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When Citizens Report a Novel Virus: An Analysis of Social Media Discourse of the Covid-19 Pandemic among Nigeria's Facebook and Twitter Users

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ABSTRACT: The study explores the dynamics associated with the contents of the discourses on the COVID-19 pandemic by Nigeria's active Facebook and Twitter users. Data were extracted from the last 400 posts published on four Facebook pages and the corresponding comments, the top 500 tweets for each of the three hashtags (#Covid19, #SARS-Cov-2, and #Pandemic), and 200 tweets for #vaccine. The social impact in social media method was employed to analyse the contents of the messages after coding, and the social impact coverage SICOR was calculated. The discourses on the COVID-19 pandemic were discovered to be multifaceted. The nature of the COVID-19 pandemic social media discourses was mostly non-scientific, aggressive, and religiously textured. About 85.5% of the total sample analysed was non-evidential or could not be proven scientifically, with social impact coverage of just 7% on Facebook and 22% on Twitter. About 18.3% of the total sample analysed fell under the MISFA code, and they contained factually inaccurate, misleading, conspiratorial, or politicised messages to address the seriousness of the disease. This could serve as a barrier to medical management and increase political tension both within the affected countries and in international relations. The discourses that contain the potentials or real social impacts of health, on the other hand, are respectful and transformative, and are primarily from the government and health institutions. The study recommended that in situations like the COVID-19 pandemic, there is a need to increase social media literacy, provide strategies and instruments to check the reputation, consistency, and evidence of any information, and avoid self-confirmation based on assumptions or previous unchecked experience.

KEYWORD: Covid-19, pandemic, social media, health information, posts, discourses, vaccines, Facebook, Twitter.

Introduction and Background

The recent outbreak of the coronavirus disease, known as COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-Cov2), is an on-going public health emergency that first emerged in Wuhan, China in December 2019. As of Wednesday July 15, 2020, nearly 14 million confirmed cases of infections and 600 thousand deaths had been recorded in almost all countries worldwide. As at that date, Nigeria alone had recorded 33,616 confirmed cases and 754 deaths. These significant statistics have introduced fear, anxiety, uncertainty, deep distress, pains and anger in many citizens and has crippled almost all the sectors across the world (Dong, Du & Gardner, 2020; Muccer & Chin, 2020; CDC, 2020; NCDC, 2020; WHO, 2020).

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Before the index case was announced, following the developments of COVID-19 pandemic in mainland China and other countries worldwide, the Federal Government of Nigeria (FGN) on 28 January, 2020, had assured its citizens of its readiness to strengthen surveillance at the international airports in the country to prevent entry of the coronavirus. The Nigerian Centre for Disease Control [NCDC] also announced same day that they had already set up a coronavirus group and was ready to activate its incident system if any case emerged in Nigeria. However, when an Italian man was confirmed to have been tested positive of the virus in Lagos on 27 February, 2020, the social media went agog with information and misinformation, with users all over the world expressing divergent opinions (NCDC, 2020; WHO, 2020).

Since the outbreak's onset, misinformation about the virus, its provenance and scale have been proliferated on social media, particularly *Facebook* and *Twitter,* across the globe. This has generated significant concern for public health agencies and institutions - on February 2, 2020, the World Health Organisation (WHO) director warned against the public health consequences of an "infodemic" - an abundance of potentially inaccurate claims - that would make it difficult for citizens to find reliable guidance when needed (WHO, 2020).

Consequent upon the ubiquitous nature of social media, platforms such as *Facebook* and *Twitter* have become central to the technological and social infrastructure that allows people stay connected during outbreaks generally, and the current pandemic in particular. As more and more social interactions take place on social media platforms, the conversations around COVID-19 expand, with growing volumes of misinformation. This has necessitated social media companies, in collaboration with the WHO and other government agencies to adopt "infoveillance" approaches which have been proven successful in characterising a host of public health issues and the monitoring of infectious disease outbreaks (e.g. pertussis, influenza, HIV/AIDS, dengue, West Nile virus, Zika virus, H1N1 and Ebola), to ensure that people get accurate information about the virus (Add-Abrozag *et al*, 2020).

In the context of the possibility of misinformation, with its attendant consequences, it is therefore imperative to understand the nature of social media content that users are likely to encounter when searching for information about the virus on social media. This study therefore sought to analyse the social media discourse of Covid 19 pandemic among Nigerian *Facebook* and *Twitter* users. Particularly, it analysed the nature of *Facebook* posts and *Twitter* threads; with a view to understanding how they evolved over time in the course of the pandemic in order to identify parent classifications of predominant user-generated themes that emerged as the outbreak accelerated in Nigeria.

