2020-06-25-covid-19-lockdown-linked-high-number-unintended-teen-pregnancies-kenya

Public Health (Prevention, Control and Suppression of COVID-19) Rules, 2020, Legal Notice No. 49. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN49_2020.pdf

Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules, 2020, Legal Notice No. 54. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN50_2020.pdf

Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Kilifi County) 2020, Legal Notice No. 54. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN53_2020.pdf

Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Kwale County) 2020, Legal Notice No. 54. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN54_2020.pdf

Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Mombasa County) 2020, Legal Notice No. 54. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN52_2020.pdf

Public Health (COVID-19 Restrictions of Movement of Persons and Related Measures) Rules (Nairobi Metropolitan Area) 2020, Legal Notice No. 54. http://kenyalaw.org/kl/fileadmin/pdfdownloads/LegalNotices/2020/LN51_2020.pdf

Standard Editorial (2020, May 21). Declining number of patients in health facilities cause for concern. *The Standard*. https://www.standardmedia.co.ke/article/2001372086/declining-number-of-patients-in-health-facilities-cause-for-concern

Subramanyam, G. (2016) Gender perspectives on causes and effects of school dropouts from primary and secondary education in developing countries, *Swedish International Development Cooperation Agency*. Retrieved from http://www.ungei.org/Final_Paper_on_Gender_perspectives_C2.pdf

Wambu, W. (2020, June 5). Reprieve for Norfolk workers as sack notice is reversed. *The Standard.* https://www.standardmedia.co.ke/business/article/2001374023/reprieve-for-norfolk-workers-as-sack-notice-is-reversed

Wanzala, O. (2020, July 7). Education CS Magoha cancels KCPE, KCSE as Covid-19 bites. *Business Daily*. https://www.businessdailyafrica.com/bd/news/education-cs-magoha-cancels-kcpe-kcse-as-covid-19-bites-2295062

WHO. (2020). Coronavirus Disease (COVID-19) situation report – 190. Retrieved from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200728-covid-19-sitrep-190.pdf?sfvrsn=fec17314_2

Preparing Kenyan Teachers for Online Delivery: Applicable Lessons from a Six-Week US STEM-Teachers' Professional Development During the Covid-19 Pandemic.

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Abstract

This article reflects on experiences garnered from a six-week summer Zoom-based synchronous Research Experience for Teachers' (RET), for professional development program, on data science and its application to cybersecurity, which took place at Texas Tech University during the COVID-19 pandemic. An autobiographic approach to explore how middle and high school STEM teachers experienced transformative learning during the program was used. The process-oriented framework to understand how teachers experienced online teaching and learning was utilized. This process-oriented framework outlines the skills and competencies for online teaching that instructors should embrace to realize transformative online learning. The study involved nine STEM teachers—six men and three women. Virtual observations, and teachers' reflection journals to document learning behavior were applied, which revealed that social interaction, collaboration, communication, can occur effectively in an online learning environment.

Keywords: Cybersecurity, Data science, COVID-19, Learner-centered, STEM teachers, Virtual learning, Technology integration.

INTRODUCTION

COVID-19 pandemic had a serious global effect on most educational systems after more than 190 countries implemented nationwide school closures, affecting over 1.7 billion students (Mustafa, 2020). The global decision to close schools was seen as an effort to curb the spread of COVID-19 through non-pharmaceutical interventions and preventive measures, such as social-distancing and self-isolation. In response to school closures, universities recommended the use of distance learning programs and open educational applications and platforms that teachers could use to reach learners remotely and limit any academic disruption (Ngumbi, 2020). As a result, many countries ensured that teachers were able to create virtual classrooms where they could interact directly with students (World Bank, 2020). However, lack of access to technology or good internet connectivity has continued to be an obstacle to learning in many countries (Mustafa, 2020). Therefore, for Kenyan schools to reach learners remotely, it will depend on the successful integration of the Kenya laptop initiative into the classroom instruction (Mutua, 2013; Waweru & Kihara, 2013). For this reason, there is a dire need to explore how "ICT can effectively be embedded in instructional reform" in Kenya (Piper et al., 2015, p. 13).

The status of ICT integration to school programs in Kenya

Kenya is among other sub-Saharan countries in Africa that are at the forefront of ensuring that ICT is used to improve educational outcomes (Piper et al., 2015). Nonetheless, Nchunge et al. (2012) pointed out that schools in Kenya have failed to adopt ICT despite its significance in service delivery in education. The limited adoption of ICT in schools can be attributed to teachers' negative attitudes towards technology due to a lack of skills and pedagogical teacher training (Ngololo et al., 2012; Tondeur, 2019). Further, Piper et al. (2015) also attributed ICT's slow adoption to Kenya's rigid traditional education system and restrictive curriculum. Therefore, Tondeur (2019) stresses the significance of teachers' professional development in technology integration to improve teachers' professional knowledge in the context of their work.

Conceptual model: Process-oriented framework for effective online teaching

Abdous (2011) outlined specific activities that are structured around three sequential non-linear/iterative phases: *before* (preparation, planning, and design), *during* (facilitation, interaction, and feedback), and *after* (reflection and lessons learned), which follow the unfolding of the online teaching experience.

The preparation, planning, and design phase require instructors to participate in professional development to acquire online teaching fundamentals and pedagogical skills. The instructors are expected to reflect on the transition from in-person teaching and learning to online teaching environments focusing on similarities and differences between the two environments. Abdous (2011) considers an instructor's active participation in this stage instrumental to the overall preparedness and effectiveness of one's teaching online. An instructor "integrates effective learning activities that are aligned with learning objectives, while remaining mindful of various technical and logistical constraints" (Abdous, 2011, p. 66).

During the actual teaching, Abdous considers facilitation, interaction, and feedback as key activities in the online classroom. It is the responsibility of the instructor to welcome learners to the learning environment and pronounce with clarity the instructor's expectations, weekly time commitment, and deadlines to submit assignments. This phase entails the instructor to develop a positive rapport and assist learners to take responsibility for their learning. Similarly, the instructor should develop a sense of learning community among participants to cultivate meaningful and in-depth interaction through focused, and relevant open discussions. At this stage, regular and relevant students' feedback is key data to assess the effectiveness of the course content and activities (Abdous, 2011).

The reflection phase is a self-improvement therapy for the instructor. Abdous (2011) encourages instructors to keep reflective journals on their experiences. The data from these journals should include lessons learned to help improve the course. Using the process-oriented framework, this study focused on the pedagogical practices that would enable teachers to create a conducive online classroom.

Skills and effective pedagogies for online teaching and learning

The emergence and use of technology in learning institutions have expanded classroom boundaries and reshaped teaching and learning in schools (Barber et al., 2013). To keep in line with these changes, "new teaching pedagogies, learning skills, and assessment methods have emerged" (Albrahim, 2020, p. 9). Online learning is founded on constructivist theories that advocate for

collaboration between instructors and students for transformative learning (Budhai & Williams, 2016; Ruarte, 2019). Thus, a successful learner-centered approach to online teaching requires teachers to adopt pedagogical practices compatible with the integration of technology in the classroom to effectively communicate with learners (Albrahim, 2020). The instructors endeavor to ensure students communicate, interact, collaborate, and are engaged throughout the online sessions (Palloff & Pratt, 2011). Albrahim (2020) identified six categories of teaching skills and competencies that instructors should have to be successful in online teaching: a) pedagogical skills, b) content skills, c) design skills, d) technological skills, e) management and institutional skills, and f) social and communication skills. The six categories of teaching skills can be compressed into four effective pedagogies: teaching, social, cognitive, and technical/managerial presence (Ruarte, 2019).

Teaching presence: This refers to the level of engagement and participation of an instructor in the strategic design and outcomes of a course. The teacher should be able to link the subject and content to real-life experiences (Abdous, 2011). Albrahim (2020) argues that teachers should understand and apply strategies related to the learner-centered approach and collaborative learning. Teachers should design course materials, instructional strategies, provide guidance and support that would facilitate student interaction, collaboration, and teamwork. Teachers should show enthusiasm, encourage a student's self-assessment and reflection.

Social presence: This focuses on building friendly and interactive online classrooms. Active communication and social presence are vital to engaging online learners. Pelz (2010) encourages instructors to acquire skills in developing engaging course content to facilitate students to develop cohesive relationships. Adebisi and Oyeleke (2018) advocate for instructors to aim at encouraging collaboration and interactivity among the learners. Social presence has to do with the socio relational aspects of the online classroom and the connectivity and encouragement of the instructors. Instructors are responsible for this social engagement through the use of course activities and the intentional encouragement of a cohesive environment.

Cognitive presence: This involves designing a strategic learning environment that is conducive to meaningful learning. Online instructors should be able to develop rich discussion questions and help students to connect factual, conceptual, and theoretical content (Pelz, 2010). The entire course content should carefully be assessed to ensure it activates cognitive processes and deep learning (Ruarte, 2019). Instructors should encourage the use of discussion questions to promote deeper level thinking and meaningful learning. Instructors should be responsible for the cognitive processes of students through the careful formulation of questions.

Technical managerial presence: Technical/managerial presence involves ownership of the course design and content and the course outcomes. Online instructors should be required to have technological literacy skills to enable them to access several technological resources and tools relevant to an online learning environment. The instructor should be able to establish rules for participation, time management, sending and receiving feedback, and classroom communication (Albrahim, 2020; Ruarte, 2019). Adebisi and Oyeleke (2018) consider technology and the strategic management key to the instructor’s ownership of the online learning process.

METHODOLOGY

Autobiographical inquiry

Writing autobiographically connects the private (we) with the public (other) and thus becomes an important tool in our research. It allows us to slow down, look back and investigate, reveal, and express the lived experiences using our voice. Pinar (1995) argues that autobiography, as a discursive practice, vividly reflects a person's lived experiences to build on a complex web of different relationships and modalities. As a result, researchers found that "evocative genres of writing are appropriate methodological and pedagogical tools for examining lived experiences of individuals" (Park, 2013, p.8). The autobiographical approach permitted the first author to reflect on his first-hand experience, coping with COVID-19 normal and how it helped him reflect on its impact on schools closing globally. It was a two-step process that entailed reflecting "on my past moments that led to the awakening of my consciousness to construct the meaning of my lived experiences." The second step involved the presentation of these events and their meanings as they currently appeared to us. Thus, we use an autobiographical approach to evoke and narrate vividly our virtual interactions with nine STEM teachers during the six-week RET professional development program and examine the emerging patterns to establish interventions and plans of action, and make conclusions.

Context of the study

The study was conducted during a six-week Research Experience for Teachers (RET) professional development at Texas Tech University during the summer of 2020 to explore the learning experiences of grades 6-12 STEM teachers in data science and cybersecurity. Following COVID-19 pandemic preventive measures, such as social-distancing and self-isolation (Mustafa, 2020; Ngumbi, 2020), professional development was conducted online. Interdisciplinary faculty and teachers interacted using a synchronous Zoom platform. For the first two weeks, teachers interacted with Computer Science (CS) instructors for two hours daily (10:00 a.m. to noon) and learned data science and cybersecurity concepts. They then engaged in one-hour (1.00 p.m. to 2:00 p.m.) reflection session with Curriculum and Instruction (C&I) faculty. Thereafter, teachers interacted for two hours (2:00 p.m. to 4:00 p.m.) in small groups with Computer Science graduate students in practice exercises reinforcing the concepts taught in the morning in a lab environment. As the program progressed, teachers worked with C&I faculty on unit and lesson planning.

There were nine high school teachers (three women and six men) who taught various STEM disciplines in 6-12th grade at schools in the West Texas region. Teachers were recruited through a rigorous application process where the recruiters considered the applicants' leadership skills, STEM background, ability to integrate the new data science and cybersecurity skills in their teaching subjects, and collegiality with their peers**.**

Data sources and analysis

During the six weeks of the RET online professional development program, teachers were encouraged to reflect on their learning experiences. They documented their reflections in weekly journals based on prompts. We recorded synchronous interactions between faculty and teachers, across teachers, and between teachers and computer science doctoral students via Zoom audio. We later analyzed data from our observation journals, teachers' reflection journals, and products

(collaborative group research projects, PowerPoint presentations of research projects, and unit and lesson plans) to assess the teachers' learning experiences.

We coded and analyzed collected data using computer software for data analysis – NVivo 12 – to find out if teachers' transformation occurred. We used Initial, In vivo, Process, and Causation coding to extract "ongoing action/interaction/emotion taken in response to situations" (Corbin & Strauss, 2008, p. 96; Saldana, 2013) from participants' data.

RESULTS

In analyzing data, the following themes emerged: a) technology management, b) linking the content to real-life experiences, c) conducive and interactive learning environment, d) teamwork, and e) transformation.

Technology management: We prepared in advance to deal with technological issues as we understand technology is a medium of human expression and it affects human behavior and patterns of thinking (Abdous, 2011). The interdisciplinary team ensured that all its members were conversant with the Zoom online platform that was used before our first classroom interaction. The Principal Investigator (PI) emailed a Zoom link inviting all participants to the first orientation meeting. During this meeting, they practiced sharing screens, using Zoom breakaway rooms, time management, and giving feedback. This prepared the team to handle and provide help to any technological shortcomings during the six-week RET online program. The PI also ensured that support was available to anyone who experienced technological problems. For example, on the first day we recorded:

> The following issues were visible during the first Zoom session. Some participants faced challenges connecting to Zoom. Some participants had no prior experience using Zoom in the classroom like set up. Two teachers had an issue with their passwords allocated to join the Zoom meeting. However, they were assisted and joined a few minutes later. (June 8)

Another visible challenge documented on the first day was social interaction. We observed a disconnect between face-to-face classroom and Zoom sessions. One observer wrote "First, social interaction was a bit abstract. Consequently, it was a bit challenging to create a conducive learning environment. Awkward silence! It is difficult to tell who is there participating, especially when one has joined the session using audio and not video" (June 8).

The instructors overcame the social interaction and learning environment challenges by first acknowledging the significance of a synchronous Zoom session, and initializing an ice-breaking session. Observer 3 recorded:

> First, the Zoom host made the participants aware of the importance of accommodating technology as a substitute for a face-to-face classroom. The argument was that Zoom has helped bring on board all the RET participants in the comfort of their homes without fear of contracting the COVID-19 Virus. Second, the interdisciplinary faculty was in regular contact, either on phone or through Zoom on ensuring those who had issues with using Zoom were assisted and never left out (isolated from the others). (Observation notes, June 8)

During the ice-breaking session, C&I faculty informed participants that they were to be put into three Zoom breakaway groups for 15 minutes and were asked to participate in activities that encouraged social interaction. The following was recorded:

> Every participant got a chance to speak and engage other members in a discussion. The initially dull faces were now brilliant. Time management was tested as the timer for the breakaway room was active. During the *Second breakaway 15 minutes*, the second group had more time to discuss freely. There was minimal tension and voluntary participation was notable. In the *Third breakaway 15 minutes*, the members could refer to each other by name. The session had more humor and chit-chat. (Observation notes, June 8)

Thereafter, C&I instructors engaged participants in reflections on what transpired in their breakaway rooms. One teacher noted that "sitting for two hours made him identify with what students go through in a normal classroom situation" (Observer 2).

As the program progressed, teachers got conversant with the online learning environment and exhibited technology management skills. For example, they interacted freely during their group discussions, and were able to share their computer screens during the individual final presentation of unit and lesson planning. It was evident that all teachers experienced transformative learning through constructive collaboration between instructors and students.

Linking content to real-life experiences: During our RET professional development program, we engaged teachers in supportive, instructional focused, collaborative, and inquiry-based learning activities. The overall objective was to create a research-rich learning environment with the expectation that teachers would adopt and transfer their learning experiences to their middle and high school STEM curriculum units. By so doing, they would cultivate critical and computational thinking skills in grades 6-12 students to develop cybersecurity talents. This was in line with Pelz's (2010) advocacy for creating content that reflects real-life situations and creating a conducive learning environment that would cultivate cognitive development in learners. For example, CS faculty engaged teachers in learning R-programming concepts so that they can apply the knowledge in data mining and modeling to solve real-life data science and cybersecurity problems. As one teacher wrote in her journal:

> Like yesterday, however, I am still most interested in discovering how to use these data science concepts in cybersecurity applications. Since I will be teaching a cybersecurity class in the fall, I am most concerned with the relevance to that field of study. I am already somewhat familiar with data science concepts, so the only new thing to me at this point is implementing those concepts in R. I am still clueless about using data science in cybersecurity. (June 25)

It emerged that the teachers adopted the content on data science and cybersecurity and were prepared to transfer it into the K-12 curriculum. This was evident in their final research projects and lesson planning.

