



Challenges of Effective Implementation of Non-Pharmaceutical Measures in Mitigating Community Transmission of COVID-19 Pandemic and Solutions in Nigeria

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Abstract

The rate of community transmission of COVID-19 pandemic in Nigeria suggests the ineffective adoption of the non-pharmaceutical measures by the citizens. The study focused on challenges of effective implementation of non-pharmaceutical measures in mitigating community transmission of COVID-19 pandemic and solutions in Nigeria. Conducted in Nsukka L.G.A of Enugu State, it was guided by two research questions. It adopted phenomenology research design. Twenty teachers participated in the study voluntarily. Data were collected using validated open-ended questionnaire developed by the researchers. Data were analyzed using content analysis. Results showed that challenges that militate against effective use of non-pharmaceutical measures are grouped into people's perception/belief systems, cultural inhibition, financial constraints, misconceptions, and fear. The solutions among other things are to ensure a conceptual change in the misconceptions people have about COVID-19 through intensified public awareness campaigns. With educational implications highlighted, it is among other things recommended that public enlightenment about COVID-19, and the use of non-pharmaceutical measures should be intensified.

Keywords: COVID-19, Community Transmission, Teachers, Non-Pharmaceutical Measures, Sustainable Development

Introduction

In the human population recently, a dread disease called coronavirus emerged. Its community transmission was so fast that it mounted serious worries to the world government. Being a pandemic disease as its emergence quickly spread across continents, coronavirus shook the world and caused different levels of government to seek interventions to control the rate of the community spread of the disease. With the assistance of the World Health Organisation, Ministries of Health, and other health agencies, the non-pharmaceutical measures were recommended. They also recommended procedures of taking care of symptomatic victims (an example of pharmaceutical measures) though beyond the scope of this study. The government adopted some interventions among which

was to lockdown different public places such as schools, banks, and markets among others. The government advised the citizens to observe the laid down protocol as given by the World Health Organisation. This has become pertinent since the disease manifestation in individuals destabilizes the body systems and keeps victims off from contributing actively in their areas of endeavor that in turn, affects the sustainable development programs of the economy. Also, by observing the protocol, it will contribute towards achieving the sustainable development goal number three of the United Nations (U.N) which is to ensure healthy lives and promote well-being for all at all ages (U.N, 2020). Among the protocol to be observed is the use of non-pharmaceutical measures to reduce the



community spread of the disease. However, the rate of use of the non-pharmaceutical measures appears not to be encouraging as the number of confirmed cases of the disease is on the increase. This necessitated the conduct of this study as it identified the challenges that limit people's effective use of the non-pharmaceutical measures.

However, some studies conducted on the use of non-pharmaceutical measures showed that the non-pharmaceutical measures are geared towards controlling the infectious sources, blocking the transmission routes, and protecting the susceptible population (Team TNCPERE, 2020). Cassata (2020) maintained that myths circulating about the COVID-19 outbreak make some people behave in ways that could endanger their health and that of others. Rathod, Rathod, Phiri, and Rudd (2020) stated that cultural beliefs and values can contribute to the success or failure of global efforts to contain the spread of an outbreak. Rathod et al. also argued that local cultural practices relating to unhygienic burials of relatives for fear of violating traditional practices put people at risk of getting coronavirus. Maqbool and Khan (2020) stated that the implementation of social measures depends on the adequate availability of resources including financial dealings. Onyishi et al. (2020) added that the extent of systematic underdevelopment and preexisting inequalities in the society made some people like artisans, cart pushers, waste pickers, cobblers, barbers, and vulcanizers among others not to be able to effectively procure the approved non-pharmaceutical materials. Alberty-Blanchard (2020) maintained that among the misconceptions about COVID-19 are that coronavirus mainly affects old people, has no effective preventive measures, and it's unsafe to receive packages

from China. It is important to have an overview of the disease.

