Government Protocols and Systemic Constraints: Evaluating the Impact of COVID-19 Policies on Emergency Management and Public Health Capacity in Nigeria

[1]Ugoeze C. SYLVANUS-KILLIAN., [2]Kolapo Quadri ABAYOMI

[1]Department of Solicitors, Federal Ministry of Justice Abuja, Nigeria

[2]Centre for Advanced Executive Education Programme, National Institute for Legislative and Democratic Studies Abuja, Nigeria

DOI: https://dx.doi.org/10.47772/IJRISS.2026.1026EDU0028

Received: 21 December 2025; Accepted: 27 December 2025; Published: 15 January 2026

ABSTRACT

COVID-19 was declared a Public Health Emergency of International Concern on January 30, 2020, and a pandemic on March 11, 2020, prompting governments worldwide to implement containment and mitigation measures to suppress transmission. In Nigeria, the first confirmed case in February 2020 activated national response mechanisms led by the Nigeria Centre for Disease Control (NCDC) and the Presidential Task Force, marking a swift transition to outbreak response. The Nigerian response included public health interventions such as entry screening, emergency operations centers, testing, contact tracing, risk communication, and non-pharmaceutical interventions like movement restrictions. This study collected data from primary and secondary sources using a structured questionnaire administered to 350 respondents, including NCDC staff and Nigerians from the six geo-political zones and states in Nigeria namely North-Central (Federal Capital Territory – FCT), North East (Gombe), North-West (Kaduna), South-East (Enugu), South-South (Rivers) and South-West (Lagos). Employing a descriptive survey design and guided by health system resilience and risk communication frameworks, the research found that digital and electronic media were central to the NCDC's communication strategy during the pandemic, reflecting a global trend toward digital-first health communication. However, significant gaps were identified in stakeholder and professional engagement, particularly the limited interpersonal communication between the NCDC and frontline healthcare workers. Despite the crucial role of health workers as trusted sources of information, respondents reported weak communication links, indicating inadequate integration of health workers into the communication process. Policy implementation gaps also continue to hinder the effectiveness of Nigeria's health system. The study recommends that the NCDC adopt a hybrid communication strategy combining digital and traditional media - including internet-based tools, radio, community meetings, posters, and local-language broadcasts - to reach populations without internet access. Additionally, engaging community-level structures such as village heads, religious leaders, and market associations is crucial for culturally relevant public health messaging and reducing resistance to protocols.

Keywords: COVID-19, Protocols, Policies, Emergency Management, Public Health, Nigeria.

INTRODUCTION

The global spread of COVID-19 in late 2019 precipitated an unprecedented public-health crisis that tested national capacities for emergency preparedness and response. Declared a Public Health Emergency of International Concern on 30 January 2020 and a pandemic on 11 March 2020, COVID-19 forced governments worldwide to adopt a set of containment and mitigation policies ranging from border screening to lockdowns in attempts to suppress transmission and prevent health-system collapse (WHO, 2020; Adhikari et al., 2020). In Nigeria, the first confirmed case in February 2020 triggered the activation of national response mechanisms led by the Nigeria Centre for Disease Control (NCDC) and the establishment of the Presidential Task Force, reflecting a rapid move from preparedness into full outbreak response (Kapata et al., 2020; NCDC, 2020).

While the Nigerian policy response featured many recognized public-health interventions such as screening at points of entry, activation of emergency operations centers, testing and contact-tracing, risk communication, and non-pharmaceutical interventions such as movement restrictions - the effectiveness of these measures was mediated by long-standing structural and socio-political constraints (Sohrabi et al., 2020; Banko, 2021). Weak health infrastructure, limited laboratory and diagnostics capacity, manpower shortages, fragmented data systems, and low public trust undermined policy uptake and produced implementation gaps that shaped the trajectory of the epidemic (Nwankwo, 2011; Dixi, Ogundeji & Onwujekwe, 2020). Against this backdrop, understanding both (a) how government protocols affected the operational management of the COVID-19 emergency and (b) the systemic factors that limited public-health development has become essential for strengthening future outbreak preparedness and response in Nigeria.

This paper therefore evaluates the influence of government COVID-19 protocols on emergency management in Nigeria, and examines the structural, institutional and socio-cultural constraints that limited the development and effectiveness of the country's public-health system during the pandemic. By situating Nigeria's pandemic experience within extant empirical and conceptual literature on emergency management, risk communication and health-systems resilience, the study identifies lessons for policy reform and capacity strengthening.