Conducive learning environment: We ensured that the participants were involved in a learning environment conducive to meaningful learning. Teachers were engaged in learning activities, discussion questions, and received help from instructors to connect the abstract R-programming concepts to data analysis and application in cybersecurity group projects. For example, regarding teaching approach, one teacher recorded:

> I thought his [CS professor] approach to teaching this topic was effective. I would teach it much the same way. He started by showing us an application of neural networks: face recognition. It sparked my interest before we even got started. (June 11)

This sentiment was similarly expressed by another teacher who reported about the interactive learning activities:

> We also learned about some of the reasons for having missing data and how you can best replace missing data if needed. We then looked at normalizing data, which was the main focus of the lesson, using different approaches like min-max normalization, Z-score standardization, and decimal scaling. The CS professor talked us through examples of these different types of methods along with showing us how to look at and try to eliminate skewness of data. At the end of the lesson, we looked at different types of sampling and then saw her go through several code examples in RStudio where these concepts were demonstrated using R programming. (July 8)

We also observed that CS professors posed questions, and assigned tasks to teachers encouraging them to participate in the learning process. The conducive online learning environment enabled the teachers to apply the acquired knowledge in data science into their lesson and unit plans on integrating data science and cybersecurity concepts into their curriculum.

Teamwork: One of the key goals of the RET program was to engage teachers in a group research project that would reflect their learning transformation during the six weeks of professional development. The instructors developed engaging course content that facilitated cohesive relationships among learners. As one teacher noted:

> Two minds are better than one. There is no right way to do anything in R, so having more than one of us working on the same thing is bound to produce the most efficient response. Plus, I'm sure we all want to get it done and get it in the best way possible. (June 28)

The idea of teamwork was also expressed by a teacher who shared in her journal that "To work as a team in a virtual environment means that everyone involved has to pull their weight. It is even more important than during a face-to-face project that everyone is personally accountable for his/her work" (July 8).

During the last week of professional development, teachers presented their group research projects reflecting on the effect of collaborative learning. This was evident through the independent feedback captured in the *Group Project Feedback Forms.* For example, in the group working on *Intrusion Detection,* the project scored 25 out of 25 points. A CS professor remarked on the collaborative project, "I was [really] impressed with how much you were able to get done from the last presentation. I found the Boruta function [really] useful and important and wish we could have used it on our project! " (July 17). A similar assessment was registered by the group presenting on *Phishing with a URL Identification* project. A CS professor noted, "Your extension is amazing! I hope that you get to pursue it even further!" (July, 17).

Teachers transformation: One of the main goals of the RET program was to enable teachers to integrate new data science skills in designing a research project to solve cybersecurity-related threats. At the beginning of the project, some teachers were skeptical of their success in the program as one wrote:

> I am brand new to cybersecurity as it is and, at this point, I am not even familiar with the curriculum, much less how I will be able to integrate data analysis into it. Also, I am

> wondering if data analysis concepts could be integrated into a computer science class as well? (June, 9)

However, as the training progressed, there was evidence of transformation learning as the three groups of teachers collaboratively contributed to the development and presentation of their research projects. For example, one group collaborated and developed a project on how URL attributes could be used to help identify phishing sites. The group explained how the length, date, and naming of a URL link can be used to detect a phishing URL. The second group developed a project on intrusion detection. The members examined how R-programming can be used to design a model that would detect a pattern of codes that would detect intrusion.

It was amazing to see how the last group transformed from their initial stuckness status as evidenced by one of its members who remarked, "Perhaps I have missed something, but it doesn't feel like we have discussed anything about cybersecurity at all. I'm not entirely sure that I see the connection between what we have done so far and how it is related to cybersecurity. I'm eager to find that connection" (June 22).

Another member of the group wrote, "I'm curious about the applications of text similarity and sentiment analysis to predict patterns of behavior … I will admit that I still consider myself to be a novice at code-writing, but the applications of this technology seem endless" (June, 25). However, they were successful as they developed and presented a project on detecting spam content. They analyzed tweets using different online sentiment analysis dictionaries to explain whether COVID-19 data was a fact or rumor.

DISCUSSION

In this study, we observed how educators developed new knowledge of online teaching skills to enhance transformative learning. We identified teaching, social, cognitive, and technical/managerial presence that teachers needed to achieve to learn cybersecurity concepts during the online RET program. The findings of the study evidenced teachers' ability to link the content with real-life experiences, the existence of a conducive and interactive learning environment, teamwork, and technology management that helped them experience transformative learning. The findings were in line with Abdous (2011) process-oriented framework and Albrahim (2020) teaching skills and competencies for successful online teaching. Our findings thus have added to the existing knowledge in STEM teachers' transformative online teaching and learning. These findings further can inform both Computer Science and teacher educators on the importance of ensuring that teachers communicate, interact, collaborate, engage during the online professional development sessions (Palloff & Pratt, 2011) for transformative learning. Finally, the findings on teachers' ability to collaboratively integrate the new knowledge after acquiring the language of cybersecurity can inform the instructors on how to improve cybersecurity teaching methods to create a conducive online teaching and learning environment.

Nonetheless, this study had its limitations that might have influenced the findings. First, the use of convenience sampling was based on the availability of the participant for professional development during summer. Another limitation was the confinement of our teachers to their homes due to COVID-19 pandemic preventive measures such as social-distancing and self-isolation (Ngumbi, 2020; Mustafa, 2020). As a result, our study used a sample size of nine teachers to enable us to make online observations to document the participants' learning behaviors. Another limitation was the time of the study. We observed that the six-weeks were a short time and both

the educators and the teachers got overwhelmed by data science and cybersecurity course content. We endured the limitations and we are contented that our study provides valuable insights into the online teaching and learning of data science and cybersecurity to high school STEM teachers.

Practical implications for online teachers

Based on this study, it was evident that the interdisciplinary faculty had adequately prepared course content for the six-week RET program. Abdous' (2011) process-oriented framework advocates for an instructor's preparedness for a far-reaching impact on online teaching delivery. We recognized the importance of adequate preparation for a successful online classroom that we spent adequate time to prepare for relevant and effective course materials. The preparation also led us to adopt pedagogical practices that were compatible with the integration of technology in our virtual classroom to effectively communicate with learners (Albrahim, 2020). The teachers were engaged in learning activities that transformed their knowledge in data science and cybersecurity and its integration in the K-12 curriculum. At the end of the six-weeks RET program, it was evident that adequate and regular professional development and ongoing technical support were critical for effective online teaching and learning experience. There is a need to regularly update the content based on daily reflections to ensure that students' needs are taken into account. The interdisciplinary faculty reflected on teachers' feedback to improve on training. The regular reflections were in line with Abdous' (2011) third phase on a process-oriented framework that encourages instructors to reflect on their online teaching for purposes of improvement. To boost interactive and collaborative learning, teachers should research and prepare course content and learning activities that solve real-life problems as evidenced in the RET program. Teachers were engaged in collaborative group projects that were intended to solve cybersecurity issues. In a nutshell, the quality of course preparation determines the quality of learning for the students.

Pelz (2010) and Ruarte (2019) encourage online instructors to initiate debates and questions that activate cognitive processes and deep learning. We understood that constant communication through timely feedback was a key concept in developing proactive online teaching. We also recognized the importance of students' orientation on the interactive virtual environment and regular support, based on their regular and systematic feedback. Thus, the interdisciplinary faculty used daily classroom discussions that created a conducive learning environment and promoted students' cognitive growth. The teachers' transformation was evident in asking questions, engagement in collaborative group work, and integrating their cybersecurity knowledge in their final group projects and lesson plans.

The use of Abdous (2011) process-oriented framework approach helped us understand the pedagogical skills that are effective for online teaching and learning for high school STEM teachers. We were able to identify four effective pedagogies or teaching skills that teachers need to learn during an online professional development. Using the process-oriented framework, we were able to make meaning of the teachers' reflection journals and observation data that we had collected. The process-oriented framework was instrumental in informing us of the key pedagogies related to teaching cybersecurity and computer science online. Consequently, the same framework can be applied in studying other groups of online teachers in other regions of the world.

Online teaching lessons for Kenyan teachers

The successful six weeks RET online professional program for STEM high school teachers offers numerous lessons for Kenyan teachers. Technological literacy skills are instrumental in accessing

technological resources relevant to an online teaching and learning environment. One reason why ICT integration is limited in Kenyan schools is due to teachers' negative attitude towards technology since they lack ICT skills and online pedagogical skills (Ngololo et al., 2012; Tondeur, 2019). To overcome this negative attitude, Kenyan teachers must be willing to participate in professional development that will improve their technology management skills. There is a need to develop an intrinsic motivation to embrace technological literacy. For example, the nine teachers in our study volunteered to participate in a six-week summer intensive professional development on technology integration in their curriculum.

Transformative learning is dependent on the teacher's ability to create course content that engages students in solving real-life experiences. Thus, teachers should understand and strategize on the application of the learner-centered approach and collaborative learning. The success of online classroom teaching and learning is dependent on the quality of prior preparation to ensure teachers have adequate course content, availability and accessible technology for learners, and classroom communication. The course and instructional materials should be designed in a way to guide and facilitate students' interaction, collaboration, and teamwork. Student's feedback is also key to improving online teaching and can be sustained through a friendly and interactive virtual classroom. The teachers in this study were successful because program instructors developed interactive and reflective online sessions. Furthermore, teachers were orientated to a virtual social interaction to encourage teamwork. The effect of social interaction was manifested during the teachers' collaborative projects. Therefore, Kenyan teachers could embrace a collaborative approach in content design, classroom activities, and classroom communication to enhance learning.

CONCLUSION

The preeminence of technology use in classroom learning together with the rise of learners in cybersecurity, call for curriculum developers and educators to use different lenses to address learners' transformation. One ideal approach to transformative learning in high school cybersecurity literacy is a process-oriented framework for effective online teaching and learning. Our study contributes to the existing knowledge of online pedagogical skills and literature in computer security literacy. Through this study, we have presented the process-oriented framework concepts and their application in online cybersecurity professional development with high school teachers. The study documented five themes related to the learner-centered online teaching and learning approach evident of teachers' transformative learning in data science and cybersecurity. The study evidenced the pedagogical practices that online instructors should embrace to be able to integrate technology in the classroom for effective communication with learners for transformative learning. There was evidence that teachers and instructors collaborated to overcome challenges teachers experienced during professional development. Constructive theorists advocate for collaboration in online teaching and learning for transformative learning. Thus, our findings are a resource to curriculum stakeholders and computer science pedagogy who intend to explore online teaching concepts to support transformative learning.

Despite the COVID-19 pandemic that led to the partial lockdown of our university, we were able to conduct the 2020 summer RET professional development program successfully. There were numerous measures that the interdisciplinary faculty put in place to ensure that the nine teachers did not miss their training. First, there was adequate preparation for the professional development, where the interdisciplinary faculty collaborated to produce course materials for the

six weeks. The PI also ensured that all teachers were informed during the recruitment process that the training would be in a virtual environment. Second, the challenge of technology was resolved where all participating teachers were provided with a new portable laptop and required to have internet access to enable their mobility. This enabled them to work from the comfort of their homes. Third, all the participants attended a one-day orientation on technology management to embrace a virtual classroom environment. As the training progressed, participants were encouraged to participate in group discussions, ask questions, and keep a daily journal reflecting on the lessons they learned during the data science and cybersecurity classes. The collaboration between the interdisciplinary faculty and the teachers encouraged transformative learning during the six weeks of online training.

We recommend further research that would explore teachers' transformation using a larger sample size with limited resources. The challenges we experienced in identifying the key concepts in a process-oriented framework that identifies key pedagogical competencies and transformation can offer insights to researchers and scholars interested in data science and cybersecurity. More knowledge is needed in improving technological and pedagogical approaches for online delivery in under-resourced environments.

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References

Abdous, M. H. (2011). A process-oriented framework for acquiring online teaching competencies. *Journal of Computing in Higher Education*, *23*(1), 60-77.

Adebisi, T. A., & Oyeleke, O. (2018). Promoting effective teaching and learning in online environment: A blend of pedagogical and andragogical models. *Bulgarian Journal of Science and Education Policy (BJSEP*, *12*(1), 153–172.

Albrahim, F. A. (2020). Online teaching skills and competencies. *Turkish Online Journal of Educational Technology-TOJET, 19*(1), 9-20.

Barber, M., Donnelly, K., Rizvi, S., & Summers, L. (2013). *An avalanche is coming: Higher education and the revolution ahead.* The Institute of Public Policy Research, London, UK. https://www.voced.edu.au/content/ngv%3A55590

Budhai, S. S., & Williams, M. (2016). Teaching presence in online courses: Practical applications, co-facilitation, and technology integration. *Journal of Effective Teaching, 16*(3), 76-84.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks: Sage Publications Inc.

Mustafa, N. (2020). Impact of the 2019–20 coronavirus pandemic on education. *International Journal of Health Preferences Research.* https://doi.org/10.13140/RG.2.2.27946.98245

Mutua, W. (2013, July 2). Kenya's laptops for children initiative. *IDG Connect.* https://www.idgconnect.com/article/3580367/kenyas-laptops-for-children-initiative.html

Ngumbi, E. (2020, March 17). Coronavirus closings: Are colleges helping their foreign, homeless, and poor students? *USA Today.* https://www.usatoday.com/story/opinion/2020/03/17/coronavirus-closings-can-strand-poor-foreign-homeless-college-students-column/5054621002/

Nchunge, D. M., Sakwa, M., & Mwangi, W. (2012). User's perception on ICT adoption for education support in schools: A survey of secondary school teacher's in Thika district Kenya. *International Journal of Humanities and Social Science, 2*(10), 17-29.

Palloff, R. M., & Pratt, K. (2011). *The excellent online instructor: Strategies for professional development.* San Francisco: Jossy Bass.

Park, G. (2013). My autobiographical-poetic rendition: An inquiry into humanizing our teacher scholarship. *L2 Journal, 5*(1), 6-18. https://doi.org/10.5070/L25115768

Pelz, B. (2010). (My) three principles of effective online pedagogy. *Journal of Asynchronous Learning Networks, 14*(1), 103–116. https://files.eric.ed.gov/fulltext/EJ909855.pdf

Pinar, W. F., Reynolds, W. M., Slattery, P., & Taubman, P. M. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses* (Vol. 17). Peter Lang.

Piper, B., Jepkemei, E., Kwayumba, D., & Kibukho, K. (2015). Kenya's ICT policy in practice: The effectiveness of tablets and e-readers in improving student outcomes. *FIRE: Forum for International Research in Education, 2*(1), 3-18. https://preserve.lehigh.edu/fire/vol2/iss1/2/

Ruarte, D. (2019). Effective pedagogies for online teaching and learning. https://www.researchgate.net/publication/332655856

Saldana, J. (2013). The coding manual for qualitative researchers (2nd ed.). Los Angeles: Sage Publications.

Tondeur, J. (2019, December 16). Why Kenya is failing to integrate technology into secondary schools. *The Conversation.* https://theconversation.com/why-kenya-is-failing-to-integrate-technology-into-secondary-schools-127929

Waweru, B. K., & Kihara, C. M. (2013). Challenges in the adoption and utilization of information and communication technology in public secondary schools in Molo Sub-County, Kenya. *World Academic Journal of Business & Applied Sciences,1*(7), 234–239.

World Bank. (2020). How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic. https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic

Education during COVID–19: Reflections of Kenyan Scholars in the USA

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Abstract

The World Health Organization declared the Coronavirus Disease 2019 (COVID-19) a pandemic on March 11, 2020. In the aftermath of this declaration, nations and cities went into lockdown to mitigate and control the spread of the virus. Similarly, institutions of learning across the globe were shut down as most in-person classes were cancelled, leading to an influx of online classrooms. These lockdowns, the death tolls, and the emerging physical and mental health issues, have impacted education and other social and economic structures, causing great losses and uncertainties. The resulting global recession casts a long shadow over the future of education and livelihood. At the moment, not much is known how the current pandemic will unravel the future of education, but without a doubt, the COVID-19 pandemic, has significantly transformed traditional teaching and learning by moving them to a new learning environment. Virtual classrooms are now a game changer for the current educational system. This article highlights the lessons learned from the lockdown, propositions that will shape the future of education, the needed changes in education perspectives or policy, and prioritization of educational planning and developmental opportunities.

Keywords: COVID–19, Online Learning, Education System, New Normal, Pandemic

INTRODUCTION

The coronavirus (COVID-19) outbreak in Wuhan, China at the end of 2019, caused a major public health emergency, which culminated in a serious public crisis (Ahmed et al., 2020; Goh & Sandars, 2020; Zhou et al., 2020). It has been the world's most difficult experience since the Great Depression of the 1930s. Many sources of livelihood have been affected significantly from the measures taken to curb the spread of COVID-19, including lockdowns and social distancing. These measures have negatively impacted educational sectors in the world, including Kenya. Both private and public institutions have been shut down while administrators and faculty ponder a way forward to enhance students learning.

