

PUBLIC PERCEPTION OF NCDC'S NON-PHARMACEUTICAL INTERVENTION AGAINST COVID-19 AND INFODEMIC ON SOCIAL MEDIA IN NORTH CENTRAL NIGERIA

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Abstract

The incidence of COVID-19, beyond being a global health concern posed a challenge to media professionals, public health organisations, nations, and the international system as they sought effective ways of mobilizing the global population to mitigate the impact of the pandemic. As information about the virus and how to curtail it permeated the media space, public perception of such information played a major role in the adoption of such preventive measures amidst the infodemic that threatened the successful containment of the pandemic. This study using the mixed method of research assessed public perception of the Nigeria Centre for Disease Control (NCDC)'s non-pharmaceutical intervention against COVID-19 and infodemic on social media in north-central Nigeria. The study revealed that Social Media users often seek to meet certain personal and social needs, including information, social interaction, freedom of expression, enjoyment, social presence, belongingness, and social identity. It also argued that social media can be deployed effectively to achieve anticipated social and behavioural change in the interest and survival of society despite the cacophony of information and sources. The study therefore recommended that the application of social media be reinforced by the NCDC, and similar institutions seeking the adoption or change of certain behaviours in ways that seek to meet certain personal and social needs of its target audience.

Keywords: COVID-19, Infodemic, NCDC, Non-Pharmaceutical Intervention, Social Change, social media)

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Introduction

The Nigeria Centre for Disease Control (NCDC) according to Devex (2021) was established in 2011. It was established as Nigeria's response to the challenges of public health emergencies. This is also to enhance Nigeria's preparedness for epidemics through the prevention, detection, and control of communicable and non-communicable diseases. Its core mandate is to detect, investigate, prevent, and control diseases of national and international public health importance. Meanwhile, COVID-19 as reported by Ow'honda, Onyekwere, Kanee, Maduka, Nwadiuto, Okafor, Chibianotu & Aigbogun (2021), was caused by severe acute respiratory syndrome (SARS-CoV-2). First identified in Wuhan China in December 2019, over 704

million cases and 7 million deaths were reported globally as of April 13, 2024 (Worldometer, 2024). In Nigeria, 267, 188 cases and 3,155 deaths were documented across 36 States and the Federal Capital Territory (FCT). In the North Central region, the FCT accounted for 29, 535 cases with 249 deaths, in Nasarawa State 2,853 cases with 39 deaths, and in Kogi State 5 cases and 2 deaths were recorded (Woldometer, 2024).

According to Abdelhafiz, Mohammed, Ibrahim, Ziady, Alorab & Ayyad (2020), COVID-19 presented clinical symptoms that included fever, fatigue, dry cough, malaise, and breathing difficulties. From its first incidence, the disease recorded high morbidity and mortality rates alongside other ailments (Roy,

Tripathy, Kar, Sharma, Verma, & Kaushal., 2020). The attempt to curtail the spread of the pandemic forced the world to shut down various forms of social activities. This global lockdown resulted in a recession due to the break in the global supply chain (Ephraim, Ahmed, Gozzer, Schlagenhauf, & Memish., 2020).

Even before the WHO pronounced COVID-19 as a global public health challenge and pandemic, Reuben, Danladi, Saleh, and Ejembi (2020) reported that many Nigerians because of unconfirmed information and a result of the infodemic regarded the disease as a distant white man's (oyibo) disease that could not affect the black man or survive in the country's temperate climate.

Disregarding expert advice and recommendations, many Nigerians and sub-national governments denied the existence of COVID-19 in their territory and discouraged the adoption of initial preventive measures referred to as Non-Pharmaceutical Interventions (NPIs). This many believed would have saved the country a lot while protecting the population from undue exposure to the virus. However, despite the NCDC (2020) confirming the index COVID-19 case in Lagos, Nigeria on February 20, 2020, other parts of the country including the north-central region banking on convictions obtained from pervasive unscientific information, moved on with their normal routines and social activities jeopardizing the implementation of preventive measures.

