

Coronavirus Disease Outbreak: Assessing the Level of Preparedness for Containment in Healthcare Facilities in Nigeria: Qualitative Research Findings

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Abstract

Background: The COVID-19 pandemic has raised serious public health concerns globally. Cases keep increasing across countries: exposing the emergency-containing capability, level of preparedness, emergency disease prevention, and risk management alertness of various healthcare facilities in managing the crisis. **Aim:** to assess the level of preparedness for the containment of the COVID-19 disease outbreak across health-care facilities in Nigeria. **Materials and Methods:** Participants were the stakeholders within selected healthcare facilities. Data were collected via in-depth interviews using a list of 37 structured questions to assess the level of preparedness of the Nigerian health-care facilities in containing the COVID-19 pandemic. The findings were manually and thematically analysed using the constructivist variant of the grounded theory methodology. **Results:** Overall, the level of preparedness across the selected health facilities was estimated as average, as several facilities were fairly prepared while a few others were relatively unprepared for the COVID-19 pandemic containment. **Conclusion:** The COVID-19 virus disease outbreak can be said to be fairly contained by the Nigerian health system from the standpoint of the available mortality and incidence indices. Meanwhile, there are still loopholes around financial, structural, and material provisions which are essential needs for better and sustainable pandemic containment.

Keywords: COVID-19, health-care facilities, pandemic, preparedness

INTRODUCTION

The coronavirus pandemic all began as an outbreak of pneumonia of unknown origin in Wuhan, Hubei province, China. Subsequently, the cases of COVID-19 began extending to other parts of the world.^[1,2] The adverse impact of the pandemic has been enormous on the healthcare system probably due to the incongruence of the management protocols in different countries in the wake of the pandemic; also, there has been a huge economic and societal disruption in addition to the public health impact with substantial fatal outcomes in high-risk groups during the index COVID-19 pandemic.^[3-5] The highest risk of healthcare-associated transmission is in the breach of standard precautions, when basic infection prevention and control measures for respiratory infections are not in place, and when handling patients where 2019-nCoV infection is yet to be confirmed.^[1,6-8]

Many of the previous and current major epidemics have required strict and workable collaborative actions, efforts, and interventions of various local and international agencies; these actions include risk, capacity, surveillance system assessments, early warning, and alert systems, emergency preparedness for response across all hazards, resilient hospitals, and health facilities.^[9,10] Individual nations, therefore, need to decide how best to control the further spread of this disease among their citizens. This is because proper emergency disease prevention and risk management

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are needed to curtail the spread of such health emergencies with high mortality.^[10]

The COVID-19 pandemic has raised serious public health concerns with the relevant local and international bodies working hard to gain tangible control of the outbreak. Since the outbreak of the disease, several groups of researchers have taken to determine its course, leaving a grey area in the assessment of its containment preparedness across countries, especially in healthcare facilities that would be primarily involved in the management of the outbreak casualties.

Understanding that the most important step to take in the management of any disaster is adequate assessment, global actions will be ineffective if the level of readiness for disaster management is unknown. Hence, there is a need to measure the preparedness level of the Nigerian healthcare sector.

This study set out to assess the level of preparedness for the containment of the COVID-19 disease outbreak across healthcare facilities in Nigeria.

MATERIALS AND METHODS

Study design

The study was a qualitative study using in-depth interviews (IDI).

Study population

This study was conducted among healthcare workers in selected healthcare facilities which are shown in Table 1. Twenty-five participants were healthcare facility coordinators and heads of units or departments across the Nigerian healthcare facilities and were selected through a multistage sampling technique.

Data collection

All directors and heads of clinical units and departments of the selected healthcare facilities that were available during the study were recruited while those that did not give consent for the interview were excluded.

All IDI were digitally recorded. During transcription, a unique individual ID was used in place of the respondent's name. Data collection commenced in April 2020 and ended in June 2020.

Data analysis

Before the analysis of the data, the audio recordings of the IDI were transcribed verbatim into a Microsoft Word document. To

ensure transcription quality, all transcripts were independently checked by the Principal Investigator against the original audio recordings and grammatical errors were corrected. After the removal of identifiers, data were analysed manually and thematically using the constructivist variant of the grounded theory methodology which is a qualitative research methodology that focuses on generating answers through inductive analysis of the data gathered from participants rather than from pre-existing theoretical frameworks. via this research approach: the researcher seeks to understand a social phenomenon through participants' experiences: using iterative data collection and analysis. Adoption of grounded theory requires the researcher adopt several strategies including constant comparisons: rigor: coding: diagramming: identifying the core themes and categorisation.^[11-13] The framework analysis approach guiding this methodology which comprises five stages including familiarisation, identifying a thematic framework, indexing, charting, mapping, and interpretation was utilised in data analysis.^[14] Findings were presented as themes based on each of the study objectives.