The novel coronavirus is a new strain of the virus that has not been previously identified in the human population. As an infectious disease, the coronavirus disease 2019 (COVID-19) is caused by the virus called severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) (World Health Organisation [W.H.O], 2020). Historically, it was first identified in December 2019 in Wuhun, in China, and has resulted in an ongoing public health emergency of international concern. Presently, more than 25 million cases have been recorded across 200 countries and territories of the World Health Organisation's six regions, resulting in more than 850,000 deaths, and more than 16.9 million recoveries (Nigeria Centre for Disease Control [N.C.D.C], 2020). The spread of COVID-19 is primarily through having close contact with infected persons (symptomatic or asymptomatic) as it enhances the inhaling of infected air droplets produced by such an infected person in his/her saliva and sputum through coughing, sneezing, talking, or singing (African Centre for Disease Control [A.C.D.C.], 2020). This centre stated that although COVID-19 is not sexually transmitted, kissing, and intimate contacts are routes suspected to transmit the virus. Also, the contaminated droplets that fall on surfaces, can be infectious if people touch such contaminated surfaces and then their eyes, nose, or mouth with unwashed hands. The coronavirus disease shows some symptoms in its victims.

A disease symptom in this context is the outward manifestations of a disease. The common symptoms of coronavirus include fever, fatigue, chills, diarrhea, headache, sore throat, chest pain, shortness of breath, and loss of smell and taste (World Health Organisation [W.H.O], 2020). Fever is the



most common symptom of COVID-19 but could vary in severity. According to the World Health Organisation, about 44% of people had a fever when they are presented to the hospital or treatment centre while 89% developed a fever in the course of hospitalization. However, the absence of fever does not suggest that someone is COVID-19 free since asymptomatic cases may not show noticeable symptoms. The asymptomatic persons presume that they are healthy and see no reason to be tested. Thus, as latent carriers, they play a transmission role in the community transmission of the disease. The common symptoms may progress to serious complications if not properly handled. These complications may include pneumonia, acute respiratory distress syndrome (A.R.D.S), multiple organ failure, cardiovascular complication (heart failure, heart inflammation, and blood clots), neurologic manifestations (seizure, stroke, and encephalitis), and death (N.C.D.C., 2020). Since there is no specific cure for COVID-19 yet, the government has made some responses.

Following the confirmation of the first index case in Nigeria on 27th February 2020, the Federal Government of Nigeria instituted several measures to curtail the spread of the disease and protect the health of Nigerians. For instance, a multi-sectorial national emergency operations centre was activated and is being managed by the Nigeria Centre for Disease Control. Subsequently, the Presidential Task Force on COVID-19 was constituted on March 9, 2020, to oversee the activities of the multi-sectorial and inter-governmental efforts to contain the spread and mitigate the impact of the pandemic in Nigeria. The task force also provides overall policy direction, guidance, and continuous support to the National Emergency

Operations at the Nigeria Centre for Disease Control (N.C.D.C., 2020). Other interventions include delivery safe centres to ensure capacity to manage outbreaks, sensitization and awareness campaigns for the general public on prevention measures and response activities, as well as review and make recommendations for implementing country-wide non-pharmaceutical interventions such as initial lockdown of non-essential activities; closure of schools; a ban on local and international flights; suspension of large gathering (e.g. church services and praying in the mosques), implementation of physical distancing, ban on inter-state travel, closure of markets, event centres, and restaurants, among others (Presidential Task Force [P.T.F], 2020). To effectively achieve the mandate, the National COVID-19 Response Centre (N.C.R.C.) was established within the Presidential Task Force (P.T.F). to provide strategic guidance and coordinates the efforts and to ensure proper synergy and efficiency. Also, the response and intervention in Nigeria led to the establishment of over ten molecular laboratories and numerous testing and treating centres. These responses notwithstanding, Nigeria has recorded about 55,005 confirmed cases, 43,013 people discharged, and 1,057 fatalities as shown in the table in appendix 2 (Nigeria Centre or Disease Control [N.C.D.C.], 2020), though, this number keeps on increasing. The increase in the number of confirmed cases calls for effective use of non-pharmaceutical measures.