The government's initial inability to sustain the social distancing policy and ban large gatherings including religious and cultural activities, funerals, weddings, and sports undoubtedly created accelerated COVID-19 super-spreading scenarios (Reuben, Danladi, Saleh and Ejembi., 2020).

Despite the introduction of vaccines, there was a consensus that to mitigate the spread of the virus non-pharmaceutical interventions were more acceptable to the people if it was properly communicated. As listed by the World Health Organisation (2020), the public health measures meant to prevent and/or control SARS-CoV-2 transmission in the community are summarised as: Keeping social distance, wearing a mask, avoid crowded places, improve ventilation, avoid touching surfaces, clean surfaces regularly with standard disinfectants, frequently washing hands with soap and running water, or an alcohol-based hand rub, Covering coughs and sneezes with a bent elbow or tissue. According to Igyuve, Agbo, Eze & Jonah (2021), various governments world over, Nigeria inclusive were tasked to mobilise through advocacy and any other means, its populace to

adhere to these measures. Iyorza and Ojorgu (2020) reported that in Nigeria, media advocacy by officials of government institutions and medical or health personnel was seen every day and on almost every electronic media. A Presidential Task Force (PTF) set up by the Federal Government was tasked to get all facts about COVID-19 and inform and apprise Nigerians, if possible, daily. This was to bring the disease and its spread under control. The PTF also undertook social mobilisation and advocacy to state governments and members of the public on how to prevent the spread of COVID-19.

In line with the task before it, the Presidential Task Force on COVID-19, the Ministry of Health, and agencies under its supervision with the leadership of the NCDC designed the Risk Communication and Community Engagement (RCCE) strategy document. The RCCE (2020 p.14) describes its aims to include enabling real-time information, and the exchange of opinions and advice between frontline health providers, community outreach workers, and community members. It was to combat the COVID-19 pandemic and serve as the road map for developing and implementing an integrated risk communication system during public health emergencies in a comprehensive manner with multi-stakeholder involvement. Consequently, the NCDC launched a national communication campaign with the theme "Take Responsibility", designed to motivate the audience to comply with a set of priority behaviours and interventions for ending the transmission of COVID-19 in Nigeria. The purpose of the campaign was to call Nigerians at all levels to take responsibility for preventing and controlling the spread of COVID-19 in Nigeria (RCCE, 2020 p.24).

However, despite these documented approaches, Nigeria and indeed the world found itself at a crossroads as it sought the best way to respond to the novel Corona Virus-19 and how best to mobilise the world population against that which was declared a pandemic by the World Health Organisation on March 11, 2020 (WHO, 2020). As part of its communication strategy, the NCDC infused five social media platforms popular with Nigerians: Facebook, Twitter, WhatsApp, Instagram, and YouTube into its Arsenal (Varrella, 2021) to distribute information to the populace on non-pharmaceutical interventions. As the pandemic raged, the capacity of Social Media platforms to influence and change health-related behaviours and perceptions became the focus of most researchers. Leask, Hooker, and King (2020) and Nwakpu, Ezema & Ogbodo (2020) expressed strong positions that the

media especially social media can influence and change health-related behaviours and perceptions. It can also lead a society on the path of behavioural change.

While there is no 'one size fits all' communication strategy to deliver information during a behaviour change campaign, this study relies on key findings in multiple social science disciplines as well as field research to assess the public perception of NCDC's non-pharmaceutical intervention against COVID-19 and infodemic on social media in north-central Nigeria.

Problem of the Research

There have been several studies on the relationship between media campaigns and the management of COVID-19 infections and spread in Nigeria. One such is by Iyorza and Ojorgu (2020) which studied the connection between Change Communication tactics and the containment of COVID-19 in Nigeria. Another is that of Igyuve, Agbo, Eze, & Jonah (2021) which has focused on source credibility, audience perception, and their implications on the adherence to NCDC's COVID-19 guidelines on social media. However, none of the studies have examined the public perception of NCDC's non-pharmaceutical intervention against COVID-19 and the infodemic on social media in north-central Nigeria. These have created the knowledge gap that this study seeks to fill.