Ethical consideration

To ensure that this research conformed to the highest scientific and ethical standards, the research protocol was submitted for review and approval by the research ethics boards. Ethical approval was obtained from the Ethical and Research Committee of the Federal Medical Centre, Owo, Ondo State. All participants were adequately informed about the purpose of the study and methods to be used, verbal and written informed consent were obtained from respondents and they were assured of the confidentiality of their responses and personal identifiers removed in summary data.

RESULTS

Twenty-five participants across nine (9) hospital facilities, out of which twenty-two (22) were male and three (3) females were engaged in an IDI about the above topic. They were drawn from the departments including Nursing, Clinical, Dental, ANC, Pediatrics, and other administrative offices of the primary, secondary, and tertiary healthcare facilities. Before the conduct of this discussion, study participants had received some suspected and/or confirmed COVID-19 cases at their respective health facilities. The findings of their discussion are presented below.

Table 1: Selected healthcare facilities in ondo state nigeria that participated in the study

| Institutions | Participants | Ranking/cadre |
|---|--------------|---------------|
| Federal Medical Centre, Owo | 6 | Tertiary |
| University of Medical Sciences Teaching Hospitals Complex, Laje | 4 | Tertiary |
| Ondo State Specialist Hospital, Okitipupa | 3 | Tertiary |
| General Hospital, Owo | 4 | Secondary |
| General Hospital, Ondo | 2 | Secondary |
| General Hospital, Okitipupa | 3 | Secondary |
| Primary Health Centre, Owo, Ondo State | 1 | Primary |
| Comprehensive Health Center, Mofere Oja | 1 | Primary |
| Primary Health Centre, Halubi Street, Okitipupa | 1 | Primary |

Level of preparedness of Nigerian health facilities to contain the coronavirus disease outbreak

The level of preparedness to handle the outbreak of COVID-19 across health facilities and among healthcare providers appeared to be average. Indicators of preparedness revolved around the provision and installation of preventive structures including personal protective equipment (PPE) kits, face masks, hand sanitiser, and observance of social distancing in and around health facilities. Using a scale ranging from 1 to 5 to assess the level of preparedness of the respective healthcare facilities: more than two-thirds of the respondents scored the level of preparedness of their facilities less than or equal to four. The responses below lend credence to the above findings:

“If I should say 5 that means we have everything on ground which is a lie: but I will go for 4/5” (Male 48: HOD: Dental Department).

“...We are averagely prepared” (Female 52: Head of PHC Facility).

“I’ll rate it 50%” (Female 57: Head of PHC Facility).

However, only less than one-third of the respondents indicated a higher level of preparedness toward addressing possible COVID-19 outbreak at their respective facilities. For some, preparations had been in place before the delineation of their health facilities as approved centres for COVID-19 management as shown below.

“If it’s about the basic preparation such as PPE kit, face mask, hand sanitiser and social distancing then we are prepared, I will rate it 5/5” (Male 43: HOD Accident and Emergency).

“... I think we are close to 100% prepared...” (Male 54: Medical Director).

With regards to the emergency response towards other diseases exclusive of COVID-19, a few respondents affirmed to have had no outbreaks within their facility. This, according to the respondents, can be attributed to the provision of health education to the surrounding neighbourhoods on the importance of hygiene and the adoption of health and safety measures to the communities surrounding their respective facilities. This is as stated below:

“We have never had any case of previous outbreaks in our facility. However, we do give health awareness and sensitisation programmes to residents around our hospital community; so we invest more in the practice of preventive medicine.”

“As much as I know, we’ve not experienced outbreaks in the past.”

For health facilities with a record of outbreaks, certain factors have enhanced their readiness to respond to emergencies. Timely assessment of emergency cases and prompt referral of deteriorating cases to the next healthcare level are some of the enhancing factors: as highlighted below:

“...We don’t wait for a longer period; as soon as emergency cases came in we attend to them...” (Female 52: Head of PHC Facility).