LITERATURE REVIEW

Overview of COVID-19 and the Nigerian context

COVID-19 is an infectious respiratory disease caused by the novel coronavirus SARS-CoV-2. First identified in Wuhan, China in December 2019, the virus spread rapidly across continents and was declared a global pandemic by the World Health Organization (WHO) in March 2020 (WHO, 2020; Adhikari et al., 2020). SARS-CoV-2 is a highly transmissible pathogen belonging to the Coronaviridae family, with genetic similarities to previous zoonotic coronaviruses such as SARS-CoV and MERS-CoV, though it demonstrated far greater global spread (Zhu et al., 2020; Shereen et al., 2020). Its clinical spectrum ranges from asymptomatic infection to severe viral pneumonia, acute respiratory distress syndrome (ARDS), thromboembolic complications, and multi-organ failure, with older adults and individuals with comorbidities at greater risk of mortality (NIH, 2020; Huang et al., 2020). Importantly, transmission occurs not only from symptomatic individuals but also from presymptomatic and asymptomatic carriers, a feature that significantly accelerated community spread worldwide (He et al., 2020; Bai et al., 2020).

By early 2020, global case counts and mortality trends underscored the unprecedented scale and urgency of the public health response required, prompting countries to implement lockdowns, international travel restrictions, and emergency health measures (Roussel et al., 2020; Hopkins et al., 2020). For Nigeria, the importation of initial cases, beginning with the index case reported in February 2020 quickly evolved into sustained community transmission (NCDC, 2020). The country faced heightened vulnerabilities due to high population density in urban centres, interstate mobility, porous borders, limited diagnostic capacity in the early phase, and structural inequalities in access to healthcare services (Adegboye et al., 2020; WHO, 2020). These contextual challenges further complicated outbreak containment, underscoring the need for coordinated surveillance, risk communication, and strengthened health system readiness.

Nigeria's preparedness and outbreak response architecture

Scholars and official reports document that Nigeria leveraged several pre-existing institutional mechanisms, most notably the Nigeria Centre for Disease Control (NCDC), its expanding national laboratory network, and the Nigeria Field Epidemiology and Laboratory Training Program (NFELTP) to mount early preparedness and response actions even before the first confirmed COVID-19 case (Kapata et al., 2020; Leung et al., 2020). These institutional assets, previously strengthened through responses to Lassa fever, Ebola, and other epidemic-prone diseases, provided a foundational framework for surveillance, risk communication, and emergency coordination (Adegboye et al., 2020; Ihekweazu & Agogo, 2020). Early activities included point-of-entry screening at major airports, mock drills and simulation exercises, pre-positioning of personal protective equipment, and dissemination of interim public health advisories in line with evolving global alerts (WHO, 2020; NCDC, 2020). Following confirmation of the index case in February 2020, national coordination

structures were rapidly escalated. The National Coronavirus Preparedness Group (NCPG) transitioned into a full national Emergency Operations Centre (EOC), and the Presidential Task Force (PTF) on COVID-19 was established to provide high-level strategic leadership, intersectoral coordination, and policy direction (Amah & Okedi, 2022; Baud et al., 2020). These structures enabled accelerated issuance of technical guidelines, deployment of rapid response teams to affected states, expansion of molecular testing capacity, and development of a national response plan aligned with WHO's strategic preparedness and response framework.

However, mid-action reviews and operational assessments revealed persistent system-level gaps that undermined the uniformity and efficiency of response efforts. Notable challenges included delayed laboratory turn-around times due to supply chain bottlenecks, uneven activation and utilisation of sub-national EOCs, and wide variations in case-management standards across treatment centres, particularly with respect to oxygen therapy, clinical monitoring, and reporting protocols (NCDC EOC Mid-Action Review, 2020; Brodin, 2020; Adegboye et al., 2020). Additional weaknesses were observed in the inconsistent application of infection prevention and control (IPC) practices, shortages of trained personnel, and inadequate integration between federal guidance and state-level operational realities (Afolabi & Ilesanmi, 2021). Collectively, these implementation gaps highlight the enduring tension between policy formulation at the centre and the operational capacity of decentralized health governance systems at state and local government levels - a tension that continues to shape the effectiveness of epidemic response in Nigeria.

Communication strategies and public response

Risk communication emerged as a central pillar of Nigeria's national COVID-19 response strategy, reflecting global consensus that timely and trustworthy information is essential for shaping public behaviour during infectious disease emergencies. The Nigeria Centre for Disease Control (NCDC) deployed a multi-platform communication architecture that included official social media channels, daily situation reports, televised briefings, radio jingles, community outreach, and a dedicated COVID-19 microsite featuring real-time dashboards, FAQs, myth-busters, and an automated self-assessment (triage) tool (Adepoju, 2020; NCDC, 2020). The flagship "Take Responsibility" campaign sought to position citizens as active partners in halting transmission, while also reinforcing preventive behaviours such as masking, physical distancing and early testing. International guidance from WHO, UNICEF and leading risk-communication scholars stresses that credible, transparent, empathetic and consistent messaging significantly improves compliance, reduces uncertainty and builds trust in institutions during health crises (Toppenberg-Pejcic et al., 2019; Tworek et al., 2020; Vaughan & Tinker, 2009). Nigeria's communication strategy, at least in design, incorporated these normative principles by prioritising regular briefings, multisectoral spokespersons, and harmonised messaging across federal agencies.