The non-pharmaceutical measures as pertains to this study are those measures aimed at reducing the community spread of COVID-19 that do not necessarily involve the use of drugs. Several non-pharmaceutical measures recommended by the W.H.O are geared towards curtailing the community



transmission of the disease. These measures include washing of hands thoroughly and frequently with soap under running water for at least 20 seconds, use of alcohol-based sanitizer if the water is not available, maintaining a physical distance of at least two meters from others in public spaces, wearing a face mask/shield appropriately when in a gathering that reduces the risk of exposure and vulnerability of the wearer to infection. Others are covering of mouth and nose properly with tissue paper when sneezing and/or coughing that reduces the release of the droplets, avoid large gatherings of more than 20 persons and gatherings where physical distancing is not observed, self-isolation if in contact with an infected person, avoid shaking of hands, maintaining of healthy living by eating a balanced diet and regular eating of fruits and vegetables to strengthen the immune system (N.C.D.C, 2020). The effective adherence to the use of the stated non-pharmaceutical measures will optimally check the spread of the pandemic in Nigeria. This could be why Ihekweazu (2020) stated that strict adherence to the use of face masks in public spaces is imperative particularly where physical distancing may not be practicable. Despite the usefulness of the aforesaid measures, their adherence is in theory for most people as substantiated by the rate of increase in the number of confirmed cases shown in the table in appendix 2. The teachers are likely to play a role in ensuring the use of non-pharmaceutical measures.

The teacher is trained personnel who facilitates learning. They guide the learners towards accomplishing the curricula objectives derived from the nation's education goals. The curriculum is expected to serve the needs of the learners and the society at large for it to be relevant. The Biology teachers, for instance, are expected

to be proficient in the subject matter and skills to effectively guide the students. One of the objectives of learning Biology is to prepare students to acquire ability in scientific knowledge to everyday life in matters of personal and community health..." (Nigerian Educational Research and Development Council [N.E.R.D.C], 2009 p.i). The teacher in that regard can participate in promoting public health by creating awareness and sensitization campaigns on the use of non-pharmaceutical measures in the schools and in different communities they find themselves. Thus, with their wide interactions in society, they can be beneficial in this study.

Based on the foregoing, COVID-19 index cases in Nigeria increase daily. This increase is worrisome as it indicates the extent of community spread of the novel coronavirus in the country. The World Health Organisation (WHO) through the Nigeria Centre for Disease Control (NCDC) has established protocols to curb the menace by introducing pharmaceutical and non-pharmaceutical measures. The pharmaceutical measures although beyond the scope of this article is strictly implemented when an individual(s) is symptomatic of the disease. On the other hand, the W.H.O recommended the implementation of non-pharmaceutical measures whether the individual(s) are symptomatic and/or asymptomatic. This gives insights on how important effective implementation of the non-pharmaceutical measures is expected to assist in the reduction of the community transmission of the pandemic disease across the country. It is saddening that the use of non-pharmaceutical measures is not effective as it is indicative of the high number of confirmed index cases of the disease made possible through community transmission.



As such, there is a lacuna yet to be filled in the area of investigating challenges militating against the effective use of non-pharmaceutical measures in mitigating community transmission of the COVID-19 pandemic and solutions in Nigeria. Hence, the need for this study to address pertinent questions such as: what could be the challenges limiting the effective use of non-pharmaceutical measures by the people? Are there things that could be done to improve the effective use of non-pharmaceutical measures?

Theoretical Framework

The study is based on the Health Belief Model, a theoretical model that guides health promotion and disease prevention programs. It was proposed by Rosenstock Hochbaum in 1950. It states that an individual's beliefs about health conditions determine the person's health-related behaviors. The theory maintained that the key factors that influence health behaviors are the individual's perceived threat to the disease, potential positive benefits of action, perceived barriers to action, exposure to factors that irritate action, and confidence in the ability to succeed (Rural Health, 2005). Laranjo (2016) added that the theory was based on the assumption that people fear diseases, and that health actions are motivated based on the degree of fear (perceived fear). This study supports the theory in that it brings to limelight people's perceived barriers towards effective implementation of the non-pharmaceutical measures to curb the community spread of the COVID-19 pandemic in Nigeria.