From the socio-economic standpoint, lockdowns cast a shadow of uncertainty, leading to strained livelihoods and possibilities of a recession. Many economic experts concur that the COVID-19 pandemic will have adverse negative effects on the world economy. Statistical projections have indicated that even the most developed countries would lose at least 2.4 percent of gross domestic product (GDP) in 2020 and a decreased growth of 3.0 to 2.4 percent (Al-Baadani & Abbas, 2020; Duffin, 2020). Although these predictions were made prior to COVID-19

becoming a global pandemic and the implementation of social distancing restrictions, global markets have since suffered even more dramatic falls (Duffin, 2020).

Kenya has not been spared this global agony. Its 2020 GDP is estimated to fall to -5 percent if the outbreak is not effectively contained, representing a loss of $10 billion in GDP (Bellamy, 2020). Majority of Kenyan families are struggling to pay for food and rent as COVID-19 lockdowns have caused massive unemployment and stopped billions of dollars in remittances from the Diaspora (Adow, 2020). School closures have also had negative implications for learners in many ways. For example, those learners who rely on school feeding programs as their main source of nutrition no longer have this provision. Equally, finances and tuition payment, which had been a challenge for some students before the pandemic, are now more pronounced. Despite these challenges, another struggle for these students is anxiety and mental health. At the moment, the Kenyan government who would help has focused its efforts on strengthening the health system to contain COVID-19 and care for the infected, instead of economic issues.

Furthermore, during these periods of global economic instability, institutions of higher learning have not been spared and they have been heavily impacted with some laying off and furloughing their employees as a budgetary measure. While the pandemic persists, teaching and learning has not come to a complete stop in institutions with internet access, technology and electricity. In fact, the pandemic has become a boon for online education, media platforms, and learning management systems. Many entities are embracing new skills, new technology, and new ways of thinking while transitioning to new learning modalities. The new paradigm shift has intrinsically become part of life and has forced people to accept, adapt, and acclimatize to it accordingly. Although this shift is viewed as a perfect expectation, Gu, Hoffman, Cao & Schniederjans (2014) notes that the organizational culture and institutional agility are hurdles to implementing transitional changes. Additionally, many scholars doubt whether higher education is prepared for this new digital era (Crawford et al., 2020; Zhong, 2020).

The current COVID-19 education situation in developing countries—Kenya

Kenya is a beneficiary of the World Bank funds. Working with the ministries of education in many countries, this organization supports efforts to utilize technology to promote student-learning opportunities while schools are closed (World Bank, n.d.). Indeed, Kenya's Ministry of Education has offered guidelines to enhance teaching and learning. To date, four platforms are being used to deliver educational programs and resources (World Bank, n.d.): First, Kenya Broadcasting Corporation (KBC) has partnered with other radio stations to broadcast radio programs during weekdays on multiple channels such as Radio Taifa, Iftini, and others. Second, education television broadcasts have begun showing the Edu Channel TV, owned by the Kenya Institute for Curriculum Development (KICD). Third, television programming is available via livestream on KICD's EduTV Kenya YouTube channel. Fourth, learners can access digital learning resources from the Kenya Education Cloud, hosted by KICD. For families without electricity or solar panels, Internet, TVs, and etcetera, at the onset of the pandemic, had to collect and return class assignments; however, this approach was not sustainable.

Although making content available to Kenyan learners is a good plan, Internet bandwidth coverage in remote areas of Kenya is poor. For this reason, Kenya Civil Aviation has partnered with Alphabet Inc. and Telkom Kenya to float Google's Loon Balloons to provide 4G-LTE Internet connectivity to rural and remote area (Feleke, 2020). However, this is not sufficient because people in many of these communities live below poverty levels and cannot afford to own

smartphones or laptops to enable them to access content. While learning may take place in urban areas, COVID-19 has sealed the learning fate for the marginalized children who live in remote villages. Since the only available models of education during the COVID-19 pandemic are tethered to Internet access and broadcast stations, a significant percentage of students are missing out on educational opportunities across the country. Thus, is this not the right time for the government to act? Is this not the right time for the government to develop a sound learning infrastructure that takes into consideration all the limitations mentioned above? Is this not the right time for teachers to be creative, pay forward and service their students? Is this not the right time for parents or guardians to explicitly homeschool their children in both formal and informal learning?

The aim of this article, therefore, is to shed light on the lessons and challenges facing Kenya's educational institutions, explore lessons and opportunities for planning, developing and executing learned opportunities, and set forth recommendations for reflection in ways the education sector can overcome the impact caused by COVID-19 pandemic. Note that this pandemic is unusual and an unexpected occurrence; thus, emerging issues and reflections herein may be scattered, yet still core to a new normal in academia to Kenyan stakeholders in both US and Kenya. The questions below guided our reflections on education during March-June 2020. The quoted reflections also stem from the responses that the authors shared with a television program, Kenya Digital Radio and Television (KDRTV) that aired on July 14, 2020 and can be accessed at the website: https://youtu.be/AERA9pvF2gU. The panelists were Patrick Mose, a Kenyan instructional designer at Ohio University, Penina Kamina, a mathematics educator at SUNY Oneonta, and Bernard Marasa, a drug safety reviewer with the U.S Food and Drug Administration (FDA).

Questions:

1. What lessons from the coronavirus pandemic will shape the future of education?
2. What lessons have we learned from the lockdown, both for the short and the long term?
3. How should parents, teachers, professors, and community leaders adapt their approach to education?
4. How can we, as an immigrant US community, use online education to our advantage?
5. How has COVID-19 changed the status of U.S international students? What are some of their coping strategies?
6. What words of wisdom can you offer to Kenyan educators and policy makers?

DISCUSSIONS AND REFLECTIONS

In this section, we give our responses, viewpoints and reflections on four of the six questions. Responses to the first question are woven into the other four, while the sixth question is part of the conclusion.

What lessons from the COVID-19 pandemic will shape the future of education in Kenya?

Lockdowns and economic devastation due to COVID-19 are the new issues to contend with in life. For this reason, there are a lot of stories of what the current crisis is uncovering about our society, economy, and educational systems. Although the lessons are tough, Patrick Mose, speaking on this

very issue, points out that this is an opportunity for educators to reflect, grieve, and make decisions going forward. He suggests that:

> … learning has stepped up to a whole new level because of a combination of anxiety, fear, boredom, isolation, all of these things have catalyzed people to build a sense of community in online environments. And because of these, learning online …and became a new normal. So, the future of education, I see it as a modification of a curriculum that fits the current needs caused by the pandemic. (KDRTV, 2020)

As a result of this shift, online learning has increasingly grown exponentially in many ways as discussed below. First, online education is an important learning modality for all to consider implementing. It is flexible, adaptive, and allows for enhanced individualized, authentic, and autonomous learning (Gacs et al., 2020). Many educators, teachers, and learners were not keen on online teaching and learning environments before COVID-19 pandemic. Kamina (KDRTV, 2020) notes the change to using technology and virtual teaching has become the lifeline of education. She insinuates that people have not yet taken advantage of the best practices of online learning tools by exploring the "fullest extent of these technologies," but moving forward, she thinks that educators, teachers are going to take online learning seriously.

Secondly, enhancing learning through collaboration is another important lesson COVID-19 has taught society. Educators, teachers, and learners can connect digitally in online spaces using videos, audios, and texts. Creative Commons License, a copyright license that enables free distribution of creative works, has given us opportunities and rights to share, use, and build upon other people's works. Kamina (KDRTV, 2020) reports that people have become generous in collaborating and sharing resources—there are significant amounts of new information on the open educational resources that people can access without membership requirements, including some textbook from publishing companies and free sharing of scholarly resources on various websites.

Besides collaboration, flexibility and adaptation are important lessons to be learned from this pandemic. To clarify, Marasa explained that:

> …We have to learn to adapt. Life sometimes throws curve balls and this pandemic, COVID-19, is a perfect example of that. And one of the easiest or simplest lessons that I can pick right from this pandemic is that as human beings, we have to learn to adapt. One of the key things, a lot of companies have had to adapt is, of course, to allow their employees to work from home. (KDRTV, 2020)

This idea of adapting to new modalities, be it in academia or other sectors, is a new norm that we must all embrace for our very viability. This cannot happen without planning and preparation. Unfortunately, COVID-19 caught most institutions off guard. There was little time to prepare for remote-online teaching. Faculty had no adequate preparation time to transition online and, thus, course design, and delivery was affected because all in-person classes were cancelled unexpectedly.

Planning and preparation for the future should be taken into consideration moving forward. Policy administrators should take an active role in identifying both short and long-term goals to avert future disruptions should another crisis arise. Marasa affirms that preparedness is a very important aspect that should be observed and considered since pandemics or natural disasters are inevitable. Similarly, Mose notes that this planning should encompass all stakeholders, because the COVID-19 pandemic has relatively necessitated self-made learning experts to plan for a new kind of future that is accelerated to an online environment. This calls for planning and flexibility

that has to be manifested in institutional policies, especially those that promote meaningful professional development and investment in faculty and staff. Thus, creations of policies that are geared towards having a sustainable way of handling crises in the future are urgent.

How should parents, teachers, professors, and community leaders adapt in education?

Education discourse has been influenced lately by many factors, including emerging technology trends, the COVID-19 pandemic, and other socio-economic factors. A common denominator that connects these factors is parents' involvement in the academic success of their children. During this COVID-19 pandemic, it is critical to engage parents, teachers, and community leaders to ensure that learning is successful under the current situation. Positioning parents as experts is crucial, since parents have in-depth understanding of their children. Seale (2020) explains that they are uniquely positioned to accumulate a wealth of knowledge about their children as learners. He maintains that there is no better way to personalize instruction than through a parent. Parents and teachers have complementary skill sets and a common purpose of helping students learn and succeed.

Homeschooling is a relatively new concept among Kenyan parents because majority of them are accustomed to abdicating teaching and part of their parenting responsibilities to teachers. For this reason, COVID-19 is a disguised blessing that drove many parents to take critical steps in owning the responsibility of homeschooling their children and collaborating with teachers to facilitate online learning during the pandemic. Kamina explains that teachers are trained, for the most part, to see how to involve parents, guardians, and caregivers in the learning of their children and many teachers do not follow-up on it. Although she is skeptical that prior to COVID-19 teachers and parents worked together, the pandemic has ushered new ways for them to collaborate. For example, teachers can encourage parents to come up with creative ways to engage learners using extracurricular activities. Laying emphasis on informal aspects of education, Kamina appeals to all stakeholders to educate communities to on childcare and upbringing responsibilities. This appeal is a call to return to societal norms.

The responsibility of educating the young was a communal affair, but has lately changed due to legal liabilities for care and discipline-related concerns. Marasa advises parents to encourage their school-age children to collaborate with their teachers and use them as mentors (KDRTV, 2020). He recommends that mentors adapt their pedagogy to suit the online model whereby they guide the students to learn, but not dictate to them. This approach helps students attain the special skillset essential for them to achieve mastery in the required content area.

How does the Kenyan immigrant in U.S. use online education to their advantage?

Mose (KDRTV, 2020) states that learning in the future will be different, thus it is worth exploring the need to build a resource bank for online learning. Although this practice is not a common phenomenon among Kenyan immigrant communities, embracing new online teaching and learning practices while changing attitudes to favor this relatively new mode of learning is long overdue. Digital skills are vital for our survival even after the COVID-19 era, and many will need the 21st century learning skills (Hallerman et al., 2019) and metacognition. Mose points out that "moving forward, we need to start building or developing our digital literacy. It is also something that comes [gradually]" (KDRTV, 2020). The immigrant community will need to reset their goals to adapt quickly and apply what they have learned to solve new and novel problems.

How does COVID-19 change the status of international students from Kenya?

To be an international student in the U.S. means undergoing a competitive vetting process by both the U.S. consulate and the institutions to which they apply. Once admitted, students have to adhere to a strict code of conduct and also live within the parameters of their visa requirements. As such, international students need to navigate the system judiciously, get to know how it functions in order to avoid any violations that could lead to their removal from the U.S. Again, international students have not been spared by the socio-economic impacts of COVID-19. Since their visas restrict them from working off campus for extra income to support them, many students are struggling to meet their living expenses. Subsistence under these circumstances is a challenge for many international students, as most of them depend on teaching assistantship stipends for their living. The cost of living is escalating with no reliable income or prospects of working outside campus for extra income due to visa restrictions. Though there are not many tenable ways to fix the current circumstances, the United States Citizenship and Immigration Services (USCIS), offices for students and faculty services, offices of global studies, and the federal government should explore special exceptions to allow international students to work off campus until the pandemic is over.

By and large, students should never waive health insurance or legal fees. Mose advises that once these fees are waived, it is very difficult to re-enroll, leading to the college administration's financial trouble. Contrarily, Kamina suggests some coping mechanisms that students can apply to sustain their psychosocial and mental health and self-care. She indicates that most campuses have activities that will take international students to where Americans live. There is need for international students to put an effort in making friends with Americans. A friendship, in this context, is crucial to ensuring social and emotional stability.

An important lesson that international students need to learn is building a community—a sense of brotherhood and sisterhood where they remain keepers of each other. International students may also join other professional organizations such as Kenya Scholars and Studies Association (KESSA), Kenya Diaspora Alliance (KDA), and Kenya Students in Diaspora (KESID), where they can network professionally and participate in and benefit from internships and diverse mentorship opportunities. Many Kenyan scholars have expressed willingness to be part of advisory boards of various organizations where they can serve as pro bono advisors.

CONCLUSION

In this section we propose ideas to shape the future of education—the *new normal* educational recommendations.

The COVID-19 pandemic has driven many educational stakeholders to rethink how education needs will be addressed in different contexts. Throughout the pandemic, our reflections are mainly focused on COVID-19 learning challenges and solutions. We provide a set of recommendations that might help to overcome similar challenges in the future. These recommendations may be advanced to help shape the dialogue for the future of education, beyond this COVID-19 pandemic:

- Planning and preparedness for a crisis
- Training teachers—professional development and technology support
- Online learning
- Hybrid–flexible education system

Planning and preparedness

As history has shown, pandemics have dissipated and reappeared with some degree of continuity in the past (Fontanarosa & Bauchner, 2020; Lauer et al., 2020; Shaw-Taylor, 2020). Thus, one of the most important challenges facing the global community is coping and moving alongside COVID-19. Experts postulate that this pandemic may return in a more or less virulent form. Setting priorities and planning for preparedness is the best strategy moving forward for any crisis. Institutions should make plans because the pandemic trends will continue, while being vigilant in responding to any adjustment or regression to normal patterns of living. COVID-19 is disruptive and requires great reconsideration of development priorities, policy change, and sustainable resource allocation. For successful planning and implementation of change, panelists recommended adopting an open-minded approach to embracing change and development. Mose suggested that thinking creatively and out of the box is the best bet, "… the future of education, I see it as a modification of a curriculum that fits the current needs caused by the pandemic" (KDRTV, 2020).

Training, professional development, and technology support

Before embarking on training and professional development, Kenya should carefully understand her needs and context. Mobile technology is relatively advanced, but many other technologies and platforms needed for virtual learning are at foundational stages of development. Additionally, prudent decisions regarding budgets for software licenses, subscriptions, offices, and training infrastructure are needed. We recommend establishing faculty innovation centers and hiring of instructional designers and technologists who will address professional development training needs and help develop an infrastructure that will promote the successful execution of e-learning.

Online learning

Sub-Saharan Africa has a very good IT infrastructure (World Bank, n.d.), such as high-speed bandwidth, yet it is not integrated into the school system. The Kenyan Ministry of Education should integrate the existing IT infrastructure with the school systems to begin the era of learning using technology. COVID-19 cannot stop teaching and learning; instead, new skills, new technology, and web-based teaching and learning should be leveraged. While Kenya boasts of advanced mobile technology, issues of bandwidth are not common. Schools should take advantage of high-speed bandwidth connections to implement online learning. In addition, policy makers should explore the implementation of competence-based curriculum where learners can make real-life connections with what they learn.

Given the dangers of COVID-19, in-person instruction would be an irresponsible undertaking, without proper social distancing measures being in place and given the financial challenges. Learning management systems (LMSs), the online tools used to support content delivery, assessment, and organization (Sejzi & Aris, 2013), play a vital role in bridging the gap of connecting learners and content. Use of LMSs in Kenya is still at an early stage and is not so common in many institutions. The Ministry of Education should consider building an LMS infrastructure across the education system. Post-COVID-19, it appears that the trend may shift towards virtual universities due to affordability, where LMSs will provide opportunities to manage learning, administration, and development of suites to manage content, as well as communicate with students.