However, the effectiveness of these efforts was constrained by several contextual and structural barriers. Research points to a longstanding deficit of public trust in government institutions, which made segments of the population skeptical of official information and more vulnerable to rumours and conspiracy narratives circulating on WhatsApp, Facebook and informal networks (Akinyemi et al., 2020; Banko, 2021). Misinformation ranged from claims that COVID-19 did not exist in Nigeria, to fears that case numbers were inflated for political or financial gain, to narratives portraying vaccines as unsafe or tools for population control. These dynamics complicated uptake of preventive behaviours and later, vaccination, undermining the impact of otherwise technically sound communication efforts (Aniocha & Okoro, 2021).

Empirical accounts from Nigeria further reveal deeply divergent citizen responses to public-health directives. While many individuals adopted recommended behaviours such as regular hand hygiene, mask-wearing, voluntary isolation, and avoidance of large gatherings others openly questioned the reality or severity of the disease, resisted mobility restrictions, or interpreted containment measures as mechanisms of political manipulation and elite self-interest. The socioeconomic impact of lockdowns intensified these tensions: widespread loss of income, business closures, and rising food insecurity reduced the willingness of many households to comply with directives perceived as economically punitive (Becker, Aborisade & Shivji, 2020). In several states, economic desperation contributed to protests, non-compliance in markets and transport hubs, and the emergence of informal practices including negotiation or bribery at security checkpoints that weakened the coherence of the response and eroded public-health gains (Banko, 2021; Ibrahim, 2021). Collectively, these

patterns demonstrate that risk communication in Nigeria was not only a technical exercise but also a sociopolitical challenge shaped by trust dynamics, economic realities, and the information ecosystem in which messages circulated.

Effects of government protocols on emergency management

Government protocols including international and domestic border closures, nationwide and state-level lockdowns, curfews, movement restrictions, mandatory infection prevention and control (IPC) rules, and a range of case-based interventions such as isolation, contact tracing, and quarantine were designed as non-pharmaceutical interventions to slow viral transmission and prevent the collapse of Nigeria's already fragile health system. In principle, these measures align with global public-health strategies, which emphasize early containment to "flatten the curve" and create critical time for governments to strengthen laboratory capacity, expand treatment centres, and procure necessary supplies such as personal protective equipment (PPE) and ventilators (WHO, 2020; Hale et al., 2021). Where implemented effectively, these interventions helped to delay peak transmission and facilitated incremental improvements in surveillance and emergency readiness.

However, the empirical literature from Nigeria points to a series of unintended, uneven, or attenuated effects that undermined the overall effectiveness of these protocols. First, strict movement restrictions and lockdowns exacerbated pre-existing socio-economic vulnerabilities in a country where a significant proportion of the population depends on daily wages and informal-sector earnings. The sudden loss of livelihoods, disruption of supply chains, and rising food insecurity made compliance extremely difficult for many households and, in some cases, generated open resistance to public-health measures (Becker, Aborisade & Shivji, 2020; Akinyemi et al., 2020). As scholars note, when survival needs are threatened, adherence to disease-control directives becomes secondary, particularly in contexts lacking adequate social protection mechanisms.

Second, the enforcement of lockdowns and curfews by security agencies produced documented incidents of excessive force, harassment, and human rights abuses, issues widely reported by civil society organisations, the media, and international observers. These confrontations triggered localized protests, heightened tensions between citizens and the state, and eroded trust in government intentions at a time when cooperation was essential for effective outbreak control (Banko, 2021; International Crisis Group, 2020). Such coercive enforcement not only diverted attention from core health objectives but also reinforced conspiracy narratives and skepticism, further weakening voluntary compliance.

Third, Nigeria's federal structure and unequal distribution of health system resources meant that national directives were implemented inconsistently across states. Differences in state-level capacities such as variations in testing availability, isolation facilities, funding, and technical expertise resulted in fragmented responses to the pandemic (Dixit, Ogundeji & Onwujekwe, 2020; Ekong et al., 2020). In some states, sub-national Emergency Operations Centres (EOCs) were only partially activated or lacked sufficient staff and equipment, leading to delays in surveillance, contact tracing, and case management. This unevenness limited the cumulative effect of national policies, illustrating the gap between central policymaking and local operational realities. Collectively, these findings underscore the importance of aligning restrictive public-health measures with strong social support systems, transparent communication, human-rights–sensitive enforcement, and strengthened federal–state coordination to ensure more uniform implementation during future health emergencies.

