

Spread of Novel Coronavirus (nCovid-19) in Sub-Saharan Nigeria: A Narrative Synthesis on Troubling Concerns

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ABSTRACT

Introduction: World Health Organization-China jointly reported the novel coronavirus outbreak later termed as nCOVID-19 on 31 December 2019. Infection transmission is reported to occur via droplets and fomites during close and unprotected contact between an infector and infectee, and this is mainly occurring within the families. We addressed unavoidable risk factors available to get coronavirus infection and necessary measures to be taken to prevent, minimize or control its consequential crisis.

Methods: COVID-19 related information available from different literatures, and websites like WHO, CDC, NCDC, newspapers, and live reports pertinent to Nigeria in particular and developing countries in general.

Results: As April 01, 2020, there were 885, 221 coronavirus confirmed cases and 44,212 (19%) deaths from the coronavirus (COVID-19) outbreak in 203 countries and territories. Human-to-human transmission of the virus is mostly occurring within the families (78-85%), with the estimated secondary attack rate in households ranging from three to 10%. Currently, Nigeria is having its share of increasing cases, as it has 151 confirm cases of coronavirus infection, 9 cases discharged and 2 deaths.

In a country where the health system is mainly functioning from program-based donations, controlling pandemics such as corona virus will be challenging and may end up into a catastrophe.

Conclusion and Recommendation: As dark as this crisis seems right now, the fact is that it could get much worse. First, it hit China. Then, it swept across Europe and North America. The third wave of this crisis as it is happening now in the poor countries in Africa and South America could be deadliest. Therefore, we strongly recommend WHO standard recommendations on infection prevention strategies like regular hand washing, covering mouth and nose while coughing and sneezing, thoroughly cooking meat and eggs need to be maintained. Community health education focusing on the causes, prevention and the possible consequences should be cascaded as fast as possible

Keywords: Coronavirus infection, COVID-19, Corona risks, developing counties, Nigeria

INTRODUCTION

On 31 December 2019, global attention was taken by a cluster of pneumonia-like respiratory cases of unknown origin in China [1], which was later identified as a novel beta coronavirus, and so provisionally named as 2019-nCoV [2, 3]. The outbreak has spread swiftly in many countries, with the number of new cases infected and death from the infection increasing on an everyday basis [4]. The high contagious potential of the virus via multiple routes and unspecified intermediate hosts seemed to pose a challenge in controlling efforts [5], [6]. On the 30th World Health Organization (WHO) Emergency Committee meeting agreed that the outbreak now meets the criteria for a Public

Health Emergency of International Concern [7] and on March 11, 2020 officially designated COVID-19 a pandemic. As of April 01, 2020, the coronavirus outbreak has sickened more than 885, 221 people, and at least 44, 212 (19%) people have died, and 185, 208 (81%) were recovered in 203 countries and territories as well as 1 international conveyance around the world, with the death increases with age and attacks old age and individuals with co-existing diseases globally [8]. In African region, there are now 4,310 confirmed cases in 37 countries, and there have been one hundred and twenty-four COVID-19-related deaths including Nigeria [9]. These numbers are not static, and may change as infection is spreading rapidly.

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The trend so far indicates most cases being in developed countries where there is reliable health care and infection control system [10]. One can imagine what crisis it would have been, if the current infection would had begun in settings where infection control systems are weak, and public awareness is poor; in Africa countries plagued by malnutrition, HIV/AIDS, unemployment and poverty; in Nigeria, where majority of the population do not even wash their hands with soap and water. Therefore, to help minimize the continuing spread of coronavirus among an unprepared population, we highlighted areas that could encourage the spread of the virus and consequently make the crisis a tsunami in Nigeria.

We are highly concerned with the fact that all the predisposing factors for transmission are readily available, and the health systems are weak with inadequate infection control practices. Among many factors, social constructions, including greeting by handshaking, cheek kissing and hugging across the society, and sharing dining plates, water glasses, beds and bed sheets among large-sized family, are the most common practices. From an economic perspective, in developing countries such as Nigeria, there are financial and resource constraints to control life-threatening infectious diseases. Moreover, the current modalities of case detection, diagnosis and quarantine for coronavirus are resource-demanding, which makes a harder choice or not. In addition to this, weak political commitment, which has already been proven for the control of prevalent infectious diseases like TB, HIV, and Malaria, adds massive public health concerns and thereby attention.