Purpose of the Study

The general purpose of the study was to investigate the challenges of effective implementation of non-pharmaceutical

measures in mitigating community transmission of the COVID-19 pandemic and solutions in Nigeria. In specific terms, the study was to:

1. determine the challenges that militate against the effective use of non-pharmaceutical measures in mitigating the community transmission of COVID-19.
2. ascertain ways necessary to increase the implementation of the non-pharmaceutical measures in reducing the community transmission of COVID-19.

Research Questions

The two research questions that guided the conduct of the study were:

1. What are the challenges that militate against the effective use of non-pharmaceutical measures in mitigating the community transmission of COVID-19?
2. What are the ways necessary to increase the implementation of the non-pharmaceutical measures in reducing the community transmission of COVID-19?

Methods

The study employed a type of qualitative research design known as phenomenology research design. The design was used as it examines people's first-hand emotions, attitudes, thoughts, meanings, perceptions, and bodily experiences as or after they have experienced a phenomenon (Carter & Little, 2007).

Research Group

The participants of the study were twenty secondary school teachers in Nsukka Local Government Area of Enugu State who were involved in preparing students for the



West African Senior School Certificate Examination (WASSCE) and the Junior Secondary School Certificate Examinations for the 2019/2020 academic session. The twenty teacher-participants willingly contributed to the study.

Instrument for Data Collection

The data collection tool was by an open-ended questionnaire developed by the researchers. The two items of the questionnaire in open-ended format, requested the respondents to supply their views about challenges militating against effective use of non-pharmaceutical measures in mitigating community transmission of COVID-19 pandemic, and solutions (i.e. the ways necessary to increase the implementation of the non-pharmaceutical measures in reducing the community transmission of COVID-19) in Nigeria respectively. The questionnaire was face-validated by two experts who are respectively in the fields of science education, and pharmacy of the University of Nigeria, Nsukka.

Method of Data Collection

Copies of the validated open-ended questionnaire were distributed to the teacher-participants in their schools by the researchers. After the participants supplied their responses, the responded questionnaires were collected on the spot.

Method of Data Analysis

The data obtained from the participants were analyzed using content analysis.

Results

The following revealed the respondents' views concerning the two open-ended items of the questionnaire.

Answers to the question on challenges that militate against effective use of non-pharmaceutical measures in mitigating the community transmission of COVID-19 in Nigeria

In the study, the participants were asked to write their views on challenges that are limiting people's effective use of non-pharmaceutical measures in reducing community spread of COVID-19. Their responses would be used to answer the first research question. Their opinions are stated hereunder:

"Face masks make people uncomfortable and tamper with make-up especially for ladies. "I think people shun the use of face masks because they cause suffocation by decreasing blood oxygen concentration and increase the build-up of carbon (IV) oxide in the bloodstream" "It is because of the belief that surgical masks are infected and could transmit the virus" "Some people I think cannot afford to buy face masks, face shield and hand sanitizers" "In my view, many brands of hand sanitizers are fake and react with the skin" "hand sanitizers cause fire outbreak" "In some villages in Nsukka, Enugu State, there is inadequate pipe-borne water that inhibits people's effective practice of handwashing with the little quantity of water they have"

Twelve of the participants answered that *"many people especially those in the rural areas do not believe that COVID-19 exists".* Other limitations as suggested by the respondents include:

"We believe that the presence of COVID-19 disease in Nigeria is a myth as we have not in reality seen coronavirus victim" "We believe that



it's not real at all" "I think COVID-19 is just like malaria that our bodies are adapted to" "We believe that the disease doesn't kill Africans because of our tropical climate, it is a disease for those in temperate regions" "For me, people believe that the disease doesn't affect the poor masses. It is a disease for old people, wealthy people, and the politicians" "I noticed that many social gatherings are held in places with inadequate spaces thereby limiting proper spacing" "Maintaining a physical distance of at least 2m is rarely done in my own opinion as we believe in our culture of greeting our relatives and friends by handshaking and embracing" "In my perception, inadequate compliance to the non-pharmaceutical measures centres on poor knowledge of the serial disease and people's level of literacy"