Objectives of the study

The following are the objectives of the study.

1. To ascertain the awareness level of NCDC's social media campaign on non-pharmaceutical intervention against COVID-19 by people of North Central Nigeria amidst the infodemic.
2. To determine the public perception of the adoption of the non-pharmaceutical interventions embedded in the Social Media campaigns by the NCDC for the people of North Central Nigeria.
3. To ascertain the perception of the required attitudinal change by people of North Central Nigeria occasioned by the Social Media campaigns by the NCDC.

Conceptual Clarifications

The Concept of Social Media

The term, 'Social Media,' has been defined by Chatora (2012) as Internet-based tools and services that allow users to engage with each other, generate content, distribute, and search for information online. It

emphasises the interactive and collaborative characteristics of the media form saying that it is what makes them 'social'. So, it can be deduced that if it is not interactive and collaborative enough, it is then not social enough. The improvement and pervasiveness of information and communication technologies have brought the world to a time that media theorists like Manuel Castells refer to as the 'Information Age' and "knowledge economy era" (Carmody, 2013). These digital technologies continue to change, restructure, redefine, disrupt, and challenge how information is packaged, and transmitted, the choice of medium, how it is received, consumed, perceived, and responded to. It is therefore foolhardy to continue to play in the field of mass communication only by old rules and not swim with the tide.

In line with the ongoing discourse, Scolari (2009) wrote that the combination of open-source philosophy and many-to-many distribution have introduced changes and transformed the foundations of established mass communication production logic. In this, Scolari hinted at the need for social networking as he considered a theory of digital communication. Describing what a social network is, Adebayo (2012) cited in Asemah, Okpanachi and Edegoh (2013) said it is a social structure made up of individuals or organisations termed "nodes", which are tied or connected by one or more definite types of interdependencies, such as kinship, friendship, financial exchange, sexual relationships, common interest, dislike, or relationships of beliefs, prestige or knowledge.

Explaining the concept further, Asemah, Okpanachi & Edegoh (2013) note that it is very common to notice youths especially, chatting, reading, or making a post in sensitive and highly organised places like churches, mosques, and lecture venues where normally complete attentiveness is required by the moderators. Many also can be so engrossed in social media activity as they walk or drive along highways, to the point of risking their safety and those of others.

In another attempt to define the concept, Nations (2017) broke it down into two terms; the "Social" which he says refers to the interaction between people sharing information and receiving the same from others while he described the "Media" in the concept as referring to an instrument of communication like the Internet (while TV, radio, and newspapers). Nations insists that social media does not simply give you information; it interacts with you while providing you with that information. giving credence to one of the objectives of this study which seeks to

investigate how the NCDC influenced the perception of its social media audience through the campaign for the adoption of non-pharmaceutical interventions against COVID-19 amid cacophony of voices and information overload (infodemic). Social media, in addition to other qualities, according to Dunu and Uzochukwu (2018) allow people or organisations to leverage personal networks and present information in multiple formats, spaces, and sources. This, according to Dunu and Uzochukwu helps to make messages more credible and effective while facilitating social engagements, viral sharing of information, and trust among users.

Social Media and Social Change

Development Communication, under which this research is accommodated, as defined by Rogers (1976) cited in Servaes (2008, p.14) is the study of social change brought about by the application of communication research, theory, and technologies to bring about development. It insists that development is a widely participatory process of social change in every society. Its objective is to bring about both social and material advancement, including greater equality, freedom, and other valued qualities for most people through their gaining greater control over their environment. Social media is one of the most effective channels for social change or social development campaigns. Michel Sidibé, speaking at a roundtable meeting at Stellenbosch University on May 2, 2011, insisted that what was needed for a revolution in HIV prevention was a campaign focused on social media and mobile technology. Sidibe revealed then what the WHO Regional Office for Africa had planned “a communication strategy which will use social media actively” in its “Africa Health Transformation Programme in 2015 – 2020: A Vision for Universal Coverage” (WHO, 2015 as cited in Kone, 2018).