METHODS

To prepare this narrative synthesis on COVID-19, we have gathered data from different websites like WHO, CDC, NCDC, different journals, newspapers, and reports. Data were extracted from the perspective of developing countries, mainly focusing on Nigeria

RESULTS

The median age of laboratory-confirmed cases is 51 years (range 2 days-100 years old; IQR 39-63 years old) with the majority of cases (77.8%) aged between 30–69 years and 51.1% are males. The virus is transmitting via droplets and fomites during close unprotected contact between an infector and infectee, with the majority of cases were occurring in households (78%-85%) or families [11]. China, which had the largest number of cases and deaths with 81, 554 and 3,312 people respectively, has been overtaken by the US who has 189, 711 confirmed cases and 4, 099 deaths; followed closely by Italy, Spain with 105,792/12, 428, 102, 136/9, 053 confirmed cases and deaths respectively [8]. The death rate was higher in males (4.7 %) than females (2.8%)

As of 01 April 2020, the coronavirus outbreak has sickened more than 885, 221 people, and at least 44, 212 people have died, and 185, 208 were recovered in 203 countries and territories and one international conveyance around the world [8]

It was majorly affecting individuals with cardiovascular diseases (10.5%), diabetes (7.3%), chronic respiratory diseases (6.3%), hypertension (6.0%) and cancer (5.6%). Its mortality rate is low (0.9%) among no pre-existing diseases none among children below 9 years [8] (Figure 1).

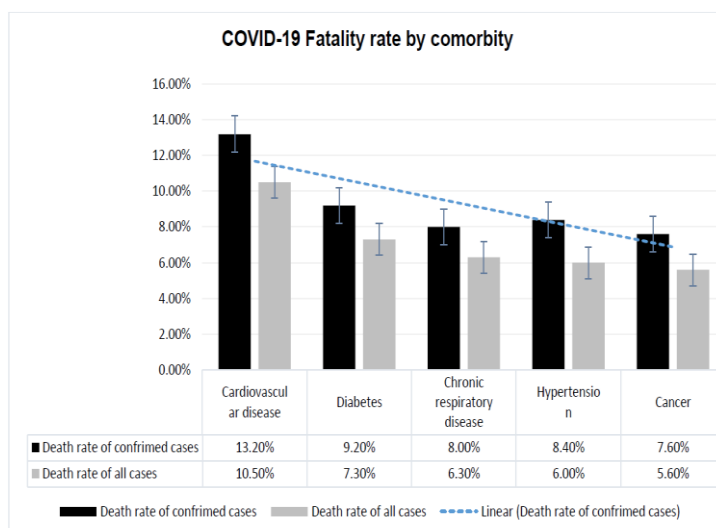


Figure 1. COVID-19 Fatality rate by co morbidity, April 01 2020

DISCUSSION

Regarding susceptibility, the WHO report shows that no known pre-existing immunity or factor increases the coronavirus susceptibility of human infection. Researches need to answer the level of individual susceptibility in comparison to the existing health problems like pneumonia, tuberculosis, HIV/AIDS, and other poverty-related diseases (e.g., malnutrition, diarrhea, malaria) with particular attention to sub-Saharan Africa [12]. Due to the diseases mentioned above and deep-rooted poverty, the immune system could inevitably be weak for the susceptible groups, and the severity of the coronavirus infection can be different from other parts of the world.

The other important thing that needs further research is its route of transmission. Even though the airborne spread of COVID-19 has not been reported so far, it requires further investigation for confirmation. A fecal-oral transmission from fecal shedding of the virus has been demonstrated from some patients, and the viable virus has been identified in a limited number of cases reported [11]. This poses additional risk for the developing countries where feco-orally transmitting infections are common due to poor hygiene and inadequate infection control practices.

The safety of medical equipment in light of the degree of sterilization needs to be taken into consideration in countries like Nigeria, where there is no stable electricity and limited medical supplies. In a clinical environment, the virus could remain in or on the medical equipment like the stethoscope, sphygmomanometer, and other instruments that may contribute as a common source of multiple infections. Notably, coronavirus could also remain on money items for days, and people could get infected while shopping and selling [13], there is still probability the virus could remain in medical equipment and it needs research for confirmation and effective sterilization.