“...We respond as fast as possible, we access the patient to check if we can manage the patient...” (Male 42: HOD Accident and Emergency).

Furthermore: the swift response during emergency situations is greatly facilitated by the presence and prompt action of medical personnel: the accessibility of drug interventions: and the availability of existing management protocols.

“We do have structured protocol for the management of outbreaks and emergencies in our facility.” (Male 54: Medical Director).

“Good staffing and adequate supply of drugs have helped to respond swiftly to emergencies in our facility.” (Male 49: Head of Clinical Service).

Components of preparedness in the Nigerian health facilities to contain the coronavirus disease outbreak

This qualitative study set out to evaluate the availability of components of preparedness of health facilities to contain the coronavirus outbreak. Some of the components of preparedness are sub-classified under the following headings:

a. PPE: Very high level of readiness was reported among health facilities with regard to availability at their various holding and isolation areas to address the outcomes of containing the COVID-19 outbreak. While some facilities indicated full provision and installation of PPEs such as hand-wash basins, running water, hand sanitisers and face masks, the availability of these at some health facilities appeared uneven. Evidence to the above statement is stated below:

“We have enough supply of PPEs...” (Male 42: HOD Accident and Emergency).

“We have basic hand hygiene equipment which includes a hand wash basin, sanitisers, and running water.” (Female 45: Head of Facility).

“We have all the PPE Kits in place; we have almost all the features that are needed to put our isolation centre in place...” (Male 52: Head of Clinical Service).

“... the equipment we have in it so far includes face mask, hand sanitiser, beds, and some PPE kits...” (Male 50: HOD Medical Laboratory Science).

“We don’t have all the necessary PPEs, only surgical masks and gloves were made available to the facility management (Male 46: HOD Accident and Emergency).

“Yes, we have the goggles, boots and disposable gowns...” (Male 49: HOD Medical Laboratory Science).

The frequency of supply of these PPEs was assessed. Findings revealed that the supply of PPE [hand hygiene materials such as hand wash, water, soap, chlorine, and alcohol-based sanitisers] was timely. Respondents’ affirmed that this was a standard practice for some facilities that ensure PPEs are always provided in large quantities to prevent stock-out. The management of health facilities were praised for their prompt response in replacing these resources before their exhaustion. Evidence of these are as reported below:

“The facility had more than enough supply of hand hygiene materials even before the ongoing outbreak, because we

have been managing Lassa fever earlier.” (Male 50: HOD Community Medicine).

“We have enough hand washing materials such as water, soap, and sanitiser, and we keep replacing them when exhausted” (Male 46: HOD Medical Laboratory Science).

“We always get our materials in surplus; we don’t wait till it gets exhausted before we replace them. We also pump water every day”. (Female 45: Head of PHC Facility).

“Yes, we do provide it for them when requested and needed.” (Male 52: Medical Director).

“For the uninterrupted supply of hand hygiene materials, I would commend the efforts of the management of this hospital for doing well to ensure adequate supply of chlorine, sanitisers and hand wash” (Male 44: HOD Pharmacy).

In contrast, the situation above appears different at some health facilities. While some affirmed the supply of some PPEs, other health facilities lacked some of the PPEs which were supplied occasionally. The consequence was to rely on the purchase of these PPEs by caregivers of patients admitted at such health facilities. Healthcare givers who provide care often use out of what patients’ caregivers purchase for their patients. At other times, PPEs were purchased by the staff of health facilities using their personal funds. For some respondents, efforts were still underway to approve the installation of these PPEs at their health facilities. These findings are stated below:

“We don’t have adequate PPEs... We don’t have boots, Google’s, or gowns.” (Female 46: Head of PHC Facility).

“Yes, we have a face mask, hand washing materials, scrubs, hand sanitisers..., it’s just that they are not adequate.” (Male 50: HOD Medical Laboratory Science).

“Not adequate, but we are hoping more would be made available in some days to come.” (Male 42: HOD Accident and Emergency).

“I can’t say if we have enough supply of PPEs, because most times patients have to go buy masks and gloves that the staff would use since they are not adequately supplied by the hospital.” (Male 46: HOD Accident and Emergency).

“There hasn’t been any central provision of hand hygiene materials. Members of staff do get them themselves.” (Male 50: HOD Medical Laboratory Science).

Also, the absence of ventilators for the management of critical cases was reported despite the installation of all other preventive measures for some health facilities as reported below:

“...but, about ventilators, we don’t have one yet.” (Male 43: HOD Accident and Emergency).