Although cost is a factor in establishing LMSs, many open-source versions are free of charge, including Moodle, Myicourse, Sakai, Forma LMS, Dokeos, and Google Classroom. We recommend that the government should consider exploring the use of Moodle and Google Classroom LMSs. Both are free and open-source platforms that enable users to create customized courses. Sharma (2020) explains that LMSs offer tools that manage virtual classrooms, generate certificates, and measure learners' success. LMSs have social learning functionality that allows learners and instructors to send direct messages to each other on course forums. An incremental approach of implementation is proposed to initiate and implement these suggestions.

Hybrid–flexible education system

Online learning has not yet fully been developed in Kenya. Many stakeholders concur that there is a need to initiate faculty development centers and community centers that will promote digital literacy and other 21st century skills for learning in Kenya, but the Kenyan education system has consistently followed traditional teaching methodologies. Shifting from traditional to technology-based learning is a classic paradigm shift in the Kenyan educational system. There is a dire need to explore new learning opportunities that have arisen from the disrupted economic situation by creating new avenues of success to survive the pandemic situation. It might be the right time for Kenya to adopt a hybrid-flexible (HyFlex) design model for teaching and learning to accommodate different learning needs and scenarios. The HyFlex course design delivers a student-directed multi-modal learning experience. Students choose between attending and participating in class sessions in a traditional classroom (or lecture hall) setting or online environment (Beatty, 2019). Online participation is available in synchronous or asynchronous mode; sometimes combined online and sometimes, only the online mode. As policy makers continue debating about opening in-person or purely online instruction, the HyFlex model gives them both opportunities to open schools responsibly.

Suggestion

We encourage the Kenyan government, and any interested stakeholders to explore the above recommendations to address immediate concerns facing their institutions while thinking about future infrastructural aspirations. As COVID-19 continues, virtual classrooms are a game-changer for education systems around the world.

The pandemic has opened considerable opportunities to re-shape the education system that will focus on emerging trends in technology. Initially, many educators, teachers, learners, and institutions approached virtual classrooms with cautious optimism, but that has since changed due to lack of other learning alternatives during the pandemic. As authors, we are not calling for an instant or immediate transformation to online learning. However, we believe these recommendations of establishing and implementing a hybrid education system will develop capacities and move Kenyan institutions of learning forward.

It is reassuring to note that the 21st century classroom is not passing as a fantasy, but rather serves as a perfect layout for a 21st century learning characterized by competencies such as collaborative learning, digital literacy, critical thinking, and problem-solving skills essential for schools to help learners thrive not only in today's world, but also in their future.

References

Adow, M. (2020, July 13). Remittances to Kenya hit hard by COVID-19. *Aljazeera.* https://www.aljazeera.com/news/2020/07/remittances-kenya-hit-hard-covid-19-200713152157958.html

Ahmed, H., Allaf, M., & Elghazaly, H. (2020). COVID-19 and medical education. *The Lancet Infectious Diseases*.

Bellamy, W.M. (2020, June 16). Kenya's case of COVID-19. *Center for Strategic and International Studies.* https://www.csis.org/analysis/kenyas-case-covid-19

Al-Baadani, A. A., & Abbas, M. (2020). The impact of coronavirus (COVID19) pandemic on higher education institutions (HEIs) in Yemen: Challenges and recommendations for the future. *European Journal of Education Studies*, *7*(7), 256–260.

Beatty, B. J. (Ed.). (2019). *Hybrid-flexible course design: Implementing student directed hybrid classes*. EdTechBooks: https://edtechbooks.org/pdfs/mobile/hyflex/_hyflex.pdf

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., ... & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, *3*(1), 9–28

Duffin, E. (2020, June 26). Impact of the coronavirus pandemic on the global economy - Statistics & facts. *Statista*. https://www.statista.com/topics/6139/covid-19-impact-on-the-global-economy/

Feleke, B. (2020, July 8). Google launches balloon-powered internet service in Kenya. *CNN News.* https://www.cnn.com/2020/07/08/africa/google-kenya-balloons/index.html

Fontanarosa, P. B., & Bauchner, H. (2020). COVID-19—looking beyond tomorrow for health care and society. *JAMA*, *323*(19), 1907–1908.

Gacs, A., Goertler, S., & Spasova, S. (2020). Planned online language education versus crisis-prompted online language teaching: Lessons for the future. *Foreign Language Annals*, *53*, 380–392

Goh, P. S., & Sandars, J. (2020). A vision of the use of technology in medical education after the COVID-19 pandemic. *MedEdPublish*, *9*. https://doi.org/10.15694/mep.2020.000049.1

Gu, V. C., Hoffman, J. J., Cao, Q., & Schniederjans, M. J. (2014). The effects of organizational culture and environmental pressures on IT project performance: A moderation perspective. *International Journal of Project Management*, *32*(7), 1170-1181.

Hallerman, S., Lewis, C., & Dresbach, B. (2019, April 23). What is a 21st century education? [Editorial]. *Battelle for Kids.* https://www.battelleforkids.org/learning-hub/learning-hub-item/what-is-a-21st-century-education

KDRTV. (2020, July 14). *Education during COVID-19* [Video]. YouTube. https://youtu.be/AERA9pvF2gU

Lauer, S. A., Grantz, K. H., Bi, Q., Jones, F. K., Zheng, Q., Meredith, H. R., ... & Lessler, J. (2020). The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. *Annals of Internal Medicine*, *172*(9), 577-582.

Sharma, A. (2020, September 05). 11 best free and open source LMS tools for your small business. *Capterra.* https://blog.capterra.com/top-8-freeopen-source-lmss/

Seale, C. (2020, May 19). Parent involvement has always mattered. Will the COVID-19 pandemic finally make this the new normal in K-12 education? *Forbes.* https://www.forbes.com/sites/colinseale/2020/05/19/parent-involvement-has-always-mattered-will-the-covid-19-pandemic-finally-make-this-the-new-normal-in-k-12-education/#271d22235e46

Sejzi, A. A., & Aris, B. (2013). Learning management system (LMS) and learning content management system (LCMS) at virtual university. In *2nd International Seminar on Quality*

and Affordable Education (pp. 216-220). Accessed from https://humanities.utm.my/education/wp-content/uploads/sites/6/2013/11/301.pdf

Shaw-Taylor, L. (2020). An introduction to the history of infectious diseases, epidemics and the early phases of the long-run decline in mortality. *Econ Hist Rev., 73*(3): E1–E19. https:/doi.org/10.1111/ehr.13019

World Bank. (n.d.). How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic. Retrieved from https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic

World Health Organization https://www.who.int

Zhong, R. (2020, March 17). The coronavirus exposes education's digital divide. *The New York Times.* https://www.nytimes.com/2020/03/17/technology/china-schools-coronavirus.html

Zhou, L., Wu, S., Zhou, M., & Li, F. (2020). 'School's out, but class's on', The largest online education in the world today: Taking China's practical exploration during the COVID-19 epidemic prevention and control as an example. *Best Evidence of Chinese Education, 4*(2), 501-519.

Kenyan International Student's Experiential Reflections on the Impact of COVID-19 Pandemic

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Abstract

The outbreak of the novel coronavirus 2019 (COVID-19) pandemic has left an indelible mark on people's lives and academic institutions. Like any other students in the U.S., Kenyan international students have had to come to terms with a new norm in navigating the unchartered waters in their education. The purpose of this article is to elucidate seven Kenyan international students' anecdotal reflections on their experiences during the COVID-19 outbreak and its impact on their studies.

***Keywords*:** COVID-19, Kenyan Students, International Students, Diaspora

INTRODUCTION

The COVID-19 virus, which originated in Wuhan, China in late December 2019 (Zhu et al., 2020; Chahrour et al., 2020) has inflicted suffering, upended and impacted various aspects of people's lives around the world. The disease spread rapidly to other parts of China necessitating a complete lockdown in the city of Wuhan in late January 2020. After several weeks, the virus had been reported in other countries, prompting the World Health Organization (WHO) to declare COVID-19 a global pandemic on March 11, 2020 (WHO, 2020). As of March 30, 2020, approximately 740,157 cases had been confirmed globally with about 35,097 deaths. Although China, Italy, and Spain were the first hardest hit countries, the U.S. soon became the leading country with the total number of infections. For instance, out of the 740,157 confirmed cases, 143,532 cases and 2,572 deaths were recorded in the United States. COVID-19 is reportedly the second worst pandemic to hit the U.S. after the 1918 Spanish Flu. As of July 15, 2020, there were approximately 3,413,313 cases and 128,740 deaths in the United States. During the same period, about 13,405,694 cases and 580,552 deaths had been recorded worldwide (Boulos & Geraghty, 2020). In addition to these deaths, the pandemic has also led to many furloughs and layoffs. Statistics showed that around 45.7 million Americans claimed pandemic-related unemployment benefits by mid-June 2020 (Manscar, 2020).

International students in the U.S. have suffered from the impacts of COVID 19 from academic disruptions to daunting financial constraints, safety concerns and travel restrictions. These negative impacts have contributed to the students' increased anxiety and higher levels of uncertainty. When different states in the U.S. issued lockdown orders, universities were forced to shut down until the spread of the virus was brought under control. According to García & Weiss (2020), the pandemic has overwhelmed educational institutions' functioning and outcomes worldwide. They further indicated that school shutdowns have dire public health consequences and economic crises, posing significant hurdles to both students and teachers. The U.S. has the world's largest population of international students with more than a million choosing to advance

their education and life experiences at American universities. Additionally, nearly 5% of the total number of students enrolled in these universities are international students, and the number is expected to increase (McGee et al., 2020). International students play an integral part in these institutions as they contribute to the neighboring school communities' economic growth, enrich diversity, and raise the institution's global profiles. According to Loudenback (2016), international students pay up to three times more than in-state students in public institutions, thus contributing monetarily to a tune of about USD 9 billion a year. Sahlu (2018) notes that three U.S. jobs in higher education, including accommodation, dining, retail, transportation, telecommunications, and health insurance are created for every seven international students enrolled.

COVID-19 and Kenyan international students

The outbreak of COVID-19 disrupted university campuses across the U.S., forcing institutions to operate remotely and for students to complete their 2020 spring semester virtually. This closure impacted Kenyan students enrolled in higher institutions of learning. According to Malinda (2020), there were over 3,450 Kenyan students enrolled at U.S. colleges during the 2018-2019 academic year. Although studying in the U.S. is an enriching experience for these students, navigating through their day-to-day lives has been extremely challenging during the pandemic. COVID-19 has led to academic disruptions, financial problems, safety concerns, and travel restrictions, therefore, causing anxiety and uncertainty among international students.

Before the pandemic, international students would have a specific timeline to complete their studies. However, the disruptions caused by this pandemic have significantly interfered with this timeline. The sudden transition to online learning has made it difficult for some students to keep up with their coursework for a variety of reasons: Most have experienced unequal access to technology, functional laptops, reliable high-speed internet and, in most cases, depended on laptops offered by their universities (Gonzales et al., 2018; Lim, 2020). Gonzales et al. (2018) further pointed out that technology challenges can adversely impact academic performance, especially when students are required to complete their coursework online. Similarly, faculty members who are not tech-savvy are constantly faced with challenges of transitioning to online instruction (Sahu, 2020).

METHODS

This analysis adopted an informal reflective study to understand the impact of COVID-19 on the lives of international students from Kenya who are studying in the United States. Seven students enrolled in institutions of higher learning during the pandemic provided their reflections for this paper. The method utilized in this analysis is an experiential reflective case study approach, loosely based on an action research methodology. According to Barraket (2005), an action research methodology is an iterative process of change or intervention, data collection and analysis, and reflection that leads to action outcomes. Likewise, a qualitative case study would be appropriate if the purpose of the study was to illuminate specific patterns of behavior (Creswell, 2013; Stake, 1995).

Participants

A purposive sampling was used to select the seven Kenyan international students for this study. The seven participants were selected based on the following: (a) members of the Kenya Students

in Diaspora (KESID) foundation; (b) were currently enrolled in higher education institutions in the U.S.; (c) had volunteered to share their reflections via zoom, radio or Facebook live; and (d) were willing to write their experiential reflection. As a result, the seven (5 males and 2 females) students who agreed to participate were pursuing either undergraduate or graduate degrees. It should be noted that although numerous attempts were made to include more female participants, they all declined to participate.

Experiential reflection on the impact of COVID-19 on Kenyan international students

The following segments highlight firsthand reflections of the seven students as they narrate their challenges during the pandemic. Since these reflections are verbatim, the students elected to use pseudonyms for confidentiality purposes.

1. Okioma – Completed a master's degree and transitioning to a Ph.D. program
2. Kariuki – First year at a community college
3. Naliaka – Second year master's student
4. Wekesa – Second year master's student
5. Wanjiru – Second year Ph.D. student
6. Kipkoech – Undergraduate student
7. Kiprop – Second year master's student

Student #1. Mr. Okioma – Completed a master's degree and transitioning to a Ph.D. program

I just completed my master's degree during the spring semester of 2020. I came to the U.S. in August 2018 to pursue a Master of Science degree in chemistry at Youngstown State University. Before coming to the U.S., I was a high school teacher in Kenya for five years. Given the impracticality of teaching in Kenya and studying in the U.S., I resigned from my position to pursue my dreams as I believe one's dreams surpass temporal gains or comfort. However, the emergence of COVID-19 pandemic brought unforeseen challenges, especially since I wear two hats: a student and a teacher. I was doing well until the pandemic hit and forced the campus to immediately shut down. The closure necessitated a shift from face-to-face to online teaching and learning. The sudden change in instruction modality was announced over spring break, leaving us with little time to prepare courses for an online delivery. We were encouraged to work remotely, a move that caused a lot of anxiety. The ever-increasing number of new infections and fatalities occasioned by the pandemic casted a shadow of uncertainty over my health and studies. However, the desire to achieve my academic endeavors pushed me to adapt to the new norm. Being a graduate student and a teaching assistant, I frequently held online meetings with my research advisor, and also prepared instructional materials for my online teaching, which demanded a lot of time. A more daunting and challenging task included the application of an online assessment in a chemistry course that is designed for in-person instruction. Despite these challenges, I was able to conduct my online classes successfully. It is worth noting that since I was a graduate teaching assistant, the stipend that I received, cushioned me against the economic hardships that some students were facing.

For other students, this new normal created more stress due to extra workload, financial strain, and other uncertainties. There was a lot of work to do that was wholly unknown to me. Somehow, I had to mentally grapple with it and prepare for this cryptic moment in life. I had to move my research from a wet laboratory research format to a theoretical computer model to accomplish my set tasks. The department guided us on how to defend a thesis as well as do our final semester examinations online. I worked on my thesis remotely, communicating with my advisor through scheduled digital meetings and emails due to social-distancing and restricted entry to the university premises. These restrictions denied me an opportunity to collaborate with other students. A collaborative research environment is very pivotal to my professional growth. The online working environment was not wholly grim; it allowed me to learn how to formulate learning materials for online instruction, redesign my project to fit the prevailing conditions and prepare for academic forums like conferences. Perhaps, I would not have attained the level of proficiency that I did had the environment been the usual one.

Besides the stress of school, new U.S. Immigration and Customs Enforcement (ICE) guidelines for international students to enroll in only in-person classes put international students like me in a precarious situation. My new Ph.D. institution, the University of Alabama at Birmingham, sent me a message indicating that my classes would be held in a hybrid format to meet the new ICE directive. This did not mean that in-person classes would be unavailable to students because universities could switch to remote teaching in the middle of the semester should the pandemic prompt such a move. However, as an international student, I would be forced to attend at least an in-person class to maintain my legal status even though my health would be at risk. Seemingly, such draconian policies made international students feel unwelcome as it would be foolhardy to brave the real threat of death posed by the pandemic. Our ray of hope relied in several institutions that sued the government to reverse the ICE directive. Other institutions looked for ways to assist international students to remain in the country and to pursue their studies. It is important to acknowledge that there are individuals, institutions, or organizations willing to assist others during such pandemics.

Student #2. Kariuki – first-year community college student

I came to the United States on a student visa in January 2020 to study information technology at Bergen Community College in New Jersey. While in Kenya, my family and I looked forward to a decent transition as I planned for my educational journey to the United States. Upon arrival, life was going on well, having secured an on-campus job as a Student Technology Consultant assigned to help computer users in our computer labs. The pay seemed decent and covered some of my fees and living expenses. That was until coronavirus hit the United States. Being in New Jersey and close to New York, where there was the highest number of coronavirus cases, our school was closed almost immediately. This happened when I was about three weeks into my on-campus job. Everyone received an email from the school indicating that due to the pandemic the college will be closed. This occurred in mid-March when we were on spring break. After contacting my lab supervisor, I got to understand that our services as Student Technology Consultants would not be needed until school reopened, which as of this writing, is not yet known.