How much can we rely on the reported incubation period of two to 14 days as a handful of outliers have already been reported? For example, patients with an incubation period of 27 days [14], 19 days [15], and 24 days [16] were reported in China. A report from Germany showed that individuals could shed the virus before the clinical manifestations [17], and they have the potential to infect others. Another report with an uncertain outcome to what is

known from the immunity perspective and that seeks serious attention is the case of 14% recovered coronavirus patients that tested positive again with an unknown degree of infectivity [18]. Therefore, tracing and careful follow-up of all previously treated and recovered cases will have paramount importance. In this case, there might be a need to revise the existing treatment guidelines for the COVID-19 that states patients can be considered recovered and released from hospital when their throat or nose swabs show up contrary in two consecutive tests, with a CT scan indicating no lung lesions, and when they have no apparent symptoms such as fever [18].

Why is Nigeria at Higher Risk for Coronavirus?

Family Structure and Household Characteristics

In China, human-to-human transmission of the COVID-19 virus is mainly occurring in families (78%-85%), with the estimated secondary attack rate in households' ranging from 3-10% [11]. Once an infection happens, with large-sized families, the condition will be worse. According to the 2016 estimate, in Nigeria, the average household size was 5.9 and 4.9 persons in rural and urban area, respectively; with nearly half of them under age 15 (52%), while 8% are above age 65 [19]. In Nigeria, the extended family arrangements are familiar with married sons and daughters to continue living with their families. In most cases, unmarried aunts, uncles, cousins, and even close family friends live with the nuclear family. Another critical variable is hand washing with soap and water, which plays a critical role in the prevention of COVID-19 transmission. Unfortunately, the prevalence of hand washing with soap and water is too low. 94% of Nigerians do not practice proper hand washing, and only 6% of all households are likely to practice proper hand washing with water and soap at critical times [20]. With the limited economy, weak health system, and large family size with inadequate hygiene and sanitation practices, how would the government and Ministry of Health act upon it? The authors believe that coronavirus related message should target families and effective strategies and models designed to outreach efficiently to the family level.

Social Construction

Nigeria is a high-risk country with regards to the social construction of peoples. Even though

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strong ties and social attachments that the country has developed for centuries are beneficial for lots of social matters, like helping each other in case of demanding help, sharing feelings in good and bad circumstances, and coping mechanism to pass hard times together, can also be risk factors regarding coronavirus transmission.

In urban cities such as Abuja, Lagos, Port-Harcourt; where there had been reported cases of coronavirus incidence, institutions that provide public services are not inadequate in number, so that too much crowding is common in hotels, cafes, restaurants, public transportation, market places, recreational centers, schools, churches, mosques, daycare centers, hospitals, private and public institutions.

Air Transportation, Screening and Current Rapid Spread

Almost like most unprepared countries, Nigeria was late in closing its borders to halt the rampaging pandemic. It was of recent she canceled flights between China and other countries profoundly affected by the coronavirus. Yet, most airlines here have daily flights at a minimum of 5 destinations in China, such as Beijing, Shanghai, Guangzhou, Chengdu, and Hong Kong, round the year.

Nonetheless, the majority of laboratory-confirmed cases in China were clinically symptomatic; there were asymptomatic cases that were confirmed positive by a real-time reverse-transcription–polymerase-chain-reaction (RT-PCR) [12]. This case scenario is similar to the diagnosis of asymptomatic cases by RT-PCR assays of throat swabs and sputum in Germany who were shedding potentially infectious virus without fever but only minor signs of infection [17]. Therefore, evaluation and testing of passengers for body temperature alone may not be sufficient to detect COVID-19. Therefore it is believed and recommended that a robust public health surveillance system coupled with rapid and reliable diagnostic testing and quarantine are necessary measures to control diseases without vaccine or therapy [21].

Shortage of Adequate Equipment and Risk of Health Care Workers

A simultaneous shortage of personal protective equipment is endangering health workers worldwide, which was caused by rising demand, panic buying, hoarding, and misuse [22]. The same critical gap is also reported in African

region and WHO has completed its first blanket distribution of PPEs to 24 countries focusing on countries with confirmed cases, countries neighboring those with confirmed cases, and major regional transport hubs [9].