“...we do not have ventilators at the moment.” (Male 54: Medical Director).

Several initiatives have been fostered to assist in maintaining a regular and uninterrupted supply of PPE during the COVID-19 outbreak. Some of these included donations from philanthropic and nongovernmental institutions; government institutions

through the Ministry of Health and hospital-based internal funds systems as stated below:

“The Ministry of Health does supply us while some NGOs also support this. So, we do have an adequate supply of the PPEs, we even have more than enough in our various departments.” (Male 52: Head of Clinical Service).

“We do have some Performance Based Financing (PBF) funds that are used to meet up with such demands, so that the supply chain can be maintained.” (Male 49: Head of Clinical Service).

“The Ministry of Health does supply us, In fact every department has the PPE so we have an adequate supply of the PPE” (Male 43: HOD Accident and Emergency).

“The Government supplies the PPE, so whenever we don’t have or we are short of it, we call and ask for it and they should supply them” (Male 54: Medical Director).

b. *Capacity and educational structure:* Aside from the installation of PPEs, the inclusion of some form of health education and training for their hospital staff was reported. Furthermore, there was a constitution of a health committee to monitor the implementation of the above preventative measures and observance of the recommended protocols at health facilities delineated for the management of suspected and confirmed COVID-19 cases as below:

“...we have properly educated our staff to properly handle suspected cases, following standard protocols.” (Male 49: HOD O and G).

“...we have had a series of lectures, seminars and we’ve educated all the Healthcare Practitioners in this centre on the prevention of COVID-19.” (Male 52: Head of Clinical Service).

“... we have trained our workers in such a way that they will protect themselves from suspected cases and our patients are also made to know of the importance of following safety precautions in the facility...” (Female 46: Head of PHC Facility).

“We have an infection prevention committee who are working on sensitising the staff on how to protect themselves.” (Male 47: HOD Paediatrics).

c. *Creation of Isolation and holding areas:* The availability of standard holding areas and isolation areas (or rooms dedicated for isolating COVID-19 patients) in the health facilities designated to manage or receive referral cases is very critical in the management of COVID-19 cases. These structures were absent in some health facilities as stated by the majority of respondents below:

“... We don’t have any holding or isolation area in this facility for now.” (Male 50: HOD Medical Laboratory Science).

“...we do not have any place dedicated as the isolation and holding area.” (Male 43: HOD Accident and Emergency).

“...we don’t have a holding area for now.” (Male 52: Head of Clinical Service).

“... We don't have a holding area in this facility.” (Female 52: PHC Head of Facility).

“... There's no isolation area in this hospital.” (Female 46: PHC Head of Facility).

“... We have no isolation area...no isolation facility is available.” (Male 47: HOD Paediatrics).

Although very few respondents mentioned the existence of improvised isolation or holding area (designation of specific wards within their facility for this purpose), other respondents stated that the installation of isolation or holding facility is still at the conception stage as stated below:

“... We don't have a holding/isolation area yet, but there is a ward where we isolate suspected cases of COVID-19” (Male 43: HOD Accident and Emergency).

“We have a temporary Isolation centre for now but we have been managing both the suspected and confirmed cases right there.” (Male 46: HOD Accident and Emergency).

“Yes, we have a ward set apart for isolating suspected cases.” (Male 54: Medical Director).

For facilities with isolation and holding areas, the availability of structures within its isolation or holding areas for the management of life-threatening outcomes due to COVID-19 cases was still sub-optimal. Some of these structures include the presence of an ICU and corresponding bed spaces which are very much lacking across these facilities. Reasons for the absence of this very important structure were identified as both administrative and based on the type of health care as stated below:

“No, we don't have ventilators for now.” (Male 54: Medical Director).

“No, we do not have ... talk less of the dedicated ICU unit.” (Male 42: HOD Accident and Emergency).

“No, we don't have ICU here.” (Female 52: PHC Head of Facility).

“We don't have an ICU here since it's a general hospital, not a tertiary institution.” (Male 52: Head of Clinical Service).

The implication of the absence of holding or isolation area in some facilities, according to some respondents, results in no admission or entry of suspected COVID-19 cases into these facilities as shown below:

“... We don't have any holding area so we don't allow any suspected cases to enter at all.” (Female 45: PHC Head of Facility).