Significantly, too, the virus in Kenya disrupted many things. My parents and brother lost their financial sources of income, leaving my other brother to meet most of our needs. COVID-19 has left little or to no funds for me to continue my education. My request to the Kenyan government would be to help us financially with college tuition. Personally, I have a 3.87 GPA out of 4.0 (A-

grade), therefore, the government can include us in scholarships and grants for which we are eligible. I believe such assistance would be beneficial for us and our communities once we finish our education, as giving back would be much impactful.

Student #3. Naliaka – second year master's student

I have always perceived life as one big puzzle. If that was anything to go by, the current global pandemic has been the final nail on the coffin. The pace at which COVID-19 has destabilized lives brought in a hard to fathom new normalcy. What began as a virus in China, at the onset, did not seem to affect the plans I had for my final academic year in graduate school, until it hit the United States. I did not know that the last week before spring break was going to be my last in-person class. The news came in fast. First, it was the stay at home order by the state. Then came the university's email extending our spring break for one more week and requesting students not to return to campus until further notice, and then moving all classes to virtual platforms. While all this was happening, the death toll from the pandemic was rising day by day in the U.S., the last country in the world anyone ever thought would record the highest number of deaths.

International students who hold F-1 visas are usually restricted to work only on campus for a maximum of 20 hours per week. Due to campus closures, on-campus employment was no longer an option, thus eliminating our only source of income. Most of us survive on on-campus employment, so this was daunting to realize we had no other way to make money for food, shelter, and other necessities. I did not have money to pay my bills as I even went for two months without paying rent. Luckily, my landlord was understanding and allowed me to make small payments over time. As international students, COVID-19 took a toll on us in many ways. First, we were stuck in our apartments all alone, and secondly, we were worried every time we heard the number of cases were on the rise across the United States. I know many friends who had planned to travel during the summer break to carry out research and collect data for their theses and dissertations but could not travel. The travel ban forced many graduate students to either change their research topics, find alternative ways to collect data, or postpone their studies. I witnessed some masters students opting out of a thesis for a professional paper that only required the use of secondary data. International students who were scheduled to graduate in the spring and apply for Optional Practical Training (OPT) were gravely affected. Since most businesses and organizations were closed, most students who were searching for an OPT had difficulty securing employment.

When it came to employment, American citizens were given priority over foreign nationals. Even before COVID-19, it was already difficult for international students to secure jobs in the U.S. after completing their studies. "I am worried about those ones who are going for it now. What is their fate going to be like when the world eventually opens - up?" I could not help asking all these questions. Normally, the U.S. Citizenship and Immigration Services (USCIS), the federal agency that oversees lawful immigration to the United States and the one in charge of issuing OPT cards, gives international students a window period of three months after the issuance of the cards to secure employment. Due to the pandemic, this three-month timeline was a nightmare and impossible to meet for most students. Securing an OPT is the only alternative for international students to remain legal. Those who do not secure an OPT within three months are required to either go back to school or exit the country. Unfortunately, I am one of those whose OPT opportunities were greatly impacted by the pandemic. It was unsettling, stressful, and scary because I kept applying for jobs without any success. To make matters worse, I do not have a family in the United States. I am supposed to figure out my next move after my one-year house

lease expires. I am positive, though, that I will get a job before the three-month grace period expires.

Based on my experiences, I can attest that the U.S. is not a land of milk and honey, as we were made to believe before leaving Kenya. It is not easy to be an international student, but this pandemic has exacerbated the copious challenges. I am not discouraging those wishing to pursue their studies as the fruits are even sweeter once one graduates, secures a professional job, and lands legal documents. COVID-19 has made the lives of international students in America a dauntingly uphill battle.

Student #4. Wekesa – Second year master's student

August 2019 was my inaugural arrival in the U.S. to pursue my master's degree at Oklahoma State University. I was feeling nostalgic because this was my first time in the U.S. As a new student, I was bombarded with culture shock and the need to adapt to a fast-changing lifestyle and trends. It took me time, of course, to settle and adjust. The fall semester came with its share of challenges. I grappled with raising my first-semester fees as I was not on any scholarship. It was a struggle, but I managed to pull through and successfully enrolled for the spring semester classes. Slowly, I started adjusting to the American college environment. I made some new friends on campus and established a great rapport with my teachers and classmates. I had also developed a good connection with my academic advisor before the pandemic hit. After which, the pandemic created lots of uncertainties and panic. Everything happened very fast, and before I could process what was happening, schools were closed following the regulations by WHO and the Federal taskforce on COVID-19. As an international student, I was forced to shelter in as movement was curtailed. Additionally, shifting of classes online for the remainder of the semester became another hurdle. My technology skills were put to test as I was forced to learn the hard way. My first assumption that the virus would last for a few days and then die a natural death proved to be wrong. As the number of infections rose, states, including mine, put in stringent measures to slow down the virus.

As an international student, my life was interrupted as I was forced to come to terms with this new norm. Amidst calls across the globe to open international borders, economy, and ease safety guidelines set by WHO, I grappled with one unanswered question, will life ever be normal again? Given the virus's broad and indeterminate impact on global mobility, flights put in stringent measures to comply with WHO health guidelines on social distancing and public health. I became more worried about the trickle-down effects on my studies. With the fear of lower availability of funding opportunities from universities and government and assistantship programs that enable graduate students fund their studies might be affected by budget cuts**.** As the U.S. government moved in to tighten its employment-based nonimmigrant policies, I was left concerned about my future especially after completion of my studies. Four U.S. senators had warned that international students could take away jobs that would otherwise go to unemployed Americans as the economy recovers. They urged the government to suspend the OPT program and issuance of H-1B, and J-1 exchange visas, which are major draws for international students.

Given the uncertainties on when the pandemic would be contained, a growing number of institutions shifted to online education beyond the summer and into the fall semester. Some including Columbia University and the University of Southern California considered other options such as blended learning. I was anxious to see how school life would be when we finally opened for the fall semester. For international students who could not travel back from their home countries, distance learning was the only option available to them.

Student #5. Wanjiru – Second year Ph.D. student

The COVID-19 pandemic and the consequential stay-at-home orders did not only catch me off guard, but also presented challenging moments. It was a rather strenuous balancing act between my roles as a doctoral student, graduate teaching assistant, and a full-time mom. When most U.S. college campuses and elementary schools closed and transitioned to online learning during the spring semester to contain the spread of the virus, I was left with no option, but to perfect the art of juggling: I was faced with moving half a semester's worth of teaching content online while also managing my schoolwork, homeschooling, and caring for my son all day long. Then came pandemic-related loneliness, stress, and anxiety related to the coronavirus outbreak and stay-at-home orders, not only for me, but also for my son. It was a huge transition and shock because he could not comprehend the drastic change of normalcy. Hailing from Kenya, a predominantly collectivistic culture, the stay-at-home order felt like a daunting task. I am sure this was not unique only to me, but it also hit hard when one's family is more than 7,500 miles away, and WhatsApp messages, texts, and video calls become the only solace.

I am currently striving to prepare for my comprehensive exams due fall semester, but the tumultuous COVID-19 has almost derailed my efforts to study. In the meantime, I am practicing resilience and determination, going by the clichéd of "living each day at a time." The little reading and mothering I achieve in a single day are steps towards the light at the end of my dark tunnel. I do not know how the adjusted academic calendar will impact my timeline to take my comprehensive exams, conduct fieldwork for my research, write, and defend my dissertation. I am, however, grappling with the fears this global pandemic poses and its unprecedented long-term impacts on my studies, my life and my son's here in the U.S.

Student #6. Kipkoech – Undergraduate student

Life immediately after spring break became miserable, stressful, and full of fear and uncertainty. It began a few days after we arrived for the indoor track competitions in Birmingham, Alabama. I was fully prepared to compete in the National Collegiate Athletic Association (NCAA) Division II track and field competition, having prepared since the summer of 2019 before the cross-country season in the fall. The evening before my first race, we were informed that the entire national competition had been canceled. The team was asked to prepare to return to college. I was terrified and stressed since this was a race in which I had anticipated to perform well. I had put all of my efforts during practice and I was optimistic and ready to give it my best. This cancellation shattered my dreams. I could not believe I would not perform just because of a mysterious virus outbreak, which at the time was only on the news media.

It became worse after our spring break was extended further and our traditional in-person classes were all moved online. It took me some time to adjust, acquire a reliable computer, and ensure I had internet. This transition was an enormous challenge since I am a visual learner who understands better in a face-to-face classroom session than studying on my own. For instance, as a computer science student, learning in some classes proved to be difficult. I had to put extra efforts to ensure I kept up with homework and maintained good grades. With the closure of schools and campuses, I lost my on-campus job. Without an income, it meant I could not afford to pay my bills and meet my other basic needs. I was forced to use my little savings which did not last long. At times, I denied myself some basic needs out of fear of running out of my essentials.

My life changed drastically after my roommate, with whom I shared a house, tested positive for the COVID-19. Because I lived and was always around him, I was tested and forced to quarantine for three weeks and depended on our friends for groceries. Despite not showing any signs or symptoms of the virus, I was required to record my temperature every morning and send the results to the health department.

My life has been filled with uncertainties as we continue to live through this pandemic. It is my hope that this virus is contained soon so that our lives can return to normalcy. I miss being a student-athlete, which gives me a peace of mind.

Student #7. Kiprop – Second year master's student

During spring break, we all dispersed to various destinations in anticipation to resume classes in a week. We were cautioned to take appropriate measures to be safe from COVID-19. One of my professors warned us against visiting crowded places. He added that if possible, we should stay home and observe all the guidelines that had been put in place by the CDC and all health departments. As the situation worsened, the return date to campus was extended to two weeks, then a month, and finally until further notice. University closures were a damning challenge because learning was switched to virtual platforms. This transition was difficult and studying courses like economics and statistics virtually became a big hurdle.

As a graduate research assistant, my field involves in-person practical observations and switching to an online platform became an uphill task. The unexpected transition to virtual learning required me to have a good laptop and reliable internet. Furthermore, I had to adjust to doing my research work without the guidance of my program advisor. Unfortunately, I was forced to drop a statistics course because I could not keep up with the workload and lacked the one-on-one assistance from my instructor and peers. Because the entire university was closed and campus employment suspended, I had to host three Kenyan undergraduate students without accommodation. Since most international students rely on on-campus employment, they, too, lost their jobs. I nearly became jobless had it not been for my advisor who agreed to continue working online with me.

Despite the risks posed by COVID-19, I have had the opportunity to learn and acquire new skills and survival tactics. I have advanced my computer skills as well as first aid skills. Moreover, it has taught me the value of life as this virus has shaken the status quo and proven that we are all vulnerable. We need to be more vigilant, sensitive and take care of ourselves and the community around us.

DISCUSSION

From the above experiential reflections, several themes emerged and were summarized into the following: (a) life disrupted, (b) academic interruptions, (c) financial constraints, (d) cost of living against lack of summer internships, (e) disruptions of research, projects, and internships, (e) limited OPT opportunities, (f) heightened stress and anxiety, and (h) toughened immigration and visa policies. The following discussion is a detailed report of these themes:

Life disrupted: Given the uncertainties as to when the pandemic will be contained, growing numbers of institutions have shifted to online education beyond the summer. For international students unable to travel, distance learning will likely be more common. Some observers have

suggested that the rapid global shift towards distance learning would come in handy for international students.

Academic interruptions: The outbreak of the coronavirus pandemic disrupted university and college campuses across the U.S., forcing students to finish their spring 2020 semester virtually and institutions to operate remotely. International students are on a specific timeline to finish their studies. Academic disruptions exacerbated by COVID-19 attract a set of new challenges that might interfere with this timeline. The quick transition to virtual learning and lack of face-to-face interaction made it difficult for some students to keep up with the online workload due to unequal access to technology.

Financial constraints: International students continue to face daunting financial constraints. Due to a lack of legal employment resulting from campus closures, several students and their families struggled to raise funds for tuition and provision of necessities. According to Schulmann (2020), seventy-nine percent of prospective students surveyed by World Education Services (WES) expect economic conditions in their home countries to be negatively affected by the pandemic; 43 percent fear they will no longer be able to afford to study abroad. Although universities are doing all they can to support international students on scholarships such as academic, athletic, or graduate assistantships, some are afraid that their funding may be cut or reduced drastically.

Other students continue to struggle financially due to a lack of on-campus employment as a result of universities transitioning to virtual learning. F-1 visa restrictions limit international students to work for a maximum of twenty hours per week. These students can only work on school premises that provide services for students on campus such as: the school bookstore or cafeteria or other work performed at an off-campus location affiliated with the school. On-campus employment is the category freely permitted by the USCIS regulations. However, due to institutions moving all their programs and services online, international students are unable to work on-campus, resulting in major financial constraints on their side.

Disruptions of research, projects, and internships: COVID-19 has had a profound impact on students' research projects, internships, thesis, and dissertations. Students who were conducting in-person lab experiments, face-to-face interviews, focus groups, fieldwork, and other data collection in the community were forced to put everything on hold. Similarly, those students who were to travel to their home countries during the summer break for their research could not do so due to the COVID-19 related travel ban. Students were encouraged to either delay their research work or find alternatives, including switching to writing professional papers using secondary data that may not be as reliable as when they would have done the research in person. Similarly, some Master's students opted out of the thesis to the professional paper route, which requires secondary data. Although universities are making accommodations by either giving extensions on projects and research, students may not graduate on time. Likewise, students who had secured internships to gain firsthand experiences in their areas of specialization have been forced to forego them.

Limited OPT opportunities: Due to the pandemic, many international students are having challenges securing OPT opportunities. International students applying for the OPT this year stand very low chances of securing employment. Since the pandemic hit the U.S., most Americans have lost their jobs and until early July, statistics show that 40 million Americans had filed for unemployment. It was already difficult for international students to secure employment in the U.S. after completing their studies prior to COVID-19. Because there are those students who are in the middle of their OPT, this pandemic has led to many people being laid off from their jobs.

International students, who were on OPT, have found themselves in this unemployment situation with a limited time to declare their immigration status. Given the current state of affairs, it is frustrating for them since they not only need to worry about their health, but also risk becoming illegal immigrants. With the temporary suspension of issuance of H-1B, H-2B, L and work exchange related J-1 visas, international students, whose OPT is coming to an end and had hopes of being employed are at a standstill. Their fate is unknown given this temporary suspension, and even though the job market looked possible for them pre COVID-19, the situation is uncertain.

Heightened stress and anxiety: COVID-19 took a toll on the mental health of most international students. The students' reflections in this paper alluded to their intense stress and anxiety created by the unprecedented pandemic times. They also had to navigate the effects of their campus closures, unfamiliar learning and teaching formats and platforms, teleworking for graduate students, changes in clinical practice sites, research, or internships. As many universities and colleges closed on-campus housing and dining, international students, especially those with on-campus housing, were forced to find alternative off-campus living. The stay at home orders were more daunting, especially when students are miles away from their families and have to find solace in calls, texts, and messages from their loved ones from home. The stress was further escalated by ICE announcement that directed international students to either leave the U.S. or transfer to universities offering in-person classes if their institutions were transitioning to fully online. On July 6, 2020, ICE had announced that international students who were registered to take classes online in the fall semester entirely will not be allowed to enter the U.S. or must leave if they are already in the country. Although this announcement was later dropped after the Massachusetts Institute of Technology and Harvard University instigated a lawsuit, it created undue stress and anxiety to international students.

Toughened immigration and visa policies: As the west faced the reality of unemployment, laws and regulations were enacted to cushion their citizens. As earlier noted, four U.S. senators warned that international students could take away some Americans as jobs. They urged their government to suspend OPT program and the issuance of H-1B and J-1 visas, a major drawback for international students.

CONCLUSION

The students' reflections and testimonials revealed that the COVID-19 pandemic created overwhelming disruptions to their daily lives, some of whom were already facing diverse acculturation and economic challenges. The outbreak disrupted their lives and created uncertainties, anxieties, and daunting financial challenges. It generated tremendous obstacles to students' academic progress and well-being, requiring a response focusing on their social, emotional, economic, health, and academic success.

Given the uncertainties about the pandemic's future impact on higher education in the U.S., Kenyan international students who endeavor to pursue their studies in the future are encouraged to double-check with their office for international students before they travel. Those who plan to travel to the U.S. are encouraged to research, ask questions, and be prepared emotionally and financially. New students are also encouraged to register with the Diaspora office in Nairobi before departure, with the Kenyan Embassy upon arrival, and connect with the Kenyan communities and organizations in and out of the states they settle.

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References

Barraket, J. (2005). Teaching research method using a student-centred approach? Critical reflections on practice. Journal of University Teaching & Learning Practice, 2(2), 64–74

Boulos, M. N. K., & Geraghty, E. M. (2020). Geographical tracking and mapping of coronavirus disease COVID-19/severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic and associated events around the world: how 21st century GIS technologies are supporting the global fight against outbreaks and epidemics. *Int J Health Geogr, 19(8).* https://doi.org/10.1186/s12942-020-00202-8

Chahrour, M., Assi, S., Bejjani, M., Nasrallah, A. A., Salhab, H., Fares, M., & Khachfe, H. H. (2020). A bibliometric analysis of Covid-19 research activity: A call for increased output. *Cureus*, *12*(3), e7357. https://doi.org/10.7759/cureus.7357

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches.* Los Angeles: Sage Publications, Inc.