Systemic constraints limiting public-health development in Nigeria

A robust body of literature identifies a constellation of long-standing structural constraints that continue to inhibit Nigeria's capacity for effective public-health development and emergency management. Scholars consistently point to chronic underfunding of the health sector and persistently low government expenditure relative to international benchmarks such as the Abuja Declaration, which recommends allocating at least 15% of national budgets to health (Nwankwo, 2011; WHO, 2020). This financial deficit contributes to inadequate and aging infrastructure, including insufficient hospital beds, poor oxygen supply systems, weak laboratory networks, and limited intensive-care capacity constraints that became starkly evident during the COVID-19 pandemic (Ayara, 2011; Leung et al., 2020). Compounding these challenges is a persistent shortage of trained

health personnel, worsened by high rates of emigration among doctors, nurses, and other specialists seeking better remuneration and working conditions abroad. This "brain drain" strain reduces the functional capacity of remaining facilities and overstretches frontline health workers, undermining readiness for surge events.

Weak health financing systems further aggravate these structural problems. Nigeria relies heavily on out-of-pocket expenditures, leaving households vulnerable to catastrophic health spending and reducing timely access to care, especially during emergencies when rapid presentation is critical (WHO, 2020). Health insurance coverage remains low, especially in rural areas, while budget releases are often delayed or partially disbursed, constraining operational planning. Fragmented disease surveillance systems characterised by inconsistent reporting, paper-based processes in many states, and limited integration of digital health records impair early detection of outbreaks and reduce situational awareness (Ayoade & Usman, 2019). Additionally, governance weaknesses, corruption in procurement and supply chains, and limited accountability mechanisms reduce service quality, distort resource allocation, and weaken public perceptions of state legitimacy (Ayara, 2011; Okonjo, 2020).

Socio-cultural dynamics add another layer of complexity. Religious beliefs, communal living arrangements, social obligations, myths, and historically rooted distrust of authorities shape the acceptability and uptake of public-health directives such as masking, physical distancing, isolation, and vaccination (Akinyemi et al., 2020; Banko, 2021). In some contexts, community norms favour large gatherings, making compliance with restrictions socially costly, while misinformation from influential community actors can undermine health messaging. These constraints do not operate in isolation; rather, they interact to generate cumulative implementation bottlenecks. Limited laboratory and diagnostic capacity lengthened test turnaround times during COVID-19, weakening the effectiveness of "test, trace, isolate" strategies. Low remuneration, poor working conditions, and inadequate protective equipment demotivated health workers and contributed to industrial actions, reducing continuity of care at critical moments. Weak intergovernmental coordination driven by unclear mandates, political rivalries, and uneven state capacities produced inconsistent application of national policies across the federation, reducing the coherence and impact of the overall response (Dixit, Ogundeji & Onwujekwe, 2020). Thus, the interplay of financial, infrastructural, human-resource, governance, and socio-cultural barriers creates a systemic vulnerability that limits Nigeria's preparedness for, and resilience to, public-health emergencies.

Empirical Review

Early empirical work on COVID-19 in Nigeria emphasized the pandemic's economic and health-system impacts. Ozili (2020) showed that government financial relief targeted businesses more than vulnerable households, while monetary authorities rolled out accommodative policies including a targeted ₦3.5 trillion loan support to select sectors. Studies of health-system readiness (Whenayon, Odusanya & Joshi, 2020) documented increasing community transmission, inadequate testing capacity, overwhelmed health resources, and infections among health workers that worsened an existing shortage of skilled personnel.

Research on human resources and willingness to respond highlights both capacity and motivation. Mohammed et al. (2020) found high COVID-19 knowledge among medical students in northeast Nigeria and strong willingness (93%) to assist in care despite perceived personal risk and parental disapproval; male students were significantly more willing than females. Complementary Nigerian studies (Omoleke & Taleat, 2017; Faisal, Jamil & Alauddin, 2017) described chronic systemic problems such as brain drain, poor remuneration, obsolete infrastructure, underfunding and weak disease surveillance that predated COVID-19 and constrained response.

Comparative and evaluative studies illuminate operational and leadership weaknesses. Work on China's emergency management (Yulong et al., 2020) noted improvements in surveillance and stockpiles but persistent decision-making inefficiencies and underinvestment - lessons echoed in Nigerian analyses. Banko (2021) argued that Nigerian leadership often adopted "copy-and-paste" policy measures from other countries without adequate adaptation to local realities, which, together with weak communication and mistrust, produced poor public compliance and suboptimal outcomes.

Several authors reviewed Nigeria's early pandemic trajectory and the socio-medical response. Jimoh et al. (2020) described the shift from imported to community transmission and warned that relaxing lockdowns fueled new waves; Anyanwu et al. (2020) stressed Nigeria's structural vulnerabilities including overcrowding, displacement, and dilapidated health systems that make common mitigation measures difficult to implement. Ogwumike (2020) and others framed the crisis as both challenge and opportunity, urging economic reform, digital adoption, free or subsidized care, and investment in resilient health infrastructure.

The empirical literature also underscores the centrality of information dynamics and social behaviour. Past pandemic studies (Elmahdawy et al., 2017; Cenciarelli et al., 2015; Brandt et al., 2011) and contemporary observations point to misinformation, cultural beliefs, and inadequate risk communication as drivers of resistance to public-health measures in Nigeria. Scholars note increased social-media use during COVID-19 (DiMaggio, Bowd, Oginni & Motui), which both spreads information and amplifies falsehoods. Taken together, these empirical findings justify the present study's focus on how NCDC policy frameworks affected COVID-19 management in Nigeria and on identifying systemic barriers to effective public-health emergency response.