Some of the respondents who do not have expressed their eagerness to have standard holding/isolation areas at their facilities. Although they have available lands to put up such structures, strategic efforts are underway to erect a building dedicated to that purpose in their health facilities as stated below:

“Although we don't have a holding area nor an isolation area. We have free land area, but no building facility to serve that purpose.” (Male 52: Head of Clinical Service).

“As of now, we don't have an isolation area, but we are working towards having one.” (Male 54: Medical Director).

“We don't have a holding area, but we have a trained team who have drafted a plan which they presented to the management to the effect of creating a holding area.” (Male 52: Head of Clinical Service).

- d. *Prompt referral system*: Some facilities that are unable to handle emergency cases have always practiced prompt referral to the next healthcare level as evidenced below:
 - “...if we are unable to manage we refer to the right section immediately (Male 46: HOD Accident and Emergency).
 - “However, if we have cases we can't manage as a primary healthcare centre, we ask the patient's relatives to use their vehicle to transfer the patient to the nearest secondary healthcare centre like General Hospital or FMC.” (Female 52: Head of Facility).
- e. *Installation of behavioural change communication materials*: The creation and installation of preventative channels of communication regarding COVID-19 were significant across health facilities. According to respondents, health facilities were proactive in the practice and implementation of awareness campaigns about COVID-19; its mode of prevention and management across the health facilities of respondents using posters, signage, etc. These were installed at very strategic locations within the hospital for access by healthcare providers, visiting clients, and patients to encourage the adoption of positive lifestyle behaviour toward reducing the spread of the virus as stated below:
 - “...we have a poster that is white and black which indicates that the use of facemask is Compulsory” (Male 52: HOD ENT).
 - “Yes, we do have over all our clinics and ward, especially at the first point of contact, so that everyone can see it and be aware.” (Female 52: PHC Head of Facility).
 - “Yes, we have different signage and posters all around to aid visual learning.” (Male 44: HOD Pharmacy).
 - “We have different posters and signage around in the wards for people to learn from.” (Male 52: Head of Clinical Service).
- f. *Community education*: Awareness creation, information dissemination and community education which respects and includes local contexts and local languages were adopted to communicate the above strategies as stated below:
 - “What we do majorly is creating awareness and educating the community on the importance of regular handwashing, social distancing and avoiding traveling.” (Female 45: PHC Head of Facility).
 - “... We try to avoid crowding and promote social distancing, so we attend to clients as they come.” (Male 50: HOD Medical Laboratory Science).
 - “We ensure social distancing among patients in the facility and also create awareness by the community mobilisation

who speaks to them even in the Hausa language, breaking the possible language barriers.” (Male 42: HOD Accident and Emergency).

“...by specifically informing our patients to follow and maintain the safety precautions of preventing Corona Virus, and if anyone around them has the COVID-19 symptoms they should report such case.” (Female 46: PHC Head of Facility).

“...by passing information across to them through the town criers, we tell them about the danger of coronavirus and how it can be prevented, and that they should always observe the social distancing rule” (Female 52: PHC Head of Facility).

While the above educational efforts have come to stay, few health facilities are still at the planning stage of or have not implemented any form of community education with regard to COVID-19 prevention as stated below:

“As of now, we are still making plans on sensitising the community around this facility on how to protect themselves from contracting this disease and preventing its spread.” (Male 52: Medical Director).

“There has not been any sensitisation done to create awareness in the surrounding community of this facility as at present.” (Male 49: Head of Clinical Service).

- g. *Training and refresher programmes for healthcare staff:* To implement and enforce the implementation of the COVID-19 guidelines and protocols across health facilities involved in one level of management or the other, capacity building on the universal and national standards is required in strengthening the ability of staff to provide essential care. The Federal Government of Nigeria through the Ministry of Health had initiated this strategy in health facilities across the states. This step translated to the existence of trained staff across the health facilities of respondents involved in this study. According to the respondents, there are not less than ten (10) staff who were trained in the implementation and enforcement of COVID-19 protocols at their various institutions. These trained staff have also stepped down the training to other staff across their institutions. Findings to corroborate this situation are stated below:

“Like I said that a team came from the headquarters to deliver training to our staff members about six weeks ago and after the training, we were encouraged to step down the training to other members of staff which we’ve been doing with our staff members in different batches (Male 50: Community Medicine).

“Yes we do, we have about 12 of us.” (Male 46: HOD Medical Laboratory Science).