Responses to the question of ways necessary to increase the implementation of the non-pharmaceutical measures in reducing the community transmission of COVID-19 in Nigeria

The participants were also asked to write their views on the ways necessary to increase the implementation of the non-pharmaceutical measures in reducing the community transmission of COVID-19 in Nigeria. The statements hereunder showcase their responses:

"The government should think of other comfortable measures than face masks" "The government should provide free face masks and hand sanitizers" "Government should help by subsidizing the prices of coronavirus preventive materials and made them readily available to the

people" "Face masks and hand sanitizers should be shared as palliatives". Almost all the respondents suggested "more intensive sensitizations or awareness campaigns about the COVID-19 and its spread through radios, television, newspapers, other online platforms and churches" "Public enlightenment campaigns should be intensified in rural areas" "Social gathering should be in open places e.g. open field and/or in an auditorium with adequate spaces to enable people to maintain physical distance" "Government should make pipe-borne water readily available at many strategic places in different communities in Nsukka, Enugu State" "Water (tap) should be provided to schools, markets, and communities".

Other suggestions further made as regards to solutions include:

"Government should monitor social gatherings and enforce compliance to the use non-pharmaceutical measures" "It can be a rule that without wearing face mask or face shield, no attention will be given to you in offices and schools" "Those who are not comfortable with face masks should use face shield" "Avoid contact with flame when using alcohol-based hand sanitizers".

Discussions

The responses from the participants presented above on the challenges militating against effective use of non-pharmaceutical measures in mitigating the community transmission of COVID-19 in Nigeria could be broadly grouped as people's perception/belief system, cultural inhibition, financial constraints, misconceptions, and



fear. People's perception and/or their belief system varies. For instance, some people believe that COVID-19 is a myth and does not exist. Such belief systems control the attitudes of such people and lead to their apathy towards effective use of the non-pharmaceutical measures. In that situation, the non-pharmaceutical measures geared towards controlling the infectious sources, blocking the transmission routes, and protecting the susceptible population as observed by TNCPERE (2020) become defeated. Thus, people that shun the use of non-pharmaceutical measures stand a greater risk of being susceptible to the disease thereby enhancing its community spread. This agrees with Cassata (2020) who maintained that myths circulating about the COVID-19 outbreak make some people behave in ways that could endanger their health and that of others. To resolve the challenge, it is appropriate to change people's belief systems about coronavirus disease through massive sensitization on radios, televisions, and newspapers among others.

The people's cultural practices oftentimes serve as an inhibition to the effective implementation of the non-pharmaceutical measures already established as the protocol to contain the coronavirus disease. This is in line with Rathod, Rathod, Phiri, and Rudd (2020) who stated that cultural beliefs and values can contribute to the success or failure of global efforts to contain the spread of an outbreak. Rathod et al. further asserted that local cultural practices relating to unhygienic burials of relatives for fear of violating traditional practices put people at risk of getting coronavirus. In this context, a burial ceremony is unhygienic when the COVID-19 protocols regarding the use of non-pharmaceutical measures are not observed.

Again, the culture of greeting siblings, relatives, and friends by handshaking and embracing violates the protocol on the physical distance among others.

However, since cultural practices are ideal for the peaceful coexistence of the members of any society, the government is expected to monitor social gatherings that are culturally influenced and enforce compliance with the use of non-pharmaceutical measures. Considering respondents' views on possible solutions, social gathering is expected to be in open places such as open field and/or in an auditorium with adequate spaces, culture notwithstanding, to enable people to maintain physical distancing. Also, it is worthwhile that the government makes pipe-borne water readily available at many strategic places in different localities as well as schools, markets, and communities to upscale handwashing practice. The government can set up a task force with the collaboration of community leaders to monitor social gatherings and enforce compliance to the use of non-pharmaceutical measures at the grassroots level through the payment of fine and doing community service. The government must strengthen measures that promote personal and community hygiene. Besides, it can be a rule that without wearing a face mask or face shield, an individual will not be given attention in public places like offices, schools, banks, and hospitals among others.