García, E., & Weiss, E. (2020). Economic Policy Institute Report on COVID-19 and student performance, equity, and U.S. education policy Lessons from pre-pandemic research to inform relief, recovery, and rebuilding. *Economic Policy Institute*, September 10, 2020. https://files.epi.org/pdf/205622.pdf

Gonzales, A. L., McCrory Calarco, J., & Lynch, T. (2020). Technology problems and student achievement gaps: A validation and extension of the technology maintenance construct. *Communication Research, 47*(5), 750–770.

Lim, M. (2020, March 20). Educating despite the COVID-19 outbreak: Lessons from Singapore. *Times Higher Education*. https://www.timeshighereducation.com/blog/educating-despite-covid-19-outbreak-lessons-singapore

Loudenback, T. (2016, September 16). International students are now ‘subsidizing' public American universities to the tune of $9 billion a year. *Business Insider*. https://www.businessinsider.com/foreign-students-pay-up-to-three-times-as-much-for-tuition-at-us-public-colleges-2016-9

Malinda, C. (2020, November 13). This is a best prospect industry sector for this country. Includes a market overview and trade data. *International Trade Administration*. https://www.trade.gov/knowledge-product/kenya-education-and-training

Manscar, N. (2020, June 18). US workers file 1.5 million jobless claims as coronavirus total tops 45 million. *New York Post.* https://nypost.com/2020/06/18/us-jobless-claims-1-5-million-workers-seek-unemployment-benefits/

McGee, L., Pettersson, H., & Greene, R. A. (2020, July 8) There are more than 1 million international students in the US. Here's where they're from. *CNN News.* https://www.cnn.com/2020/07/07/world/us-international-students-where-from-intl-gbr

Sahlu, M. (2018, November 15). New NAFSA economic impact analysis: International students contribute $39 billion to the U.S economy. *Alliance for International Exchange*.

https://www.alliance-exchange.org/press-releases/new-nafsa-economic-impact-analysis-international-students-contribute-39-billion-to-the-u-s-economy/

Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, *12*(4), e7541. https://doi.org/10.7759/cureus.7541

Schulmann, P. (2020, May 26). Perfect storm: The impact of the coronavirus crisis on international student mobility to the United States. *World Education News and Reviews*. https://wenr.wes.org/2020/05/perfect-storm-the-impact-of-the-coronavirus-crisis-on-international-student-mobility-to-the-united-states

Stake, R. E. (1995). *The art of case study research*. London: Sage Publications.

WHO. (2020, March 11). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. *World Health Organization*. https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., ... & Niu, P. (2020). China Novel Coronavirus Investigating and Research Team. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*, *382*(8), 727–733.

Pandemic Poems

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Virtually Disconnected

Disconnected, yet virtually connected
Distance magically blurred by technology
Yet, could these very gadgets of our now
Compensate for a human touch often ignored?

Disconnected, yet virtually connected
Voices of experts on social media sound my scare
Though meant to calm my nerves breed my fears
Magnifying the darkened hours of my waking

Disconnected, yet virtually connected
Expert voices fill my mind with anxiety
As heavy loneliness settles in my heart
Forced to endure the burdens of separation

Disconnected, yet virtually connected
I hear the cries of loved ones isolated in illness
Compelled to endure their suffering "alone"
Rubber wrapped hands touch to soothe their pain

Disconnected, yet virtually connected
Masked men and women, our avengers,
Sacrifice their all for our living against COVID-19
Reneging on their very mortality to give us hope

Disconnected, yet virtually connected
Our avenging angels can't make for a kiss
Not the warmth of human touch, skin-to-skin
Yet, remain our ray of hope in these turbulent times.

My Brother's Death

My brother died unexpectedly yesterday
It wasn't from COVID-19 he had slipped gently into the night
But the illicit *Changaa* brew was his undoing
From which he had indulged himself into a stupor

It wasn't COVID-19 from which he had slipped gently into the night
He staggered home in the night drunk as his knees buckled under him
Having indulged himself stupidly into a stupor before he left for home
Collapsing right at his doorstep as he slipped gently into the night

He staggered home in the night drunk as his knees buckled under him
Then dark menacing clouds unexpectedly opened in a heavy downpour
And baptized he who'd collapsed a door, slipping gently into the night
Through the twilight of dawn and soaking him wet like a possum

The dark menacing clouds unexpectedly opened in a downpour
As his mind, recoiled upon itself, he slipped gently into the night
Through the twilight of dawn, he was soaked wet like a possum
From which his wick expired becoming one with our ancestral spirits

His mind, recoiling upon itself, he slipped gently into the night
As the wick of his lamp flickered off and a mournful cry revved the air
That dawn my brother expired becoming one with our ancestral spirits
Then armed men stormed his home and demanded his immediate disposal

The wick of his lamp flickered off as a mournful cry revved the air
Truly, it was the illicit *Changaa* which was his undoing, not COVID-19
Yet the law forced his dishonorable burial within 24 hours
My brother died unexpectedly yesterday and buried without fanfare!

The Indefatigable Immigrants

Tight-fisted, they heckled border closure to bar our entry. We
deemed a drain on American economy and rapists. The
hecklers weren't loud enough to bar Corona's entry. He
torpedoed in like a tomahawk on Tora Bora peaks. He
broke loose amongst us and sealed our borders. We
rejects now cradle the hecklers' hands. We
human face left to feel their panic. We
clean and make their patients' beds. We
rubber-gloved, wipe rivers of their tears. We
hold the mantle of hope like Lady Liberty. We
take their tired and sick in our bosom. We
feed humanity stacking store shelves. We
human made of the same stalk. We
bleed and die. We
Humanity!

The COVID-19 Storm

I sought hope in the endless COVID-19 storm
but it didn't make it easy for me or humanity

its January docking as slow as life in breath
increased pace like the slow eddying sea

tossing and turning lives topsy-turvy
like useless cargo swept in a swirling sea squall

but thought, in my naiveté, I'd escape its lashes
and too blind to see the frailty of my humanity

people like me, germaphobes, couldn't be its victims
lockstep: hand-washed, masked and kept distance

scientists cautiously augured: "these steps will *save* you!"
and I, admittedly, clung to this promised precaution

cringing each time, I imagined a skin-to-skin touch
essence of life and opted for hermit living as norm,

frightened this viral virus that knows no boundaries
would, in a flash, extinguish me like it had thousands

unheeding blood curved marks a door to bar its entry
and firmly planted its merciless feet in many a home

like a sitting duck and foot in grave, I saw my security
shattered, musing over its tentacles that ran as deep as sea

yet now, in this hermit-like living, I have realized
like all humanity, I couldn't escape its biting sting,

which if it doesn't kill me, unemployment will
as wearisome hours of my hollowed life eating away at me

like a worm to fruit earmarking the depression of my heart
having, like a boulder, registered its eventual permanence

though my sorrowful mind remains as restless as the wind
I wonder if I will ever dock in the sun's blissful shine again

but for my vitality, must avoid houses of praise and malls
dripping with its unseen aerosols lying in wait to strike

for this virus doesn't masquerade as pal, but humanity's foe
for I hope this grim reaper menace will, too, meet its match

Pandemic Poems

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The Grace Period

The cars were faster
Changes were quicker
Even the speed of running was faster
The internet too had become faker and better
All had been mustered
Life appeared finally managed

Then came the ogre
It ravaged and stopped everything
Keeping the streets clear
The ogre ate all the children who played outside
Extending its tentacles to those safe inside
The adults stayed indoors too
Save for those armed enough to face the ogre

To confuse the ogre
People made colorful masquerade suits
With masks that covered the eyes, nose and face
Some made music and danced in their houses
When the ogre was asleep
Some parents and adults ran some errands
Hunting and gathering food
Sometimes driving far to find food

The ogre changed everything
Now everyone washed their hands more
The short lines for services became longer
The ogre looked on and smiled
The ogre was winning
The ogre killed some people
Everywhere people were planning for change
They wanted their lives back

The scientists worked day and night
The doctors and nurses worked day and night
Families took care of their sick fearfully
The garbage men collected garbage carefully
Then one day, it all stopped
The ogre was caught and destroyed
People started living their lives

They shared what they had learned during the quarantine
They wanted to keep some of the lifestyle changes
They wanted to remember the good experiences
They also wanted not to repeat some mistakes
They wanted to continue washing their hands while singing
Cooking food once a week
They realized that they all were equal

Children wrote a list of what they wanted their world to be
A world of no isolation
A world of health for all
A world of love and equality
A world of play
A better world

You Shall Be Me

Now you know my life
I am always already social distanced
I am always already physical distanced
I am read as coming from a place of diseases

Now you know your healthy body can be read as sick
That others cannot want to sit next to you
How it feels to looked at suspiciously
How it feels to be read as infectious

That you can be asked if you are sick
That you can be tested for any disease
That you can be tested and retested
That you can be isolated and quarantined

To be asked about Ebola
To be tested for HIV/AIDS
To be thought of as medically abnormal
To be stigmatized

Now you will be asked where you were last
Your dignity will be attacked
Then this will become normal and you will learn to hear it
Presumed dangerous, always pathologized

Viral Memories

It is like the 80s again
There is a virus going viral
Killing the famous and the unknown
It seems far then becomes close
Like a slow river that suddenly turns turbulent
Destroying all its banks and those near it

It is like the 80s again
We are afraid of now
We are spreading rumors
We are stigmatizing and naming others
We are unsure of our future

It is like the 80s again
The scientists are at work to stop the virus
Running experiments day and night
Those giving care taking a risk
Some dying like their patients

It is like the 80s again
The present virus seems wild
It is more dangerous
It has stopped the world
It once has made toilet paper precious
It turned hoarders into boarders

It is like the 80s again
With some twist
Death is more palpable
Making our mortality visceral
Forcing us all to be still
So, we pretend to forget our fate
We watch television, Netflix, Hulu, play games
Then return to our lack of control
Eventually turning to hope

It is like the 80s again
We will win and return to our life
We will be changed forever
We will tell stories our lockdown, quarantine, stay at home period
Maybe we will learn to live with the virus
As we have learned to live with the one from 80s
Sometimes pretending it does not exist

Returning to Work

this nation was built to work
we must get back to work soon
the workers are sick and scared
but we must get back to work
remind them they have work to do
they must get back to work
for the plantation will make losses
for the crops will die
then the master will make losses
the workers must return to work
they were made to work
if they do not work, they will be lazy
if they do not work, they will be dangerous
we must get back to work soon

The Young Kenyans

they are now at home
held behind doors
sometimes playing out
not going to school
waiting to go back to where they stopped
playing, sleeping, eating and nagging
perhaps studying and learning something new
growing tall everyday
will their uniforms fit them after the coronavirus period
will they remember what they learned
will they remember where their books will be
will they remember the sound of the bell
will they remember the names of their friends
will they forget these scary moments
will this become part of their memory
the virus called corona
the virus of curfew, lockdown, quarantine and stay home
worries the Kenyan parent

The End

When the virus will ebb
We will form an orb
And play some dub
Bad memories will off rub

We shall return to a form of normalcy
Maybe sustain something fancy
Having learned after we lack efficiency
Now maybe better with our intimacy

We shall start a new
Still remembering what we knew
Bringing forth a new worldview
Perhaps a counterview

Commentary on Communicating COVID-19 Prevention through Kenyan Music and Songs: An Emerging Public Health Discography

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Abstract

What are the cultural and policy roles of musicians in combating COVID-19 pandemic in Kenya? This commentary directly describes an emerging contribution of artists who, in a short time, produced various musical songs and recordings with the general purpose of educating Kenyans on how to protect themselves from COVID-19 infections. This essay demonstrates the importance of considering artists and community influencers in implementation of public health policies when developing tool kits to combat pandemics.

Keywords: Musicians, Artists, Kenyan Music, COVID-19, Communications

INTRODUCTION

The Coronavirus (COVID-19) is not the first outbreak of a contagious disease in Kenya. In fact, before independence, the 1918 influenza pandemic or the so-called Spanish Flu reached Kenya via Mombasa through veterans returning from the World War (Andayi, 2020). And, in recent memory, HIV/AIDS touched nearly all families in the country. From a historical and comparative angle, just how colonial and post-colonial administrations handled these outbreaks is a subject in which we hardly delve. And we won't do it here. However, if we were to do so in a detailed manner, we would certainly entertain the idea of exploring the role of community in joining efforts to prevent the spread of contagious diseases, especially in providing a sense of calmness, hope, and preventative information to curb the spread of death causing illness. Given the centrality of music and song in African cultures, there is certainly room to unearth just how musicians and song writers contribute to the national efforts to not only heal societies and also prevent the scourge from spreading.

When COVID-19 arrived in Kenya, initially through persons who had travelled to Europe and the United States of America, the government, following cues from the World Health Organization (WHO), employed a communication and messaging strategy that emphasized fairly simple public health mitigation "to do" things. In other words, the Ministry of Health, as lead agency, working in liaison with the Office of the President and other agencies called upon Kenyans to join in the war against this invisible virus. President Uhuru Kenyatta characterized it as a war and constituted a National Emergency Response Committee on the Coronavirus Pandemic charged to work with the National Security Council to slow down the epidemic (NTV, 2020a).

The government acknowledged, as did the WHO, the centrality of communications in management of pandemics. The need for concise, trustworthy and accurate information is considered key to combating the COVID-19 pandemic. WHO's guidelines outlined the communication road map for governments to embrace and tweak according to their specific cultural needs (WHO, 2008). These guidelines mirrored those that undergird policy frameworks

in the advanced countries, which were based on scientific understanding of epidemiology (see for example, Taylor, et al., 2009; Tumpey et al., 2018; Vaughn & Tinker, 2009).

For Kenya, the public guidelines proved unworkable without incorporation of the highly influential musicians into the communication and messaging efforts. Musicians on their own accord and also through informal and formal requests from various arms of governments swung into action to shape the narrative that COVID-19 presented an existential threat to society and, therefore, required cooperative efforts. Musicians rendered this type of service during the HIV/AIDS outbreak and were not, therefore, reinventing the wheel. For example, the late Ayub Ogada had collaborated with other artists on the album *Spirit of Africa* (2001), which was a part of an effort to create awareness of the HIV/AIDS scourge and also to raise money for the mitigation efforts. By all standards, therefore, the creativity and output of Kenyan musicians was remarkable.

Armed with the knowledge that Kenya's mobile telephony and internet infrastructure reached all corners of the country, there was also potential that musical messages on COVID-19 would receive maximum outreach. Music contributes to society in multiple ways and, at this time, we reflect on its role in broadcasting information about the dangers of COVID-19. We offer this commentary to supplement the important work captured in various anthropological studies on the place of music in African society.

The list of cutting-edge scholarship on this subject appears in numerous first-class journals that include *Practicing Anthropology*, *Canadian Journal of African Studies*, *African Studies Review* and *African Music*, just to mention a few. Still, there is an expectation that more work is required for social scientists to research further on the richness of Kenyan music. Kenya's scholars should actively engage in scholarly activities that will address some of the emerging trends in the roles of the country's vibrant music and song in communication and wellness.

In this commentary, however, the objective is to stimulate the debate about modes of communication and messaging about the COVID-19 pandemic and to offer an early assessment and commentary on existing representations of the public health narratives. The guiding questions are, what messages were portrayed in musical forms indigenous or popular in Kenya during the periods the country experienced the coronavirus pandemic? These sorts of questions are motivational not only for scholarship, but also in terms of understanding the role of music and song in public policy.

In terms of scope, to our advantage, although it is important to consider the importance of theories of ethnomusicology, that is an assignment for scholars with deeper knowledge than myself. There is an advantage of not doing so. That is, we avoid the orderly and formal rigor associated with such perspectives. Instead, we recognize that there is a fair amount of digression and focus on Kenya's music and musicians as an area study enterprise. This realization allows us to navigate freely through the various genres and songs including informal styles devoid of inclinations of theoretical frameworks developed in ethnomusicological studies. With such freedom in mind, the next section responds to the question, just what do we mean by Kenyan music?

What is Kenyan music?

Is there such a thing as "thing or idea" as Kenyan music? From a scholarly perspective, this question had already been deliberated upon within the context of "African music." Agawu (2003), wondered if "African" music could be defined. It turns out that when one turns to the entertainment

and Showbiz pages of the *Daily Nation*, *Standard*, *The People Daily*, or any other weekly magazines on music in Kenya, they are bound to answer in the affirmative. This, they would do through covering local artists and assigning the label "Kenya" to their musical forms.