In Mali, with consideration for the high penetration of mobile phones (76% in urban areas and 70.9% in rural areas), USAID launched the Keneya Jemu Kan Project (Health information) - an awareness campaign on family planning through social networks. The campaign showed impressive results reaching over 1,150,000 through Facebook alone and receiving 60,000 commitments for behavioural change through comments and post sharing (Socialnetlink, 2016 as cited in Kone, 2018). Presenting various perspectives on the influence of social media on society, Omenugha, Fayoyin and Ngugi (2018 pp. xviii-xx) cited the following comments which this study believes strengthen its position on social media as an indispensable tool in achieving social change and

development campaigns: Dr Jane Muita, speaking on behalf of UNICEF Zimbabwe described social media platforms as forces to reckon with in terms of influencing society. Muita insisted that if social media is well deployed, especially in public health, it can lead to a swift increase in knowledge of specific development issues and in a short time will also lead to the adoption of positive behaviour by many people.

COVID-19 Infodemic

All infectious diseases, which include COVID-19 according to Lucas, Targema, Jibril, Sambo, and Istifanus (2020) often come with enormous fear because of their ability to spark and spread through physical contact with infected persons and their body fluids. This creates an infodemic as a significant dimension of the pandemic. Lucas et al defined Infodemic as the availability of a flood of information, either credible or not, which influences public perception of a trending issue. The participatory qualities of social media like Twitter, Facebook, WhatsApp, TikTok, YouTube, Instagram, Snapchat, LinkedIn, and others have created an ocean of information widely available and perceived as untamable. This, at most times, beats human imagination and grasp.

More explicitly, the WHO (2024) defined infodemic as too much information including false or misleading information in digital and physical environments during a disease outbreak. This phenomenon confuses and encourages risk-taking behaviors that can harm health, and mistrust in instituted authority while undermining public health responses. The WHO (2024) warned that an infodemic can intensify or lengthen outbreaks when people are unsure about what they need to do to protect their health and those of the people around them. The preceding provides the impetus to assess the public perception of NCDC's social media campaign on the adoption of NPIs against COVID-19 amidst such a probably unprecedented infodemic. The first and most significant way of sustaining public interest and positive perception during an infodemic according to Infodemiology (2002) is to make information available that could be assessed through various social media platforms. It adds that in a pandemic era like COVID-19, people's responsiveness must be sustained by seeking more information about its various aspects determining correct health-related information while the countering of related misinformation must be done strategically and scientifically noting their implications for population health.

According to Amzat, Abodunrin, and Okunola (2007), because the media are embedded with values and issues associated with hype and uncertainties, it necessitates people to seek more information, primarily through social media and search engines. This comes with consequences as this value-laden information or misinformation could escape scientific sieve. Social media has also become a truth or fact-seeking platform according to Rovetta and Bhagavathula (2022) because of the available volume of unsolicited online COVID-19 information and hashtags. Hence, the monikers “coronavirus 5G,” “coronavirus conspiracy” and “tips and cures for COVID-19, and so on trend during the pandemic. This study argues that proper attention and understanding of infodemic and its patterns will influence the communication strategies of health authorities and agencies like the NCDC as well as organisations seeking behavioural change in societies that will lead to adoption of new attitudes.

Review of Empirical Studies

Several studies have been conducted on the influence, kinds of media and their strategies in causing desired behavioral change among people. Others have concentrated on unraveling the limitations of the campaigns by various sub-national, national, and multi-national organisations which worked assiduously to curtail the spread of COVID-19 through communication strategies.

A study by Iyorza and Ojorgu (2020) on change communication strategy in media campaigns and rising COVID-19 infections in Nigeria, sought to unravel the connection between change communication tactics and the rising infections in COVID-19 in Nigeria. The study provided insight into why the reported well-funded media campaigns for the containment of diseases like COVID-19 seemed, according to their investigation, to have failed in achieving desired behavioral change goals.