Financial constraint was identified as another inhibiting factor or challenge towards effective implementation of non-pharmaceutical measures to checkmate community spread of COVID-19. This is because some non-pharmaceutical measures like face masks, face shields, and alcohol-based hand sanitizers among others are meant to be purchased before use. Some



people cannot afford their costs and as a result, shun their usage. This agrees with Maqbool and Khan (2020) who argued that the implementation of social measures depends on the adequate availability of resources including financial dealings. In other words, in a situation whereby an individual finds it difficult to finance daily meals, procuring purchasable non-pharmaceutical measures will be out of place. This also supports the views of Onyishi et al. (2020) who stated that the extent of systematic underdevelopment and preexisting inequalities in the society made some people like artisans, cart pushers, waste pickers, cobblers, barbers, and vulcanizers among others not to be able to effectively procure the approved non-pharmaceutical materials. Addressing the issue of finance, the respondents suggested that the government can make face masks and hand sanitizers readily available by providing them free of charge for the public especially to those in the rural areas to cushion the effect of financial constraint. Alternatively, the government can help by subsidizing the prices of coronavirus preventive materials to enable people to buy them. Also, face masks and hand sanitizers can be shared as palliatives by the government and philanthropists in society.

Furthermore, it appears that the major constraint on the effective use of non-pharmaceutical measures as suggested by the respondents revolves around misconceptions. There are many misconceptions people have about coronavirus disease that affect their effective compliance in the use of non-pharmaceutical measures. Some of them are: surgical masks are infected and could transmit coronavirus, COVID-19 is just like malaria that our bodies are adapted to, the disease doesn't kill Africans because of our tropical climate, it is

a disease for those in temperate regions, the disease doesn't affect the poor masses and it is a disease for wealthy people and the politicians among others. These agree with Alberty-Blanchard (2020) who pointed out that COVID-19 misconceptions are that coronavirus mainly affects old people, has no effective preventive measures, and it is unsafe to receive packages from China. To solve COVID-19 misconception problems, it is ideal for the masses to have conceptual change and reorientation about the pandemic disease. Again, COVID-19 does not only affect old people as susceptible individuals irrespective of age or sex can be infected. Also, the respondents suggested proactive measures among which is to intensify public enlightenments especially in rural areas about COVID-19 disease through various channels of communication.

Finally, another inhibitory factor to the effective use of non-pharmaceutical measures is fear. Fear is an emotion that can be both protective and debilitating (Okereke & Nzewi, 2018). Protective fear enables an individual to circumvent physical dangers while debilitating fears in this context, results in emotional torture and retracting attitude. Some of the views given by the respondents as to why there is no effective implementation of non-pharmaceutical measures are attributed to fear. For instance, they pointed out that many brands of hand sanitizers are fake and react with the skin. Also, hand sanitizers cause fire outbreaks. In the social media platforms like WhatsApp, telegram among others, people's apprehension about hand sanitizers is raised by different posts showing where someone has bloated and sore palm after using hand sanitizers. Considering that hand sanitizers are alcohol-based and could be inflammable does not mean that once they are used, there will be a fire outbreak. This fear nurtured by



some individuals repeal their interest in the use of hand sanitizers which health belief model theory upholds. Furthermore, some respondents opined that face masks make people uncomfortable and tamper with make-up especially for ladies as well as cause suffocation.

To quell the fearsome behaviors of some individuals about hand sanitizers, the government needs to sensitize the public about the approved hand sanitizers to be used. Also, since hand sanitizers are alcohol-based, hand sanitizing near the flame is not ideal. Also, to allay the fears some persons nurture about face masks, it is safe to wear a face mask and/or face shield in a crowded place. However, when one is alone or sleeping, wearing a face mask is not necessary. During physical exercise, one needs more oxygen to oxidize the sugar in the body to release more energy for the exercise. In such a situation and provided the place of the exercise is not crowded, using a face mask may not be ideal. The respondents suggested that people who are not comfortable with face masks can use face shields.