However, there are those who may want to debate and present a more nuanced or ambiguous answer. Perhaps, following Gerhard Kubik (2010, pp. 10-11), one may posit that it is not always possible to link stylistic traits in African music to ethnic groups or tribes, as we know it in Kenya. Observers of Kenya's vast music scene, know, for example, that *Benga*, although a fusion of various styles is popular across many of the ethnic groups of Kenya and Africa at large (Osusa & Odidi, 2017). And Benga was frequently fused with Rumba, which has many affinities with Congolese, English Waltz, Caribbean and Afro-Cuban music thus making it difficult to draw musical boundaries. Kenya's leading music producer, Tabu Osusa discloses that although Benga is the dominant musical form in the country, a vast majority of younger generations lack an identity and are good at imitations (Osusa, in Biko, 2017; Osusa, 2017). The list of those who have produced "cocktails and crossovers" musical forms is long, and it includes the likes of hip-hop crew Ukoo Fulani, Abbas Kubaff (hip-hop), Nyota Ndogo's work rooted in modified taarab (Arabic), and rapper Cannibal. A similar argument holds for those who produce generic gospel music and have no theoretical form. These artists also collaborate and produce various music videos that defy formal identification.

One may offer many other examples of fusing different genres. For example, Taarab, may be associated with Swahili and other ethnic groups living in counties of the Coastal region but, there are various artists from "upcountry" who have at times infused it in their musical products. So, we must be aware that the concept of "Kenyan music" is probably undefined. And that is where we are most safe.

However, one may sketch a few contours of the musical forms produced within Kenya and by Kenyan musicians or artists or as the late gospel singer Lydia Abura remarked, musicians are scientists who present their work artistically (Abura, 2016). The musicians, however, one characterizes them are creative individuals or groups who have different styles, repertoire and genres. There are several genres that are distinctly peculiar to Kenya, as a geographic entity and that is, with advice, the focus here. This does not ignore the existence of numerous styles and sounds that have been fused into beautiful forms in the service of Kenyan audiences.

Musicians and their cultural roles in communication

Most musicians and song producers, regardless of styles or instruments cited, have a place in Kenya's complex cultural system. They are visible during mourning—in dirges, weddings, worship services, witchcraft activities, cultural ceremonies, at entertainment and dance venues, and even during war and times of calamity. Music, therefore, is central to defining or capturing different moments of life, including at times of illness and pandemics such as was presented by COVID-19. Again, to quote Lydia Abura, musicians are the mouthpiece of society and have a role to play in changing the lives of members of society. Here is how she put it, "As long as two or three people listen to my music and change something about their lives, I will have achieved my goals" (Abura, in Odidi, 2016).

From a purely communication and messaging standpoint, music produced during the COVID-19 pandemic deserves our critical appraisal. This is our goal, for at least two reasons: to

answer the scholarly issues mentioned above and to provide historical context to presentations in music forms produced during the trying challenges of the COVID-19 times.

Communicating pandemic mitigation through music and songs; An emerging discography

In order to gain better understanding of the relative importance of music and song in the fight against COVID-19, we sample various musical and song presentations in record and archived on available music websites, social media and other digital file devices. The next section describes these art forms as produced by Kenyan nationals living mostly in Kenya. The broad theme of the songs and music is in promoting information about combating the disease in the country and community at large.

Among the earliest presentations on COVID-19 was a Nairobi-based Congolese group Bilenge Musica's du Congo's rumba style *CoronaVirus* which set the tone in calling upon Kenyans to wash their hands, social distance and take measures to prevent the disease from spreading. Written in Kiswahili, the recording also emphasized that the coronavirus does not choose anyone's social standing. Importantly, this record was also a lamentation, a speculation on the origins of the coronavirus (Bilenge Musica, 2020; Otenyo, 2020, p.13). A similar refrain is expressed in Boaz Jagingo's (2020) *Tuo Corona* which is a fusion of traditional Luo Orutu and modern instruments.

In addition, Onyi Jalamo's Luo *Ohangla* genre musical form *Corona Mbaya Sana*, was a reminder of the need to follow the hygiene practices required for combating the pandemic. Ohangla's beat is driven by several drum beats and traditional Nyatiti instruments. Similar messages were carried in Danny P Mboka's *Kolona* (Kamba lyrics), Salome Wairimu (in *Janga la Corona*), and Naftali Shitoka and Caro Ivelia's title on the same disease (Luhya lyrics). Naftali Shitoka's lyrics trace the origin of coronavirus to China. In musical conversations with singing partner Caro Ivelia, the two describe coronavirus as a form of deadly flu, *omuyeka kwa amarore* (Shitoka & Ivelia, 2020). Other Luhya artists like Joseph Shisia Wasira and Damso Mtsotso and Sammy Mang'ara (2020) also added their voice to the numerous compositions on coronavirus awareness. Wanyonyi Kakai's (2020) Corona's music video adapts the rhythm from the late Congolese superstar Franco Luambo Makiadi's 1984 folklore rumba beat in *12600 Lettres* to improvise with his message to Luhya imploring them to pray to God for protection against the Coronavirus.

Several gospel singers, including Pastor Anthony Musembi (2020) released a ballad with words, "Oh corona what shall we do? Sanitize." His musical video is a sensational prayer that depicts mass graves and urges Kenyans to pray and trust in God. Musembi also prays: "*pepo lishindwe katika jina la Yesu. Amen*" (In the name of Jesus, let the evil spirit be defeated). He also inserted the call from one of Health Cabinet Secretary, Mutahi Kagwe's press briefings, "This disease is not a joke. Kenyans must treat this matter with the seriousness it deserves by adjusting and changing their lifestyles. If we continue to behave normally, the disease will treat us abnormally. Behaving normal under these circumstances is akin to having a death wish." (Musembi, 2020).

Reiterating the role of religion in combating COVID-19, other church-based groups joined the fight through songs. They did so in different languages. In a prayerful tune, *Yesu Mak Corona,* Pauline Nyaimbo (2020) quotes bible verses, calling upon Jesus to "catch" corona. Adding to the more traditional *lipala,* beats, Pastor Timothy Kitui collaborated with Ben Mukabwa in their song,

Mulembe One Metre Away, to dramatize the idea of physical and social distancing as a necessary component in the tool kits to fight coronavirus.

Another form of old-style preaching is evident in Fenny Kerubo's admonition expressed in her musical video, *Coronavirus* (Kerubo, 2020). In it, she suggests that to end the coronavirus epidemic, Kenyans must follow the charge in 2 Chronicles 7: 13-14, in which God's people are called upon to pray and follow His commandments. If they don't, their land will not be healed. This admonition was popular at many church-related COVID-19 prayer meetings and assemblies, which were organized in nearly all corners of the nation.

In listening to other samples of the emerging coronavirus discography, one cannot escape the broad range of diverse genres and juxtaposition of coronavirus-related messages on tunes that are familiar with most Kenyan music enthusiasts. One example is the well-produced music video of Salome Wairimu, whose *Janga la Corona*, is a masterful narration of the epidemiological history of coronavirus in Kenya (Wairimi, 2020). It is also an exhortation of Kenyans to head to President Kenyatta's call to arms against coronavirus.

Kenya Defense Forces (KDF) band, Maroon Commandos, also added to the list of recordings on the coronavirus. The KDF production on single-track musical video *Corona Rumba* carried similar messages to those by other bands. In brief, the KDF message was that coronavirus is an invisible enemy and, therefore, it required all Kenyans to cooperate in the fight against it. Other lines note that the battle can be won though following recommendations form public health officials. These include washing hands with soap, using sanitizers, wearing masks, keeping social distancing and avoiding shaking hands. The lyrics also emphasize that there is no cure for COVID-19 and it does not respect people's wealth, gender, age, or social rank (Kenya News Media, 2020). Beyond this cautionary message, the track also called upon Kenyans to be united, if they have to defeat coronavirus.

The State House Choir also prepared and released a song, *Tumalize Korona Kenya*, on coronavirus signaling a long-cherished tradition of involving public officials in culturally relevant inspirational music and songs. Like Maroon Commandos, they too called upon Kenyans to join hands in the fight against coronavirus by echoing earlier messages for people to wash hands, sanitize, wear masks, and avoid gatherings and greeting each other by hand. Unlike KDF, the State House Choir went one step further by asking those who showed symptoms to seek treatment. In addition, the song reminds Kenyans to seek God's intervention in order to win the fight against the virus (State House Choir, 2020).

Although Mbaraka Mwinshehe was Tanzanian, his decades old *Mama Chakula Bora*, (first released in 1985 on Album *Ukumbusho* Volume 4, track 7) was rekindled as the soundtrack for reminding Kenyans to eat right foods and snack on a balanced diet. During the pandemic, his song was performed on most radio stations to remind Kenyans of the link between healthy living and eating a balanced diet to fighting diseases, including COVID-19. This idea was also expressed in official government policy documents toward managing the spread of COVID-19 pandemic. The Ministry of Agriculture, Livestock and Fisheries, in collaboration with the Ministry of Health, released widely publicized guidelines on health snacking during lockdowns and stay-at-home mandates issued as part of the effort to curb the spread of the disease (NTV, 2020b; Oketch, 2020; Republic of Kenya, 2020). The government's position was that regardless of one's culture, consuming nutritious food was key to boosting immunity and preventing and managing the effects of the coronavirus pandemic.

Non-verbal celebrity signaling

Arguably, the death of prominent musicians can be viewed as a lesson and reminder that COVID-19 was a real threat to humanity. Since music transcends boundaries, events happening elsewhere on the African continent resonated with Kenya's situation. Within the African regions, perhaps the biggest story about COVID-19's devastation were the reported deaths of legendary musicians like the vulnerable Cameroonian Manu Dibangu, Congolese Aurlus Mabele (popularly known as King of Soukous), then based in France and Somali King of Oud, Ahmed Hussein (Hudeydi) who was domiciled in London. They were among the first great artists from the continent to succumb to the disease.

Similarly, some Kenyan musicians met the same fate. As reported by journalist Rushdie Oudia (2020), leading Benga and Ohangla musicians were among those who lost their lives to COVID-19. In early and mid-2020, Ohangla artists Bernard Onyango (alias Abenny Jachiga) and Erick Omondi Odit aka Omondi Long'lilo lost their lives to the virus (Oudia, 2020).

The painful experiences narrated by those who were in contact with these great musicians painted powerful policy images about the need to heed guidelines provided by health professionals. Likewise, the large crowds that gathered to grieve the losses of the music greats was a powerful reminder that no one was immune to the coronavirus attacks.

Can celebrity musicians promote public health?

The answer is yes. As celebrities, musicians, who often partnered with comedians, were recruited to make video tapes and clips demonstrating how to wash hands, social distance and wear masks. In theory, there are certain conditions for influencing members of a community to take collective actions and solve common problems. Influential members of society can, by power of modeling behavior, bring about change in behavior of those who follow or admire and trust them. One would assume, in theory that some celebrity figures are considered credible and may be counted on by their audiences. Further, one would argue that the magnitude and severity of the problem can be a key factor as well. In the case of COVID-19 pandemic, there was some degree of truth to this assumption. Some musicians brought their direct power to the frontline of those fighting the disease.

An example was the renowned Gospel singer and composer Reuben Kigame, whose video clip in Luhya language was circulated on many social media platforms like WhatsApp and Facebook. He exhorted his audience to follow instructions from the Ministry of Health as a civic duty and responsibility in fighting COVD-19. Likewise, radio presenter, Ambrose Kimutai Molel, presented videos on social media giving tips on preventing coronavirus from spreading within the Kalenjin community. These public broadcasts are an important piece of the puzzle in community efforts to combat the pandemic.

CONCLUSION

In sum, the productivity of musicians in the effort to fight COVID-19 points towards a rich array of genres and melodies, ranging from traditional to blended forms. Within six months, a discography of hundreds of musical pieces on COVID-19 is now available, thanks to Kenya's investments in mobile telephony. Although not addressed in this paper, many less known and basic

street artists have also produced hundreds of recordings on coronavirus on various social media platforms; these, too, are important for messaging purposes. Their work constitutes an emerging public health discography which also serves as a rich collection of important art forms.

We may tentatively note that the actual impact of messaging is difficult to measure. However, the signaling efforts are certainly an addition to the regular press briefings from the Ministry of Health and other public officials. The messages supplemented the government efforts to educate the population about the dangers of the disease and ways to prevent its spread. The partnership with musicians and other artists derives from the cultural significance of music and song in daily lives and, especially at times of calamities and grief.

References

Agawu, K. (2003). *Representing African Music: Postcolonial Notes, Queries, Positions*. New York: Routledge.

Andayi, F. (2020, April 22). How the Spanish flu affected Kenya - and its similarities to coronavirus. *The Conversation*. https://theconversation.com/how-the-spanish-flu-affected-kenya-and-its-similarities-to-coronavirus-136515

Bilenge Musica. (2020, March 23). Corona Virus. House of Rumba [Video]. YouTube. https://www.youtube.com/watch?v=kU6pRdnmhHc

Biko, J. (2017, August 31). Benga man's midas touch. *Business Daily*. https://www.businessdailyafrica.com/lifestyle/society/Benga-man-s-midas-touch/3405664-4078630-1p1fiaz/index.html

Jagingo, B. (2020, April 29). Tuo Corona. One Beat Music Kenya [Video]. YouTube. https://www.youtube.com/watch?v=yI137T005hk

Kenya News Media. (2020, July 14). KDF Maroon Commandos Band Corona Rhumba [Video]. YouTube. https://www.youtube.com/watch?v=5YGmpxpxWoY

Kakai, W. (2020, June 1). Corona. [Video]. YouTube. https://www.youtube.com/watch?v=wrGJp9RDJkg

Kerubo, F. (2020, March 18). Coronavirus. [Video]. YouTube. https://www.youtube.com/watch?v=NC_tN6Aj8z4

Kitui, T. (2020, March 22). Mulembe one metre away; Corona has come. [Video]. YouTube. https://www.youtube.com/watch?v=Uv8BqxasBVA

Kubik, G. (2010). *Theory of African Music*. Chicago: University of Chicago Press.

Mang'ara, S. (2020, March 17). Corona virus [Video]. YouTube. (Bukusu Song). https://www.youtube.com/watch?v=vnpwlEDalQM

Musembi, A. (2020, April 22). Corona. [Video]. YouTube. https://www.youtube.com/watch?v=2YU7OmKpbrM

NTV (2020a, April 6). "We are at war": President Uhuru Kenyatta outlines tougher measures to curb pandemic. [Video]. YouTube. https://www.youtube.com/watch?v=3zShBp0l5N4

NTV (2020b, April 24). Ministry of Agriculture rolls out nutrition guidelines to combat COVID-19 [Video]. YouTube. https://www.youtube.com/watch?v=59n4HYiw1xQ

Nyaimbo, P. A. (2020, April 4). Yesu mak corona [Video]. YouTube. https://www.youtube.com/watch?v=VJFxngnTYQ0

Odidi, B. (2016, October 28). From gospel to secular music: The Achieng' Abura story. *Daily Nation.* https://nation.africa/kenya/life-and-style/weekend/from-gospel-to-secular-music-the-achieng-abura-story-321668

Oketch, A. (2020, July 2). Covid-19: A balanced diet key to fighting virus. *Daily Nation*. https://nation.africa/kenya/news/-covid-19-balanced-diet-key-battling-virus-1412114

Osusa, T. (2017, November 25). Taking Benga to the next level, *The Elephant*. https://www.theelephant.info/videos/2017/11/25/part-4-taking-benga-to-the-next-level/

Osusa, T & Odidi, B. (2017). *Shades of Benga: The Story of Popular Music in Kenya, 1946-2016*. Nairobi: Ketebul.

Otenyo, E. E. (2020). Africans combating COVID-19 in song and music. *Practicing Anthropology*. *42*(3), 12-16.

Oudia, R. (2020, July 3). Is the Covid -19 crisis taking a toll on Benga and Ohangla greats? *Daily Nation*. https://nation.africa/kenya/life-and-style/weekend/covid-19-crisis-taking-toll-on-benga-ohangla-greats--1444562

Republic of Kenya. (2020). Healthy snacking during COVID-19 pandemic. *Ministry of Agriculture, Livestock, and Fisheries.* http://www.kilimo.go.ke/covid-19/nutrition-guidelines/

Shitoka, N. & C. Ivelia. (2020, April 1). Corona [Video]. YouTube. https://www.youtube.com/watch?v=icXnd3aFmx0

State House Choir. (2020, April 8). Tumalize corona Kenya [Video]. YouTube. https://www.youtube.com/watch?v=_UNevpFO5N0

Taylor, M., Raphael, B., Barr, M., Agho, K., Stevens, G., & Jorm, L. (2009). Public health measures during an anticipated influenza pandemic: factors influencing willingness to comply. *Risk Management and Healthcare Policy, 2*, 9-20. https://doi.org/10.2147/RMHP.S4810

Tumpey, A. J., Daigle, D. & Nowak, G. (2018, December 13). *The CDC Field Epidemiology Manual. Communicating during an outbreak or public health investigation*. Atlanta: CDC. https://www.cdc.gov/eis/field-epi-manual/chapters/Communicating-Investigation.html

Vaughn, E. & Tinker, T. (2009). Effective health risk communication about pandemic influenza for vulnerable populations. *American Journal of Public Health, 99* (S2), S324 –S332.