The study posited that the point of focus of communication research has moved from the mere understanding and analysis of the traditional functions of the media which makes it a disseminator of information, an educator, and an entertainer to a more germane investigation of how the media, their contents and strategies can be properly deployed to impel social and behavioral change among a target population. Such research works seek an unraveling of the symbiotic relationship between society and its media and how individual worldviews shape behaviours and attitudes. This study shares a similar

objective in investigating the public perception of NCDC's media campaign to achieve behavioral change among Nigerians in their efforts to contain the spread of COVID-19. However, the study leaves out other issues like the public perception of NCDC's social media campaigns and how they affect the adoption of the non-pharmaceutical interventions in Nigeria.

In another related study, Igyuve, Agbo, Eze, & Jonah (2021) reviewed *Source Credibility and Audience Perception: Implications for Adherence to NCDC COVID-19 Guidelines on Social Media*. The study focused primarily on the role source credibility played as a major obstacle to the adoption of the Non-Pharmaceutical Guides (NPGs) promoted by the Nigerian Centre for Disease Control (NCDC). In addition to the theoretical constructs of the role of 'source credibility' in effective health communication, the study found that most informed Nigerians correctly identified the non-pharmaceutical guides (herein referred to as non-pharmaceutical interventions) as campaigned by the NCDC on social media. This gives credence to the point made by this study that social media is a powerful medium of behavioural change advocacy. The study also argued that people's quest for good health may be responsible for, or an inducement for the adoption of COVID-19 prevention guides. This agrees with the literature perspective of this current study that if these personal considerations about health are properly integrated into the interactive communication between the NCDC and Nigerians on social media, such campaigns would successfully lead to the desired behavioural change.

In another study, Reuben, Danladi, Saleh, and Ejembi (2020) x-rayed the COVID-19 pandemic as a major global public health issue which prompted countries to promote and enforce the adoption of novel Infection Prevention and Control (IPC) measures in curtailing the spread of the virus. These IPCs are in this current study referred to as non-pharmaceutical interventions. The study also took a critical look at the Knowledge, Attitudes, and Practices (KAP) of Nigerians toward COVID-19 as serious factors in comprehending the epidemiological dynamics of the disease as well as the effectiveness, compliance, and success of the preventive measures promoted in the country. The study found that respondents had good knowledge of COVID-19, gained mainly through the internet/social media and a small percentage through television. This result agrees with the argument of this current study that social media has an unparalleled potential to provide comprehensive knowledge to Nigerians about COVID-19 if properly and widely deployed.

Theoretical Framework

This study is anchored on two relevant theories namely the Social Network Theory and the Social Marketing Model.

Social Network Theory

Social Network Theory (SNT) is more concerned with the role of social relationships as seen in social media in diffusing information, guiding personal or media influence, and enabling attitudinal or behavioural change. It does this through the creation of weak ties, and the egalitarian nature of online communication which becomes a social mobilisation tool. The two-step flow of communication hypothesis, the theory of weak ties, and the theory of diffusion of innovations are three major theoretical approaches that integrate network concepts providing the needed understanding of how the flow of mediated information creates such expected effects (Liu, Sidhu, Beacom, Valente, 2017).

According to Amichai-Hamburger & Hayat (2017), computer networks combined with social networking software produce a new medium for social interaction which can be characterised by context, direction, and strength. The content of this kind of relationship can be explained in terms of the resource that is exchanged. In a computer-mediated communication context like social media, social pairs exchange different kinds of information, including emotions and support. This is another basis for building trust which can be leveraged for social change. Social media networks have been very effective in leveraging these weak ties and acquaintances with people bound by some kind of commonness. These weak ties if properly harnessed through the effective use of social media will be an irresistible tool in mobilising Nigerians against diseases like COVID-19, and broader social and behavioural change campaigns.