Evidence gaps and justification for the current study

Although descriptive accounts document Nigeria's policies and many of the systemic weaknesses that hindered response, fewer analytical studies systematically link specific government protocols to operational outcomes at state and sub-national levels while simultaneously examining the structural drivers of fragile implementation. There is also limited consolidation of lessons from risk communication practices and how they intersected with trust and compliance dynamics in diverse Nigerian communities. This study addresses these gaps by evaluating the impact of COVID-19 protocols on emergency management performance in Nigeria and interrogating the institutional, fiscal and socio-cultural constraints that limited public-health development - with an eye toward actionable policy and legal reforms.

Theoretical framework

Two complementary theoretical perspectives guide this study. First, the health systems resilience framework which emphasizes the capacity of health systems to prepare for, absorb, adapt and transform in response to shocks provides a lens for assessing how Nigeria's pre-existing capacities and adaptive responses influenced pandemic outcomes (WHO, 2020). Second, risk communication and crisis management theory informs the analysis of how messaging, transparency, and trust shape public behaviour during emergencies (Toppenberg-Pejcic et al., 2019; Tworek et al., 2020). Together, these frameworks allow the study to connect policy inputs (protocols, legal instruments, communication strategies) to health-system processes and population responses, and to identify leverage points for strengthening future emergency preparedness.

RESEARCH METHODOLOGY

The study adopted a descriptive survey design which enabled the systematic interpretation of existing conditions and communication practices related to NCDC's COVID-19 messaging in Nigeria. Data were drawn from both primary and secondary sources, using a structured questionnaire administered to six geo-political zones in Nigeria: North-Central (Federal Capital Territory – FCT), North East (Gombe), North-West (Kaduna), South-East (Enugu), South-South (Rivers) and South-West (Lagos).

The states picked within the geo-political zones were adopted because of the fact that they represent the highest confirmed cases in the geo-political zones which attracted government rapid attention and responses as at 2022 (NCNC-COVID-19 Situation Report, 2022). A sample of 350 respondents comprising NCDC staff selected through simple random sampling. The instrument, validated by experts and confirmed reliable through a test–retest procedure with Cronbach Alpha values of 0.88 and 0.86, contained items specifically designed to elicit data on the communication strategies employed by the NCDC (Objective 1) and on residents' responses to these strategies (Objective 2). Administered with the assistance of trained research assistants across the states, the retrieved questionnaires provided measurable information which was analyzed using descriptive statistics, including frequencies, percentages and weighted mean scores, to determine how NCDC's

communication strategies were implemented and how residents reacted to COVID-19 messages during the pandemic.

Data Presentation and Analysis

Research Question 1: What was the communication strategy of the NCDC in controlling the spread of Covid-19 in Nigeria?

Table 1: Respondents' Views on NCDC Communication Strategies

S/No.	Item Description	SA	A	D	SD	WMS	Decision
1.	Utilisation of the Internet and electronic media in the dissemination of information	112 (449)	140 (420)	77 (154)	28 (28)	3.00	Agreed
2.	Regular interface with healthcare professionals	33 (132)	105 (315)	133 (266)	79 (79)	2.26	Disagreed
3.	Provision of testing kits to healthcare facilities	55 (220)	98 (294)	70 (140)	120 (120)	2.21	Disagreed

Source: Field Survey, 2024

The weighted mean scores indicate a strong level of agreement among respondents that the predominant communication strategy employed by the NCDC during the COVID-19 response was the extensive use of the Internet and electronic media (WMS = 3.00). This suggests that digital platforms such as social media, online dashboards, televised briefings, and radio announcements were perceived as the most visible and frequently deployed channels for disseminating information, guidelines, and real-time updates.

In contrast, items relating to regular interaction with healthcare workers (WMS = 2.26) and provision of testing kits as a communication mechanism (WMS = 2.21) fell below the acceptance benchmark of 2.50. This implies that respondents did not view these activities as central elements of the NCDC's communication strategy. The relatively low scores also highlight perceived gaps in community-level engagement, interpersonal communication, and frontline outreach during the pandemic. Overall, the results point to a communication response that was heavily technology-driven, with less emphasis on direct engagement through healthcare personnel or logistical interventions such as test-kit distribution.

Research Question 2: What are the factors limiting the development of the public health system in Nigeria?