Associated with these shortages, health workers became a risk for infecting themselves and also could be a common source for disseminating the infection to other patients, their colleagues, and families. Without secure supply chains of PPE, the risk to healthcare workers around the world is real. Industries and governments must act quickly to boost supply, ease export restrictions, and put measures to stop speculation and hoarding. The statement by the WHO "We can't stop COVID-19 without protecting health workers first," is valid and need to be addressed [22]. Moreover, the shortage of adequately trained laboratory professionals was already reported in Sub-Saharan Africa.

With the shortage of equipment and adequately trained laboratory professionals, the country may face significant problems if the infection occurs. At this time juncture, the authorities in the health sectors need to take a lesson to make available high-level skilled and trained personnel at the national level. The coronavirus free window period, if used wisely to plan and implement requirements like supplies and human resources, will be a golden opportunity to the limited resource settings to curb the would-be epidemic.

Proper Communication Channel, Preventive Behavior, and Panic Managements

Communication with the public during health emergency events is an essential function of government agencies. Successful communication helps to control the emergency by aiding the public to rapidly adjust behaviors and perceptions of risk, while unsuccessful policies can promote community outrage, and impede the progress of threat mitigation [23]. It is worthy to notice the importance of communication from trustworthy sources. A good lesson to learn from is the case of Middle East Respiratory Syndrome (MERS) outbreak crisis in South Korea, during the period people were using online news, interpersonal networks, and social media to acquire MERS-related information more frequently than the information from public health officials, which was regarded as untrustworthy [24].

Therefore, clear and timely information from government or public health officials with the

most essential and necessary regulations saves from unnecessary panic on social media[25]. However, information on social media may not be accurate enough, and the diffusion of misinformation via these media can have a direct impact on the spread of disease as it easily influences public behavior at large extent [26]. As an example, the European center for disease control (ECDC) under communication and data protection section for COVID-19 preparedness made transparent discussion and clear communication lines to allow rapid information to all staff and patients/visitors and media and general public [27]. In order to develop preventive behaviors and control of panics at different levels, effective communicative options are of utmost importance. The Nigerian MOH, NPHI, and other government stakeholders need to plan jointly, helping via disseminating a real-time message to the broader public through social networks in addition to the traditional media outlets.

The Willingness of the People to Expose Themselves

Individuals who are with signs and symptoms or suspected of coronavirus may hide in the community because of the fear of stigma, discrimination, and social and economic isolation. This is already happening elsewhere as reported; for instance, from Italy, a restaurant owner who did not want to report himself to the health authority because of fear of losing his business [28]. Behaviors such as barriers and facilitators for self-isolation and self-reporting need to be studied further.

CONCLUSION

The virus is spreading globally and locally at a swift pace, as 151 cases has been reported in Nigeria. In such a pandemic situation, for countries with weak economy such as Nigeria and most of African countries preventive efforts should be considered as best and cost effective measures. Failure to prevent will lead to most costly infection controlling and case management options, which may require extensive resource and continuous supplies. Therefore, we strongly recommend banning of close contacts like hand shaking and kissing for greetings that are common practices in Nigeria. The WHO standard recommendations on infection prevention strategies like regular hand washing, covering mouth and nose while coughing and sneezing, thoroughly cooking meat and eggs need to be maintained.

Community health education focusing on the causes, prevention and the possible consequences should be cascaded as fast as possible to the lowest units of every household. Future interventions should target family as a chain breaking strategies oriented to prevent further spread of the virus. The socio-psychological consequences of nCOVID-19 need to be given appropriate consideration so as to avoid unnecessarily discrimination, stigma and social disintegration. Truth is, no matter where, and who, this is a global pandemic. Either we beat it together, or we will all lose this fight.

LIST OF ABBREVIATIONS

CDC:	Center for Disease Control
COVID-19:	Corona Virus Infection of 2019
NPHI:	Nigerian Public Health Institute
NCDC:	Nigerian center for disease control
IQR:	Interquartile Range
MERS:	Middle East Respiratory Syndrome
USA:	United States of America
WHO:	World Health Organization

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