Social Marketing Model

Social marketing is a concept introduced in 1971 by Philip Kotler and Gerald Zaltman. Social marketing according to them is "the design, implementation, and control of programmes aimed at increasing the acceptability of a social idea or practice in a target group (Ayankojo, 2002 p.217). According to Anaeto and Anaeto (2010), social marketing is an idea developed from commercial marketing that deploys different marketing strategies to sell or promote commercial products to consumers. However, these strategies are used to promote social ideas that can

bring change to society and improve living conditions. In this case, instead of selling products like drugs, the NCDC is selling the idea of non-pharmaceutical interventions against COVID-19. Social marketing seeks to make the adoption of a certain behaviour attractive and possible by making relevant information available to the audience. This is presented with valued benefits accruable to the target audience and their society because of the new behaviour and ease of access as well as motivating trial and reinforcing maintenance (Deshpande et al., 2004; Smith, 2009). Social marketing presents ideas, products, and services to the audience as something of great benefit to them through market segmentation, consumer research, concept development, communication facilitation, incentives, and exchange theory to maximise expected response (Anaeto & Anaeto, 2010).

Research Design

The mixed method research design was adopted by the study. These are the survey and interview methods. The questionnaire and interview were deployed as instruments for data collection. This study population comprises residents of Kogi State with a total population of 4,153, 734, Nasarawa State with a total population of 2,632,239, and the FCT with a total population of 2,702,443. The total population for the two States and FCT is 9, 488, 416 (NBS, 2020). The Director of Communication and two (2) other senior officials of the NCDC with adequate information on the phenomenon under investigation were purposively selected for the in-depth interview. It adopted the cluster sampling technique for the survey where each of the States was divided into three (3) senatorial districts. A major location reflecting the intended demography of the study in the district was purposively selected to enable data collection. For the FCT, the location was within the Abuja Municipal Area Council (AMAC) which is the melting point of the FCT population. Using the Krejcie and Morgan Table of sample size determination, 384 residents were sampled and administered with a closed-ended instrument called Public Perception of NCDC's Non-Pharmaceutical Intervention Against COVID-19 and Infodemic on social media in North Central Nigeria Questionnaire. The 384 questionnaires consist of both demographic and non-demographic response questions. The researcher, with the aid of trained research assistants, administered and retrieved all copies of the questionnaires. The three (3) interviews were conducted face-to-face, recorded, and

transcribed after the exercise.

**Data Presentation from Survey
Public Perception of NCDC's Non-Pharmaceutical
Intervention against COVID-19 and Infodemic on social
media in North-Central Nigeria.**

Variable	Positive (Percentage & Frequency)	Negative (Percentage & Frequency)	Total (Percentage & Frequency)
Perception of awareness level of NCDC's social media campaign on non pharmaceutical intervention against COVID19 by the people of North Central Nigeria amidst infodemic	347 (93%)	26 (7%)	373 (100%)
Perception of the required attitudinal change embedded in the Social Media messages by the NCDC by people of North Central Nigeria	360 (96.5%)	13 (3.5%)	373 (100%)
Perception of adoption of non pharmaceutical interventions in daily activities because of the social media campaign by the NCDC	360 (96.5%)	13 (3.5%)	373 (100%)