Table 2: Factors Limiting Public Health System Development

S/No.	Limiting Factors	SA	A	D	SD	WMS	Decision
1.	Lack of proper funding of health care by the government	147 (588)	161 (483)	24 (56)	14 (14)	3.26	Agreed
2.	Inadequate number of health personnel	112 (448)	168 (504)	24 (56)	24 (56)	3.04	Agreed
3.	Lack of proper implementation of health policies	140 (560)	175 (525)	14 (28)	7 (7)	3.20	Agreed

Source: Field Survey, 2024

The weighted mean scores clearly show that the respondents strongly agreed on all three major variables investigated as key constraints to effective public-health emergency management in Nigeria. Among the factors identified, lack of adequate funding emerged most prominently (WMS = 3.26), reflecting widespread perceptions that chronic underinvestment undermines infrastructure, procurement of essential supplies, and overall system readiness. This was closely followed by poor policy implementation (WMS = 3.20), suggesting that even when policies exist, weak enforcement, bureaucratic inefficiencies, and inconsistent intergovernmental coordination limit their practical impact. Inadequate personnel (WMS = 3.04) also ranked high, underscoring respondents' views that shortages of trained healthcare workers, coupled with brain drain and uneven staffing distribution, pose serious obstacles during health emergencies. Importantly, all weighted mean scores exceeded the decision benchmark of 2.50, indicating a strong and consistent consensus among respondents that these three factors significantly constrain Nigeria's public-health system and hinder effective emergency response.

DISCUSSION OF FINDINGS

The findings clearly indicate that digital and electronic media constituted the core communication strategy deployed by the NCDC in managing the COVID-19 pandemic. This reliance on mass media and online platforms reflects the global shift toward digital-first health communication during emergencies. It aligns with James (2009), who emphasizes that mass media serve as a central conduit for public information during national crises because of their wide reach, speed, and ability to standardize messaging. Similarly, Shalvee and Sambhav (2020) affirm that during the COVID-19 outbreak, electronic media notably television, radio, and social platforms functioned as the principal tools for disseminating preventive information and shaping public compliance behaviours across diverse populations. These findings therefore underscore the appropriateness of NCDC's decision to utilize a media-centric approach in an era where digital platforms constitute primary sources of information for many citizens.

However, the results also reveal clear gaps in stakeholder and professional engagement, particularly concerning the limited interpersonal communication links between NCDC and frontline healthcare workers. Despite the critical role that medical personnel play as trusted sources of health information and as key implementers of public-health policies, respondents reported weak communication ties, suggesting that health workers were not systematically integrated into the communication chain. This finding corroborates Mweri (2021), who notes that during the pandemic, an overabundance of both factual and false information created a chaotic information environment that made it difficult for practitioners and the public to make timely and accurate decisions. In this context, the absence of sustained professional engagement by NCDC may have weakened the effectiveness of its communication strategy. Thus, while electronic media were effective in generating widespread awareness, the lack of strong interpersonal communication and professional alignment suggests that these strategies may have been insufficient to ensure uniform understanding and coherent implementation at facility level.

The findings also draw attention to deep-seated systemic challenges within Nigeria's public-health architecture that undermine emergency preparedness and long-term sectoral development. Among these, poor funding emerged as the most significant constraint. This aligns with Amah and Okedi (2022), who note that although national health institutions occasionally receive strong donor and governmental support, sub-national health systems particularly in low-income states remain chronically underfunded, resulting in inadequate infrastructure, poor logistics, and weak service delivery. The study further reinforces long-standing concerns about the shortage of trained health personnel, a problem that has been exacerbated by persistent brain drain, uneven personnel distribution, and inadequate workforce planning. These shortages became even more visible during the COVID-19 pandemic when many facilities struggled to maintain sufficient manpower to manage increasing caseloads.

Additionally, policy implementation gaps remain a major barrier to the effectiveness of Nigeria's health system. Okoroma (2020) argues that the health sector suffers not from a lack of policies but from poor execution, fuelled by inconsistent administrative practices, inadequate coordination, and insufficient monitoring mechanisms. The present study supports this view by demonstrating that even well-designed health policies are often undermined by weak implementation frameworks, resulting in limited impact on population

health outcomes. In conclusion, the study highlights that while the NCDC effectively leveraged mass media and digital technologies to support COVID-19 communication, its strategies lacked the interpersonal and professional depth needed to achieve comprehensive behavioural alignment among health workers and citizens. Combined with systemic barriers such as chronic underfunding, workforce shortages, and inconsistent policy implementation, these gaps significantly hinder Nigeria's capacity to build a resilient, responsive, and sustainable public-health system capable of managing both routine and emergency health challenges.

CONCLUSION AND RECOMMENDATIONS

Based on the findings, this study concludes that the NCDC predominantly relied on electronic media and Internet-based communication as its central strategy for disseminating Covid-19 information. This approach significantly improved the speed of information sharing, reduced bureaucratic delays, and ensured that vital updates reached a large proportion of the urban population in real time. However, this strategy also revealed a major structural gap: communities without reliable Internet access particularly rural and hard-to-reach populations were left with limited or distorted second-hand information, which contributed to widespread skepticism, misinformation, and lack of cooperation with Covid-19 protocols. Thus, while digital communication served as an effective tool, it was insufficient as a standalone strategy in a country with deep communication infrastructure inequalities.