Conclusion

The rate of community transmission of the COVID-19 pandemic raises a lot of concerns. The government through the World Health Organisation (WHO), Ministry of Health, and other health agencies took proactive interventions among which is approving the use of the non-pharmaceutical measures to curb the community spread of the disease. This notwithstanding, the extent of people's compliance with the use of non-pharmaceutical measures is worrisome and this is caused by some challenges whose solutions are given in this study. It is concluded that the challenges militating against the effective implementation of the

non-pharmaceutical measures in mitigating community transmission of COVID-19 pandemic are broadly grouped as people's perception/belief systems, cultural inhibition, financial constraints, misconceptions, and fear.

Educational Implications

The challenges militating against the effective implementation of the non-pharmaceutical measures made its compliance to be low and this, has implication on the school system. For instance, without the effective implementation of the non-pharmaceutical measures in the school system, the learners, teachers and head teachers become exposed to COVID-19 which hampers teaching and learning processes. This is because a teacher that has COVID-19 disease lacks the stamina to teach because of the frailty of his/her health. Also, a learner infected with COVID-19 is likely to lose attentiveness and will not have strength to participate actively in curricula and extra-curricular activities of the school. In such a scenario, the coverage of the curriculum is delayed. Thus, learners' performance become affected which could lead to loss of interest in the school system thereby stifling the actualization of the goals of education in Nigeria.

Recommendations

The following are recommended:

1. There should be intensified public enlightenment about COVID-19, and the use of non-pharmaceutical measures through online platforms (e.g. zoom meetings), radios, television, newspapers, and other communication channels.
2. The government should synergize with the community leaders to form monitoring teams at the grassroots



who monitor and ensure that people in different communities comply with the use of non-pharmaceutical measures.

3. Some people's poor knowledge of the disease, their misconceptions, and the level of literacy about the efficacy of the non-pharmaceutical measures in curbing the community spread of COVID-19 can be improved through workshops, conferences, and seminars.
4. The government should provide hand sanitizers, face masks, and face shields without charges for the public especially those in rural areas.
5. Boreholes should be sunk at strategic locations in different communities by the government, non-governmental organizations, and philanthropists.
6. The government should strengthen measures that promote personal and community hygiene.

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Appendix 1

Confirmed Cases of COVID-19 by States

States Affected	No. of Cases (Lab Confirmed)	No. of Cases (on admission)	No. Discharged	No. of Deaths
Lagos	18,347	2,912	15,233	202
FCT	5,301	3,622	1,612	67
Oyo	3,194	1,198	1,959	37
Plateau	2,720	1,000	1,690	30
Edo	2,597	131	2,366	100
Kaduna	2,208	81	2,095	32
Rivers	2,175	76	2,042	57
Delta	1,768	117	1,603	48
Kano	1,727	69	1,604	54
Ogun	1,678	43	1,609	26
Ondo	1,561	131	1,398	32
Enugu	1,184	75	1,088	21



States Affected	No. of Cases (Lab Confirmed)	No. of Cases (on admission)	No. Discharged	No. of Deaths
Ebonyi	1,020	17	974	29
Kwara	982	163	794	25
Katsina	813	332	457	24
Abia	807	87	712	8
Osun	795	26	752	17
Gombe	744	78	643	23
Borno	741	2	703	36
Bauchi	670	12	644	14
Imo	534	313	210	11
Benue	460	160	291	9
Nasarawa	438	128	298	12
Bayelsa	391	10	360	21
Jigawa	322	3	308	11
Ekiti	283	30	248	5
Akwa Ibom	280	34	238	8
Niger	244	16	216	12
Adamawa	228	33	180	15
Anambra	221	21	181	19
Sokoto	159	1	142	16
Kebbi	93	3	82	8
Taraba	87	9	73	5
Cross River	83	2	73	8
Zamfara	78	0	73	5
Yobe	67	0	59	8
Kogi	5	0	3	2

Source: NCDC (25/08/2020) <https://covid19.ncdc.gov.ng/>