Data Presentation from Oral Interview with NCDC Officials

Variable	Miss Hadiza Sa'ad (Comment & Score)	Miss Sarah Peter (Comment & Score)	Dr Tunde Disu (Comment & Score)
Perception of awareness level of NCDC's social media campaign on non pharmaceutical intervention against COVID-19 by the people of North Central Nigeria amidst infodemic	The awareness was very high. As a result of the campaign, we saw the NPIs implemented across all levels in society be it banks, marketplaces, motor parks, streets, and communities.	Most people are aware of the NPIs because of the integrated approach deployed on the social media campaign. I will also rate the awareness level achieved very high.	there was a high level of awareness of up to 95%. Most people became aware of the NPIs but where we had issues was compliance. Awareness was very high but compliance was lower.
Perception of the required attitudinal change embedded in the Social Media messages by the NCDC by people of North Central Nigeria	The perception of the required attitudinal change was quite positive. Though we had a lot of misinformation, pushback, and mistrust but with time all that changed.	The perception to some large extent was positive. They perceived that the required attitudinal change was necessary because of our messages on social media platforms.	It was high at the beginning, but our messaging shifted when the threats to life were not as much as predicted.
Perception of adoption of non pharmaceutical interventions in daily activities because of the social media campaign by the NCDC	The perception of adoption was highly positive. Because of the #takeresponsibility campaign by the NCDC on social media. Users were active in encouraging adoption of the NPIs.	I will rate the perception of adoption positively up to 50%, especially in the post COVID era.	One of the polls shows that North Central shows over 70% and perceived the adoption better than some other regions of the country

Discussion of Findings

Perception of awareness level of NCDC's social media campaign on non-pharmaceutical intervention against COVID-19 by the people of North Central Nigeria amidst the infodemic: Respondents were asked if they now know the various ways to prevent COVID-19 infection through the NCDC social media campaign on non-pharmaceutical

intervention. A total of 347 (93%) agreed that through the NCDC social media campaign on non-pharmaceutical intervention, they now know the various ways to prevent COVID-19 infection. This analysis shows that a significant population of the study now knows the various ways to prevent COVID-19 infection because of NCDC's social media campaign on non-pharmaceutical intervention.

The interview with officials of the NCDC revealed that the awareness level was very high because of the Commission's campaign of non-pharmaceutical intervention on social media; urging people to wash their hands, use hand sanitisers, and nose masks, apply social distancing, and others. They agreed that these developments were observed in banks, marketplaces, motor parks, etc. It can be inferred from the above analyses that a greater number of respondents and the audience reviewed were aware of the NCDC's non-pharmaceutical intervention social media messages on COVID-19, rated the awareness level of the campaign very high, and agreed that they now know the various ways to prevent the infection; it is safe to say that the awareness level of NCDC social media campaign on non-pharmaceutical intervention against COVID-19 by people of North Central Nigeria was very high. This conclusion is in sync with Igyuve, Agbo, Eze, & Jonah (2021) that most informed Nigerians (which the population represents) correctly identified the non-pharmaceutical guides (herein referred to as non-pharmaceutical interventions) as campaigned by the NCDC on social media.

Again, this is strengthened by the Social Network Theory (SNT) emphasising the role of social relationships as seen in social media in diffusing information, guiding personal or media influence, and enabling attitudinal or behavioural change. This notes the effectiveness of social networks in creating awareness and social mobilisation. The strength of this theory was seen in the high awareness level achieved by the NCDC in its social media campaign on non-pharmaceutical intervention against COVID-19 among the people of North Central Nigeria.

Perception of the required attitudinal change embedded in the Social Media messages by the NCDC by people of North Central Nigeria:

Respondents were asked if the social media messages from NCDC made them consider an attitudinal change reflecting the non-pharmaceutical intervention against COVID-19. A total of 360 respondents representing 96.5% of the study population strongly agreed that the social media messages from NCDC

made them consider an attitudinal change reflecting the non-pharmaceutical intervention against COVID-19. Officials of the NCDC in the oral interview all agreed with the findings that despite the initial misinformation, pushback, and mistrust, with time, a lot of the people were able to perceive the attitudinal change as necessary. However, they warned of possible error if the success was attributed to the campaign on social media alone as it also deployed other means of communication to achieve this feat. From the analyses above, most of the respondents agree that the social media messages from NCDC made them consider an attitudinal change reflecting the non-pharmaceutical intervention against COVID-19. This means that the people of North Central Nigeria perceived the required attitudinal change as necessary because of the messages embedded in the social media by the NCDC. This conclusion agrees with Reuben, Danladi, Saleh, and Ejembi (2020) that most of the respondents who are social media users had positive attitudes toward adherence to government IPC (same as non-pharmaceutical interventions). Also, it concurs with Al-Dmour (2020) that strategic use of social media platforms could positively influence public health awareness, behavioural changes, and community protection against COVID-19.