The study also notes that the development of Nigeria's public health system is constrained by consistent underfunding, poor implementation of existing health policies, and severe shortages of qualified healthcare personnel. These weaknesses reduced the nation's capacity to cope with the Covid-19 emergency and exposed long-standing systemic fragilities. Structural neglect of the health sector, coupled with inadequate incentives for healthcare workers, has encouraged persistent brain drain and further weakened the system. Consequently, Nigeria's health infrastructure and policy implementation mechanisms remain too fragile to effectively support large-scale health emergency responses. It is based on the forgoing; the following recommendations are advanced.

i. Improve NCDC's Communication Strategy: the agency should adopt a hybrid communication model combining digital and traditional media. NCDC should complement Internet-based communication with traditional channels such as radio, town criers, community meetings, posters, and local-language broadcasts to reach populations without Internet access.

ii. Engage community-level structures for trusted communication: Collaboration with village heads, community leaders, religious leaders, market associations, and youth unions will ensure culturally grounded dissemination of public health information and reduce resistance to protocols.

iii. Government should develop targeted communication strategies for low-literacy populations. Thus, messages should be simplified, translated into local languages, and delivered through relatable narratives to ensure accessibility and clarity.

iv. Strengthen real-time feedback mechanisms: Establishing community-level feedback desks, toll-free lines, and local liaison officers will allow NCDC to monitor misconceptions early and adjust messages promptly.

v. Increase and properly safeguard health sector funding by ensuring full release and transparent management of budgets, supported by strong National Assembly oversight through periodic audits and facility inspections.

vi. Ensure consistent implementation of national health policies by maintaining policy continuity across administrations and establishing a dedicated monitoring unit to enforce compliance and track progress.

vii. Strengthen the health workforce through better incentives, improved working conditions, and ongoing professional development, including mandatory annual training to curb brain drain and enhance emergency response capacity.

viii. Improve health system standards and emergency preparedness by enforcing minimum operational requirements for facility accreditation, conducting regular inspections, and expanding critical infrastructure such as laboratories, emergency centres, isolation units, and surveillance systems.

REFERENCES

1. Adhikari, S. P., Meng, S., Wu, Y.-J., Mao, Y.-P., Ye, R.-X., Wang, Q.-Z & Zhou, H. (2020). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period. *Infectious Disease of Poverty*, 9 (29).
2. Adegboye, O. A., Adekunle, A. I., & Gayawan, E. (2020). Early transmission dynamics of novel coronavirus (COVID-19) in Nigeria. *International Journal of Environmental Research and Public Health*, 17(9), 3054.
3. Bai, Y., Yao, L., Wei, T., Tian, F., Jin, D.-Y., Chen, L., & Wang, M. (2020). Presumed asymptomatic carrier transmission of COVID-19. *JAMA*, 323(14), 1406–1407.
4. He, X., Lau, E. H. Y., Wu, P., Deng, X., Wang, J., Hao, X., … Leung, G. M. (2020). Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nature Medicine*, 26, 672–675.
5. Hopkins, J., et al. (2020). *COVID-19 Dashboard*. Johns Hopkins University & Medicine.
6. Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., … Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497–506.
7. NCDC. (2020). *First case of coronavirus disease confirmed in Nigeria*. Nigeria Centre for Disease Control.
8. NIH. (2020*). COVID-19 Treatment Guidelines*. National Institutes of Health.
9. Roussel, Y., et al. (2020). SARS-CoV-2: Fear versus data. *International Journal of Antimicrobial Agents,* 55(5), 105947.
10. Shereen, M. A., Khan, S., Kazmi, A., Bashir, N., & Siddique, R. (2020). COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. *Journal of Advanced Research*, 24, 91–98.
11. WHO. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19*. 11 March 2020. World Health Organization.
12. Zhu, N., et al. (2020). A novel coronavirus from patients with pneumonia in China, 2019. *New England Journal of Medicine*, 382, 727–733.
13. Adepoju, P. (2020). *Nigeria's widening tuberculosis gap*. Lancet Publication.
14. Adhikari, S. P., Meng, S., Wu, Y. J., Mao, Y. P., Ye, R. X., Wang, Q. Z., Sun, C., Sylvia, S., Rozelle, S., & Raat, H. (2020). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: A scoping review. *Infectious Diseases and Poverty*, 2(8): 9-29.
15. Akinyemi, K.O, Fakorede, C.O.; Anjorin, A.A., Abegunrin, R.O., Adunmo, O., Ajoseh, S.O. and Akinkunmi, F.M. (2020). Intrigues and Challenges Associated with COVID-19 Pandemic in Nigeria. *Journal of Health, 12(8)*.
16. Ayara, T. O., (2011). Effects of Maternal Mortality on Gross Domestic Product in the WHO African region. *African Journal of Health Science*, 13: 86–95.
17. Anyanwu, M.U., Festus, J.I.; Nwobi, O.C., Jaja, C.I., and Oguttu, W.J. (2020). *A Perspective on Nigeria's Preparedness, Response and Challenges to Mitigating the Spread of COVID-19*. Available at: www.mdpi.com/journal/challenges
18. Banko, O.H., (2021). The Challenges of Coronavirus (COVID-19) Management and Leadership Questions: A Case Study of Nigeria. *South East Journal of Political Science (SEJPS)*, 7(1): 52-78.
19. Baud, D., Qi, X., Nielsen-Saines, K., Musso, D., Pomar, L., & Favre, G. (2020). Real estimates of mortality following COVID-19 infection. *The Lancet Infectious Diseases,* 3(8): 5-8.
20. Becker, H., Aborisade, F. & Shivji, I. (2020). Out of the Ruins and Rubble: Covid-19 and the Fightback in Africa. *Review of African Political Economy (ROAPE),* April 7; https://www.roape.net, www.ales.amegroups.com
21. Brodin, P. (2020). Why is COVID-19 so mild in children? *Acta Paediatr*. 109(6): 1082-1083. https://search.bvsalud.org/global-literature-on-novel-coronavirus2019ncov/resource/en/covidwho-15459