Wairimu, S. (2020, April 22). Janga la corona [Video]. YouTube. https://www.youtube.com/watch?v=drxsD6PKWlk

World Health Organization (WHO). (2008.) WHO outbreak communication guide. Geneva. https://www.who.int/ihr/publications/outbreak-communication-guide/en/

The COVID-19 Metaphor: Manufacturing a New Reality

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Abstract

COVID-19 in Kenya, specifically at Kisii University, was received with bewilderment, anguish and trepidation. As the university closed down, as did all schools, colleges and universities across the country, lives were disrupted amid heightened anxieties and uncertainties. Students and faculty were dispersed from their normal environment and ushered a new way of living, thinking, and seeing. This opinion piece, therefore, examines the effect this disruption had on Kisii University, one of the public universities in western Kenya. It also traces the implausibility of the financing model of self-sponsored programs, which led to an unprecedented expansionist project of Kenyan universities in the last two decades. The disruption of the physical space, occasioned by the contact spreading of the virus, instantiated a historical moment for the university to rethink its financing model. Although this piece focuses on the disruptive effect of COVID-19 on the lives of the Kisii University community, this representation is a microcosm of the nature of public university financing models across the country. The paper concludes that having moved 14000 students from face-to-face to virtual learning, the university has embraced a paradigm shift and is on its way to benefitting from the technological dividend.

The COVID-19 Metaphor: Manufacturing a new reality

Hilly. Rainy. Densely populated. Kisii town, the hometown of Kisii University, would on a normal day be teeming with thousands of bustling determined lives milling around every conceivable space: road walks, pavements, even, in dark alleys, with concentrated urgency, eking a living, one way or the other, or running all sorts of errands in the incredibly commercially active small town about 380 kilometers, west of Nairobi, the capital city of Kenya. This normalcy was about to change forever. Among these boisterous urbanites are young university students: freshmen, sophomores, juniors, finalists crawling from their hostels that have mushroomed all over the town — some, dingy and sleazy in surrounding slums, others better, in middle class estates depending on the pocket size of parents, guardians or sponsors — worming their way through the bustling town, shuttling on foot, back and forth between the university's main campus and its town center campuses: Elimu Centre and Twin Towers. The need for a physical space, pen, paper, white board, marker pen, eraser, a real human, visible, talking, explaining, relating . . . The need for a human connection.

It is a strenuous and exacting prospect. One may say he or she has a class from 7.00 a.m. to 9.00 a.m. at main campus and another class at 9:00 a.m. to 11:00 a.m., two kilometers away, at the Elimu Centre, yet shuttle back to main campus for maybe another class. It may rain. It does rain in most afternoons in Kisii. Excruciating as it is, one sees bubbling youthful energy, colorfully dressed and trendy. Boisterous laughter. Loving. Hating. Living. Determination written in their

glistening youthful eyes. All this would soon come hurtling down like the gushing water of a raging ocean before a lull of deafening silence and inactivity. But, just for a while, before a new idiom is created, a new norm was taking shape.

First announced in Wuhan City, in Hubei Province of China, the novel coronavirus was first detected in Kenya on 12th of March 2020. Three days later, the government abruptly closed schools and colleges. Lockdowns and cessations of movement followed. The university was in the middle of the semester. The semester needed to be completed. Lecturers and students, having been scattered in different directions off campus, the university turned to the Learning Management System (LMS) to complete the semester and stabilize the learning environment.

Set up in April 2019, under the Directorate of E-Learning, the LMS was meant to infuse technology into learning and trigger a paradigm shift. Unfortunately, change trudges on as an unwelcome guest to many. The uptake within the various schools and departments had remained lukewarm with minimum enquiries about the system. One or two, especially the campus smart alecks, had loaded material to the system. Then COVID-19 happened. At the onset of the pandemic, the LMS was thrust into the middle of university functions, and fundamentally changed how the institution would henceforth operate, especially, in the academic division. This change was not just a short time convenience; it was a cultural disruption reorienting the traditional paradigm of teaching and learning on campus. The Web Conferencing System (BigBlueButton), integrated in the learning management system, became crucial in student teaching, holding meetings, postgraduate defenses, seminars, conferences and, generally, effectively refocused the university community's life from the physical space into a new normal of virtual performativity.

Digital boardrooms and halls for classes were created at all different levels: boardrooms for meetings, management, dean's committee, senate, postgraduate and various schools. Restriction keys were created, and users vetted. Initially, there were challenges of digital literacy, adaptability to new changes, airtime bundles and connectivity both from the academic staff and students. Training had to be mounted. Meetings. Many meetings. Capacity building, change of mindset meetings, testing the system meetings. Decisions had to be made. Headaches suffered. System capacity. Airtime Bundles. Connectivity. Cheaper telecommunication operators had connectivity challenges; those with better connectivity were inordinately expensive. Mistakes were made and lessons learnt. Finally, though, teaching and learning was lifted from the ground. A new idiom had been created. A new norm was taking shape.

Initially, it was challenging to navigate around many virtual boardrooms and lecture halls. You may have forgotten the password or missed a step while navigating. And then, of course, the gaze. In a traditional classroom, you are the boss. You know you need to prepare well for the lecture and valuably spend each minute of your time. But you may not. Unprepared or underprepared, you veer off topic to tell unsavory stories. If students like them, and they often do, you may survive for as long as, even, a semester passing on unworthy content to the unsuspecting students. Not so in a virtual classroom. You would have loaded your course outlines and course content into the system before commencement date. Students would have interacted with your material before the lecture and bookworms would have questions for you. And then, the recording. As you record your lecture you are only too aware of procedural scrutiny.

I had not thought about the effect of this power of the gaze on personal self-regulation until I attended the first postgraduate proposal presentation under the LMS. Having served in postgraduate, in different capacities, for some years, I had come to view proposal presentations or

thesis defenses as war zones. Candidates come prepared for the worst. It is gruesome. It is ruthless. Candidates have walked out of examination rooms and given up their studies altogether. Egos have been mortally wounded. Omniscient, omnipotent, esoteric examination panelists demean and destroy candidates. Until LMS. Aware of the surveillance exacted upon the examination process by virtue of the recordings, I discovered it is possible for panelists to be polite, civil and professional when interrogating candidates.

A significant impact of the virtual classroom as the new norm is on the university's financing model. Some background will do. In the late 1990s, University of Nairobi, Kenya's premier university, pioneered a financing model targeting qualified older populations willing to upgrade and earn a university degree under the self-sponsored program. The program also benefited qualified candidates who failed to get government sponsorship. Lauded for its innovative way of supplementing operational costs of universities, the program became popular with all universities in the country. Hurriedly and without adequate research, university campuses soon mushroomed across the country.

The implausibility of reckless university expansionism began to be felt in 2016. The then Cabinet Secretary for Education, Fred Matiang'i, scandalized by the horrifying levels of exam cheating, sealed leakage loopholes and reduced qualifying candidates by 48 percent. There would be no self-sponsored students for the subsequent KCSE examinations in the years leading to 2020. The universities would continue to scramble for remnants of previously qualified students yet to join college, especially the working populations who attend evening classes, clearly disadvantaging universities in smaller towns, like Kisii, where the working population is still not as diversified. Thus, the announcement by the university regulator, Commission for University Education (CUE) that following a Quality Audit Inspection report, the School/Institution—Based/ Inter—Term mode of delivery would be abolished with effect from February 17, 2017.

Meanwhile, the government had shifted attention to Technical, Industrial, Vocational and Entrepreneurship Training (TIVET) to power its economy. In 2018, the government increased funding to TIVET by 30 percent of the previous budget. It also announced plans of targeting at least 70,000 students to train in TIVET and expressed its determination to establish technical institutions in all the 290 political constituencies in the country. Kenya Universities and Colleges Central Placement Service (KUCCPS) also announced it would send capitation grants for every student admitted to National Polytechnics and Technical Training Institutes. This would further reduce the number of students joining the university self-sponsored programs.

With the diminishing number of students, the proliferation of campuses, which could not sustain themselves, became a financial burden to universities. Being complacent that universities were well funded through self-sponsored programs, and having refocused energies to TIVET, the government had over the years continued to under capitate them. Kisii University was singularly affected by low capitation. Financing by the self-sponsored stream had gradually diminished. And, whatever little remaining of it depleted following the closure of the university as a consequence of COVID-19.

COVID-19 like its ancestor, the Black Death (the plague) which swept across Europe, the Middle East and Asia during the 14th century leaving millions dead in its wake, continues to ravage Kenya, like the rest of the world, destroying lives and livelihoods. Terribly scary, it has left gloom in its path. But like its ancestor, whose unintended consequence was the blossoming of the industrial revolution, COVID-19 will leave behind its own form of revolution(s) in different spaces

and in different contexts: Hygiene, social relationships, workplace ideologies, among others. At Kisii University, COVID-19 having forced the institution to successfully move 14,000 students from face-to-face learning to the virtual classroom, it has repositioned the virtual space's potential to accommodate students from satellite campuses, thus retooling the university's financing model for sustainable growth and development.

COVID-19 and the End of the School Year in Kenya

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Abstract

COVID-19 ended the 2020 school year in Kenya. In July 2020, Kenya's Education Cabinet Secretary announced that "the 2020 school calendar year [is] considered lost due to COVID-19 restrictions." The Cabinet Secretary's 3-page report suspending learning created confusion and anxiety among students, parents, and educators. Shallow in breadth and scope, the report offered little guidance on the reopening process. Built on primary and secondary sources, this reflection interrogates this report and questions its central premise of virtual learning.

Keywords: COVID-19, Education, Kenya, laptops, George Magoha

"The 2020 school calendar year [is] considered lost due to COVID-19 restrictions" (Magoha, 2020, p. 3), Kenya's education Cabinet Secretary Professor George Magoha conceded in a brief report to the nation on July 6, 2020. Magoha's concession effectively made Kenya the first nation to give up an entire school year because of the government's inability to contain the virus, yet Kenyans suspended their everyday socioeconomic and political activities to create the space for rapid response and containment. Expected to guide parents, educators, and over 14 million children in primary and secondary schools, the report begins by revealing that President Uhuru Kenyatta had accepted its recommendations. It then hints at the involvement of "stakeholders" who constituted the committee without necessarily disclosing their identities. Those familiar with government reports in Kenya—and Africa—understand that "stakeholders" is a phrase commonly used to give the impression of an inclusive committee consisting of key players from disparate sectors. In the real sense, however, stakeholders are politicians and lobbyists who sit on committees to advance multiple interests and draw per diem.

Magoha's report outlines several "minimum reopening conditions" for the 2021 school year that include "reducing physical contact in learning institutions by having *fewer learners*" (ibid, p. 1). As the report's authors envisioned, a reduced student capacity "will have a great impact in reducing COVID-19 cases and fatalities associated with the reopening of learning institutions" (ibid, p. 1). This recommendation ends there, and it does not provide specific guidance about how best to realize this goal. It is unclear exactly what percentage constitutes "fewer learners" and who among the student population will miss the cut. What is clear is that students who will be excluded from the category of "fewer learners" will likely sit out two school years, and the government has not disclosed who holds the power to determine which child to deprive of the privilege to "discover" what Richard Shaull (1968, p. 15) characterized as "how to participate in the transformation of their world."

The report insists that the decision to reopen schools in January 2021 may "change based on the recommendation" from the Ministry of Health. The question is: change to what? It seems, at least from the hurriedly prepared report, the Ministry of Education has not imagined contingency

plans supposed to move the learning process forward if the "infection curve will not have flattened by December 2020." The failure to imagine multiple scenarios is startling, given that the committee had four months to do so. On this score, Magoha's sympathizers are likely to insist the report points out that "the Ministry of Education *will* enhance remote learning (online, distance and e-learning) and explore innovative approaches to promote equity" (emphasis added). By employing the term "will," an auxiliary verb expressing futurity, Magoha acknowledged the country's lack of an infrastructure to support remote learning and neither has Kenya explored novel approaches. This acknowledgment comes eight years after the ruling Jubilee Alliance promised to provide primary school children free laptops.

In 2013, the Jubilee Alliance launched a political manifesto that promised to "work with international partners to provide solar powered laptop computers equipped with relevant content for every school age child in Kenya." The Digital Literacy Program, popularly known as the laptops project, was among President Uhuru Kenyatta's pet projects when he assumed power in 2013 for which the government set aside KES 24.6 billion (USD 240 million). Along the way, Kenyatta's administration scaled down the project's budget by KES 5.5 billion, in spite of the manifesto calling for an "increase" in "education funding by 1% each year so that by 2018 it reaches 32% of Government spending." This suggested the government had put the cart before the horse as officials kicked off the project by training 150,000 teachers. The government also hoped to train an additional 300,000 instructors before fixing broken infrastructure, ensuring electricity supply, and installing solar panels. This hasty approach revealed that the premature training took place before tender negotiations were finalized and the laptops procured. In fact, the project stalled because of the tender row between the Public Procurement Administrative Review Board and Olive Telecommunications PVT Ltd, the Indian firm that had been awarded the tender (Obara, 2019). Rather than identify another firm, fix dilapidated classrooms, supply schools with solar panels, and make good on its promise, the government quietly abandoned the laptop project. By the end of his first term in office, Kenyatta had not fulfilled his promise to children and he had been silent on the matter during his second and final term. To this point, Paulo Freire (1968, p. 80) taught us against saying one thing and doing the complete opposite. "To take one's own word lightly," Freire wrote in *Pedagogy of the Oppressed*, "cannot inspire trust."

It is against the backdrop of a deficit of trust that Magoha's report inspired little faith among Kenyans. Following the announcement, I held a virtual meeting with a group of high school students in Kenya to grasp their understanding of the report's impact on their lives, especially the recommendation requiring them to "remain in their current classes in 2021" (Magoha, p. 3). A sophomore (interview, 2020, July) on the call remarked that the report "hasn't hit me, but waah *nina maliza* when I am 19" (I will complete school at age 19). Collectively, the students expressed their frustration with the government's inability to imagine a flexible school year that departs from the old format of January to December with three long breaks in between. One student (interview, 2020, July) lamented that a school year does not necessarily have to start in January. "If we changed the education model," he added, "from 7-4-2-3 to 8-4-4 we can surely do the same with the calendar." When asked what they would do if schools remained closed in January 2021, they unanimously endorsed remote learning, but expressed skepticism at the government's pull it through. Another student (interview, 2020, July) captured the skepticism well by reminding us that "*tuko Nai na stima inasumbua,* how about *ocha*?" (we are in Nairobi and electricity is problematic, how about upcountry?). Efforts to collect their parents' views yielded few results, but a parent (interview, 2020, July) I spoke with simply said "*tusaidieni jamani"* (please help us).

Magoha's report is a good starting point for a national conversation that considers the parents' plea for help and the fate of 14 million schoolchildren. Waving a white flag without a national conversation breeds anxiety and confusion. To lull the apprehension and inspire confidence, the government must first acknowledge that COVID-19 has upended the education system in Kenya. What is required now are innovative ideas that lead to reimagining a system that absorbs present and future shocks. As presently constituted, Kenya's education system cannot endure stress. Significantly, Magoha's committee of stakeholders should be reconfigured to include representatives from students, parents, and teachers. Furthermore, deliberations of committee sessions should be televised to inspire public trust, transparency, and a shared sense of commitment. Evidently, the top-down approach to this crisis has failed, and the failure has complicated the reopening process as teachers, parents, and students sit and wait for Magoha's directive.

Declaration of Interest Statement

The authors declare no competing interests.

References

Freire, P. (1968). *Pedagogy of the Oppressed.* Translated by Myra Bergman Ramos. New York: The Seabury Press.

Interviews. (2020, July).

Magoha, G. (2020, July). Reopening of Learning Institutions in Kenya. Republic of Kenya. Ministry of Education.

Obara, V. (2019, February 26). How Uhuru's Sh24.6 billion laptops project collapsed. *Daily Nation*. https://nation.africa/kenya/news/how-uhuru-s-sh24-6-billion-laptops-project-collapsed-142662

Shaull, Richard. (1968). Forward. *Pedagogy of the Oppressed.* Translated by Myra Bergman Ramos. New York: The Seabury Press.

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