The Diffusion of Innovation Theory strengthens this finding. This wide-ranging social and psychological theory helps to predict how people make decisions concerning the adoption of an innovation by discovering their adoption patterns and understanding its structure. It explains why and how the people of North Central Nigeria decided to adopt an innovation like the non-pharmaceutical interventions for the prevention of COVID-19.

Perception of adoption of non-pharmaceutical interventions in daily activities because of the social media campaign by the NCDC:

Respondents were asked if they have adopted and familiarised themselves with the non-pharmaceutical intervention measures of wearing facemasks, hand washing with running water, social distancing, coughing/sneezing into the elbow, avoiding handshakes, and others; A total of 360 respondents representing 96.5% of the study population have familiarised with and adopted the non-pharmaceutical intervention measures of wearing facemasks, hand washing with running water, social distancing, coughing/sneezing into the elbow, avoiding handshakes during a pandemic because of

NCDC's social media campaign on non-pharmaceutical intervention.

The interview with NCDC officials agreed with the findings. They agreed that as it is now if there is news that such a pandemic is threatening lives, many Nigerians know what to do. They agreed that "the attitudinal change campaign on social media can be rated as very successful because first, the awareness was all over, Nigerians know what to do to protect themselves and will apply them when they feel threatened or a threat to others. This is because of the success of the #TakeResponsibility campaign. We are now in 2024, and you can see that some people still wear facemasks, and some still go around with hand sanitizers. There is that residual effect of the pandemic and measures put in place." So, since a greater percentage of the study population has familiarised with and adopted the non-pharmaceutical interventions (when it becomes necessary for health reasons) because of the NCDC social media campaign, the people of North Central Nigeria adopted non-pharmaceutical interventions in their daily activities because of the social media campaign by the NCDC. This finding agrees with Ow'honda et al (2021) that while health education is an important part of public health and health promotion, the goal of such is to have a positive impact on the health attitude of the people which can be achieved through the agenda-setting role of the mass media. Again, it agrees with Igyuve, Agbo, Eze, & Jonah (2021) that apart from health messages on various media platforms, including social media by the NCDC and its partners, other factors like people's individual quest for good health may be responsible for, or an inducement for the adoption of COVID-19 prevention guides. This finding is supported by the Social Marketing Model which makes the adoption of certain behaviour attractive and possible by availing the audience with relevant information.

Conclusion

This study hereby concludes that the people of North Central Nigeria positively perceive the Nigeria Centre for Disease Control (NCDC)'s non-pharmaceutical intervention against COVID-19 because of its campaign on social media amidst the infodemic. This was achieved because the NCDC during the behavioural change health campaign which is the promotion of adoption of non-pharmaceutical intervention against the health hazard of COVID-19 made the content interesting enough to be perceived

by its target audience as useful. This fulfils the user's psychological and social needs while achieving the institution's objective.

Again, the NCDC leveraging the weak ties and acquaintances of social media networks with people bound by some commonness (this time fear of death from COVID-19) made it an irresistible tool in mobilising Nigerians against the spread of COVID-19 and adoption of non-pharmaceutical interventions against the virus.

Recommendations

Based on the study's findings, the study makes the following recommendations.

1. The application of social media be reinforced by the NCDC, and similar institutions seeking the adoption or change of certain behaviours in ways that seek to meet certain personal and social needs of their target audience.
2. Messages embedded in social media campaigns of organisations like the NCDC and other institutions seeking to achieve social and behavioural changes should continue to be couched in a way that the target population can perceive the attitudinal adjustment being sought positively.
3. Campaign messages by the NCDC and other organisations seeking social and behavioural changes should continue to be designed in ways that can persuade the people and make the adoption of the idea easy based on the benefits that are accruable to them.

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