“Yes, 25 of us...” (Male 47: HOD Paediatrics).

“Yes, about 14 members of staff and a community mobilisation.” (Male 46: HOD Accident and Emergency).

Furthermore, health administrators of these facilities have continued to provide refresher training and education as a strategic initiative to sustain the gains in the reduction of

COVID-19 cases in the state. Components of such refresher training provided to these staff concerning management of COVID-19 covered steps on how to obtain specimens, testing, appropriate PPE use, and triage procedures. These training was not a one-off exercise but were frequently conducted on specific days and dates with support from facilitators at the state level. There were positive remarks on the usefulness of such training and seminars, according to the respondents who expressed keen interest to see such training continue as highlighted below:

“Nearly every week, we have been updating our knowledge because the increase in the number of cases serves as a motivation for us to keep updating ourselves via seminars.” (Male 52: Head of Clinical Service).

“Yes, and we do have updates and retraining every Monday.” (Male 50: HOD Community Medicine).

“Yes: when we’ve been handed the managing protocol: the members of staff were called together for sensitisation on self-protection and proper handling of cases...” (Male 54: Medical Director).

“Yes, we do hold seminars and provide training to the healthcare practitioner regarding COVID-19 diagnosis on how to obtain specimen testing, appropriate PPE use, and triage procedures and so far we have done many types of training, we still had one last week and we will have more training in the nearest future” (Male 43: HOD Accident and Emergency).

“Yes, we’ve had two or three training for our staff here, and we always give them feedback on the seminars we attend outside this facility whenever we are back from such seminars.” (Male 49: Head of Clinical Service).

“Yes, we do hold training and seminar talks three (3) times a week, Monday, Wednesday, and Friday, and it has been helping the preparedness and knowledge of our staff members so far.” (Male 52: Medical Director).

“Yes, we had so many trainings about what to do and what we should not do. Even the state still organised one last week, it has been encouraging so far, and we are hoping to see more of that.” (Female 52: PHC Head of Facility).

- h. *Access to COVID-19 National protocols:* According to respondents, administrators of health facilities have continued to comply and modify their procedures of healthcare to align with national standards. According to the majority of respondents, there are existing protocols for guiding the management of COVID-19 cases at their health facilities. Their health facilities also have access to the national protocols and review health-care provision procedures to ensure suspected COVID-19 patients are rapidly identified and isolated at their facilities as stated below:

“Yes there is a protocol...we follow the NCDC guidance in the management of COVID-19 cases.” (Male 50: HOD Community Medicine). “Yes, there are protocols...we follow the NCDC protocol to manage COVID-19 cases”. (Male 42: HOD Accident and Emergency”).

The existing protocol for suspected cases of COVID-19 at health facilities of respondents highlighted varying structures and patterns which are in tandem with that of the state and national guidelines and protocol. These practices reveal maintenance of prompt notification from community members to health facilities, health facilities' instant communication with the disease surveillance officers (DSO), immediate evacuation of suspected persons, suspected patient management, isolation, and infection prevention strategy as highlighted below:

"Whenever our attending is called to suspected cases in the community, we inform the Disease Surveillance Officer (DSO) immediately who in turn takes samples for investigation and then transfers the patient through an ambulance to the isolation centre." (Male 46: HOD Medical Laboratory Science).

"We hold down the patient in a holding area and then call the DSO who will then come to pick up the patient." (Male 49: Head of Clinical Service).

"Suspicion – Don't panic - Isolate the patient - Maintain necessary infection prevention strategy - Inform the DSO - Call some dedicated phone numbers - Inform the ambulance." (Male 52: Medical Director).

Although the majority of respondents whose health facilities are involved in COVID-19 management have access to the latest infection prevention and control policy consistent with the NCDC or WHO COVID-19 IPC guidance, such policies according to respondents will remain un-implementable given the existence of a nonsupportive system. This was the position of respondents as shown below:

"For policies consistent with the NCDC guidance..., but it cannot function effectively unless we have a system that will be supportive and a well-structured facility to carry it out." (Male 44: HOD Pharmacy).

One such unsupportive environment is the sparse existence of protocols for referral of cases of coronavirus which includes safe transport of suspected or confirmed cases to the health facility. While there are no such protocols, other health facilities either utilise ambulances courtesy of support from the DSO or request carers of patients to mobilise their vehicles for the transfer of patients to the next line of health facility for the management. These are corroborated by the report from respondents below:

"There's no definite protocol of referral in this facility." (Female 52: PHC Head of Facility).