22. Carsana, L., Sonzogni, A., Nasr, A., Rossi, R.S., Pellegrinelli, A., Zerbi, P., Rech, R., Colombo, R., Antinori, S., & Corbellino, M. (2020). Pulmonary post-mortem findings in a series of COVID-19 cases from northern Italy: A two-centre descriptive study. *International Journal of Lancet Infection.* 23(5), 522-544.
23. Dixit, S., Ogundeji, Y.K., & Onwujekwe, O. (2020). *How well has Nigeria Responded to COVID-19?* Published by the Brookings Institution, Thursday, July 2, www.emerald.com
24. Elmahdawy M., D., Gihan H. Elsisi, Poao C., Mohamed L. Abdulrazaq H., Peter, A., Redouane, Soualmi, R., Anthony, W. U., Cyril, U., Stella U., (2017). Ebola virus epidemic in West Africa: Global health economic challenges, Lessons learned, and policy recommendations.
25. Faisal, M., Jamil, H. A., & Alauddin, C. (2017). Major Public Health Problems in Nigeria: A Review. *South East Asia Journal of Public Health*, 7(1): 6-11.
26. Kapata, N., Ihekweazu, C., Ntoumi, F., Raji, T., Chanda-Kapata, P., & Mwaba P, (2020). Is Africa prepared for tackling the COVID-19 (SARS-CoV-2) epidemic. Lessons from past outbreaks, ongoing pan-African public health efforts, and implications for the future. *International Journal for Infectious Diseases*.
27. Leung, N. H. L., Chu, D. K. W., Shiu, E. Y. C., Chan, K.-H., Mcdevitt, J. J., Hau, B. J. P., Yen, H.-L., Li, Y., Ip, D. K. M.& Peiris, J. S. M. (2020). Respiratory virus shedding in exhaled breath and efficacy of face masks. *Transformative Journal of Nature Medicine. 45-55.*
28. Mohammed, A., Mohammed, A., Mohammed, I. U., & Laima, C. H. (2020). Risk perception and willingness of medical students in north east Nigeria to participate in mitigating Covid-19 pandemic. *Journal of Advances in Medicine and Medical Research*, 32(7): 107-114.
29. NCDC. (2020). NCDC Coronavirus (COVID-19). Available at: https://covid19.ncdc.gov.ng/
30. Nigeria Center for Disease Control (2020). COVID-19 Situation Report (Situation Report 82). https://ncdc.gov.ng/themes/common/files/sitreps/87e68bc490200d45226442 bdbd0d228d.pdf.
31. Ogwumike, J.H.C., (2020). COVID-19 Pandemic- Challenges and Opportunities in Nigeria. *International Journal of Peace and Conflict Studies (IJPCS)*, 7(1): 52-65.
32. Omoleke I. I., & Taleat, B. A. (2017). Contemporary issues and challenges of health sector in Nigeria. *Research Journal of Health Science*, 5(4): 209-2016.
33. Ozili, P. (2020). Covid-19 pandemic and economic crisis: The Nigeria experience and structural causes. *SSRN Electronic Journal*, 1(1): 1-13.
34. Whenayan, S. A., Odusanya, O. O., & Joshi, R. (2020). Covid-19 outbreak situation in Nigeria and the need for effective engagement of community health workers for epidemic responses. Global Biosecurity Journal, 1(4): 10-22.
35. White, E. M., Kosar, C. M., & Richard A. F., (2020). Variation in SARS-CoV-2 prevalence in U.S. Skilled nursing facilities. Journal of the American Geriatrics Society, 68(10): 2167-2173.
36. World Health Organization (2020). National health commission and national administration of traditional medicine of people's republic of China. Protocols for diagnosis and treatment of COVID-19 7th Trial Version. 78.