"Whenever a suspected case is reported, with the influence of the DSO an ambulance will be provided through which the patient will be transferred." (Female 45: PHC Head of Facility).

"We would inform the patients' relatives to look for a car, and sometimes we do use our ambulance in transporting them to the nearest secondary healthcare facility." (Female 46: PHC Head of Facility).

- i. *Maintenance of communication with National officials:* On the place of communication, over fifty percent of

respondents that participated in this discussion indicated having direct contact and details of NCDC officials when suspected COVID-19 patients are identified. For other facilities, they do not as they are first in direct contact with the disease surveillance officers or the state officials in such a situation who then in turn reach out to the NCDC staff as stated below:

"...but it's the DSO we inform who will in turn call the NCDC officials." (Male 49: Head of Clinical Service).

"We don't have a direct link with the NCDC officials, but we have contacts of the state IDH in Akure." (Male 52: Head of Clinical Service).

Factors that mitigate the Nigerian healthcare facilities' preparedness for the containment of coronavirus disease outbreak

Some of the challenges could be best categorised under the following headings – *financial, infrastructural, or systemic-based challenges.*

- a. *Financial challenges:* From this study, the constraint of insufficient funds was observed. This affected, according to respondents, and translated to a reduced supply of PPE which left healthcare workers with no option but to purchase out of pocket especially the hand hygiene materials as stated below:

"Not so much, but finances, especially for the procurement of PPE and hand hygiene materials has been a challenge." (Male 52: Medical Director).

"We do not have adequate PPEs, most of the PPE we use we do buy from our pocket." (Male 54: Medical Director).

To address financial constraints, health facilities solicited the support of the government to provide the needed financial support towards supplementing the purchase of essential resources including PPEs.

"I will advise that there should be the provision of more PPEs and disallowing the market to run on a full scale, to reduce crowd." (Female 45: PHC Head of Facility).

"We plead that the government should look into most of the places we have problems with and they should assist us with the provision of our needs..." (Female 52: PHC Head of Facility).

Also, respondents opined that their health facilities had adopted some strategies to mitigate the strain on funds. One such strategy was its internal financial backup plan herein referred to as "performance-based financing (PBF), a health facility-based business plan which once approved, provides money for service provision within health facilities. This is as stated below:

"We have been able to overcome the challenge of finances with the little funds we generate here." (Male 52: Head of Clinical Service).

"...but we have a system here called the PBF to which we present our business plan for the facility and once the plans are approved, funds are released to us." (Male 49: Head of Clinical Service).

- b. *Infrastructural constraints*: one of the mitigating factors under this category is the availability and access to emergency services such as ambulances. According to respondents, most of the available ambulances are not in order and do not function optimally. This situation can delay the rate of response in terms of pick-up of suspected cases or referral of confirmed cases to the next level of healthcare facility which if not addressed immediately, may lead to increased death cases.

“We have a problem with transportation, most of our ambulances are not in good condition...” (Male 46: HOD Accident and Emergency).

To address these challenges, support from various stakeholder involvements including government, non-governmental, community leaders, philanthropic institutions, and good-spirited individuals was solicited as highlighted below:

“So if the government can provide this, and also the NGOs, even individuals such as Kings, elite and rich people out there can help, I think this factor can be submerged. (Male 42: HOD Radiology).

DISCUSSION

In our study, the self-reported level of preparedness to handle the COVID-19 outbreak across healthcare facilities and among healthcare providers appeared to be average. While the availability of PPEs and the management guideline are well synchronised at national and subnational levels to combat the pandemic, there are financial challenges with COVID-19 preparedness.

There was a form of consensus on the availability of essential PPEs such as hand wash basins, running water, and hand sanitiser.^[3] In the face of pandemics/epidemics, necessary PPEs are not readily available in many developing countries due to resources constraint. In a study carried out by Kibuule *et al.* assessing the preparedness for Ebola Virus Disease (EVD) in Uganda, PPEs were limited in most facilities.^[15] Similar outcome was noted for COVID-19 preparedness in Yemen.^[16] Yemen healthcare facilities are unprepared to contain the COVID-19 pandemic, evidenced by 93.9% of respondents stating that the Yemen healthcare system lacks most basic resources and capabilities necessary to contain the pandemic while more than 80% of respondents rated the general preparedness level of their healthcare facilities as very poor or poor.^[16] Similar inadequacy was reported in a cross sectional study in three Latin American countries.^[17] However, PPEs were never in short supply as said by most of the participants contrary to a national study which suggest poor preparedness of hospitals.^[18] However, in some facilities, caregivers and healthcare staff have had to purchase these things from their pockets. Only few facilities were without PPEs. PPE is extremely important during any disease outbreak as healthcare workers are at increased risk of infection, and the availability of PPE can help to prevent this risk.^[5,8]

Some of the respondents said that there are various means set aside to help with an uninterrupted supply of PPEs

during the COVID-19 outbreak, ranging from, philanthropic gestures to nongovernmental organisations donations, and hospital-based internal funds system. The support system from nongovernmental sectors is a global phenomenon. Globally, a lot of funding came from developing countries. Notwithstanding the funding support was fraught with various challenges.^[19]

As regards capacity and educational structure, some of the participants said they have properly educated their staff on the proper way of handling suspected cases by following laid down protocols. The respondents said some of their facilities have also organised lectures and seminars on ways to prevent COVID-19, including establishing an infection prevention committee that sensitises the staff on ways to protect themselves. Regarding the provision of isolation and holding areas, most of the respondents said their facilities do not have them, while in other facilities, they have had to improvise. The great role of the Nigeria Centre for Disease Control (NCDC) has previously been well highlighted.^[20] Similarly, evidence from a multinational study across the healthcare facilities within some South American countries confirmed the availability of national and institutional COVID-19 protocols and delivery of necessary COVID-19 management training to their healthcare workers.^[3] Conversely, a study in Yemen showed that the majority of healthcare workers across the Yemen healthcare facilities had not received the training necessary to curtail the spread of COVID-19 across their healthcare facilities.^[16]

Educational strategies, as provided by health facilities of respondents were a reflection of those stipulated by national and international bodies including social distancing, avoidance of crowded places and events, frequent hand-wash, and limiting long-distance travel.^[3,5,8] The respondents within the selected Nigerian healthcare facilities mentioned the use of installed behavioural change communication materials (posters, signage, etc.) and utilisation of community education through various media to sensitise the members of their surrounding communities on the mode of COVID-19 prevention within the community and the management of the healthcare facilities.^[5,8] While all the respondents across the healthcare facilities stated that COVID-19 prevention and management awareness and sensitisation programmes are being delivered uninterruptedly within their facilities, there were a few others that were yet to commence community education and sensitisation, but stated that plans were already in place to commence.

It is worth noting that the respondents unanimously agreed on following national protocols on COVID-19 guidelines, majorly that of the Nigeria Centre for Disease Control (NCDC). The guidelines are in tandem with those of the state Centres For Disease Control, which guide these facilities. Respondents however made it clear that, despite knowing the guidelines and following them, implementing them can sometimes be a problem due to a dearth of facilities. A major harbinger for curtailing outbreaks is the financial aspect. The participants said lack of funds has led to a short supply of kits has led

to soliciting government support for finances. Funding preparedness is key in the three phases of an outbreak; before, during, and after.^[20] According to respondents, there has also been a poor infrastructural presence in most of their facilities, including transport services. In Uganda, hospitals were found to have the required infrastructure.^[14]

Strengths, limitations, and future research

The participants included in this study were drawn from various hospitals and across various healthcare worker cadres. The information available in this study reveals the dearth of studies on COVID-19 preparedness. Our findings have been able to show the dearth of facilities and a terrible financial constraint, which are important factors in containing disease outbreaks. It has also revealed that a lot of progress has been made, and unlike in other instances, there has been less politics with the COVID-19 outbreak. Although we believe a few of the participants might have exhibited political correctness in their responses. Future research to see how we have been able to achieve so much, in containing this pandemic despite having fewer resources and financial support would be relevant.

CONCLUSION

Even though the government has responded well to the outbreak of COVID-19 when compared to other past disease outbreaks: A lot of lapses and loopholes are still apparent from the incident and mortality figures. A lot of deficits need be addressed with the health facilities: as it is apparent that none of the facilities is significantly prepared to handle the outbreak if it occurs. In preparation for future outbreaks: more financing: exposure of healthcare workers to relevant and timely training and the provision of necessary materials needed to curtail the outbreak or emergencies would be of utmost importance.

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Conflicts of interest

There are no conflicts of interest.

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