Statement of the Problem

No previous public emergency, even climate change; no sporting or political event has influenced the social media as the Covid-19 outbreak, with over three billion regular social media users conversing on the pandemic daily with significant increases in volume since its advent (Fisher, 2020). The NCDC, WHO, medical journals and health care organisations have been updating their sites and providing guidance across numerous platforms, but these sites have not been easy to access because of volume of traffic on them. With 19 million mentions across social media and news sites related to Covid-19 in a day around the world, it is clear that it is the first global pandemic that is unfolding on social media with unprecedented volumes of conversations happening every second (Ferrara, 2020; Fisher, 2020; WHO, 2020).

When complex emergencies arise, public officials are cautious about making premature pronouncements, instead they carefully craft statements to ensure accuracy and avoid misinterpretation and exaggeration. Pandemics naturally require co-ordinated global response strategies; therefore, digital corporations and social media platforms are supposed to be at the heart of these strategies, since their responses and willingness to collaborate with governments and public health officials determine whether social media become beneficial

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or pathological vector of pandemic response. There have been partnerships with social media teams: *Facebook* has a COVID-19 information centre tab and *Twitter* provides reliable sources for people who make coronavirus-related searches. Both of these media announced measures to better ensure access to credible and accurate information about COVID-19. However, what is not certain is whether the platforms are effective or not.

Despite the above, early reports indicated that major social media platforms struggled with the volume of COVID-19 information and user-generated content flooding their platforms, some of which were helpful and accurate and some of which were rumours and misinformation consisting mainly of content where citizens expressed veiled criticisms of government mismanagement and lack of accountability. Social media also facilitated a form of prejudiced collective organising that, similar to crowdsourcing, rapidly enlisted a large number of people, yet did so on the basis of questionable claims and beliefs (Kim *et al,* 2019; Wang *et al*, 2018). There was therefore a form of post-truth society in which subjective opinions and unverified claims rivalled valid scientific and biomedical facts in their public influence. There was a situation where the need for evidence to support reasoned arguments became downplayed on social media, while at the same time, the social norm concerning how and why people should be held accountable for what they say was weakened. Such a situation had the potential to negate the efforts of governments and health agencies to curb the virus, because of wrong perception of citizens of the pandemic resulting from social media representations and discourse. Hence, this study investigated Nigerian *Facebook* and *Twitter* users' discourse of the Covid-19 pandemic in Nigeria.

Aim and Research Questions

This study aimed to explore dynamics associated with the Covid-19 pandemic by exploring the nature and thread of the contents of Nigerian users' *Facebook* and *Twitter* conversations, and the implications of the discourses that emerged.

To achieve the research aim, the following questions were asked:

1. To what extent did social media discourse by Nigerian *Facebook* and *Twitter* users on Covid-19 pandemic populate the study networks?
2. What were the nature and thread of the discourse by Nigerian *Facebook* and *Twitter* users on the Covid-19 pandemic?
3. How significantly was the discourse by Nigerian *Facebook* and *Twitter* users on Covid-19 pandemic factually inaccurate, misleading, conspiratorial or politicised?
4. How did the health evidence-based conversations by Nigerian *Facebook* and *Tweeter* users on Covid-19 pandemic change users' perceptions about the pandemic?

Theoretical Foundations

The Social Cognitive Theory (SCT), the Situational Crisis Communication Theory (SCCT) and the Conspiracy Theory provided the theoretical framework for the study.

Social Cognitive Theory

The Social Cognitive Theory (SCT) posits that individual person's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences; and that when people observe a model performing a behaviour, they tend to remember the sequence of events and use this information to guide certain behaviours (Bandura, 2008).

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SCT describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviours. SCT provides opportunities for social support through instilling expectations, self-efficacy, and using observational learning and other reinforcements to achieve behaviour change. This theory can be used to understand the influence of social determinants of health and a person's past experiences on behaviour change (Bandura, 2008).

Situational Crisis Communication Theory

The Situational Crisis Communication Theory (SCCT) was put forward by W. Timothy Coombs (Wiley-Blackwell & White, 2012), who postulated that crisis response communication strategies, different from normal communication strategies, are employed by crisis managers in the event of a crisis. Against this background, organisations, nations or individuals must ensure that they respond adequately and timely, communication-wise, during a crisis, to ensure that such crisis does not affect the organisations or nations reputation. One of the fundamental tools for crisis response communication in the present age is the social media (Coombs & Holladay, 2012). Thus, this study aimed at analysing the use of social media in health crisis, from a multi-faceted perspective, particularly during the Covid-19 pandemic in Nigeria.

Conspiracy Theory

The conspiracy theory explains "harmful or tragic events as the result of the actions of a small powerful group" and this explanation rejects "the accepted narrative surrounding such events" (Reid, 2020). The theory increases in prevalence in periods of widespread anxiety, uncertainty, or hardship, as during wars and economic depressions and in the aftermath of natural disasters like tsunamis, earthquakes, and pandemics. The core of the arguments of this theory suggest that conspiratorial thinking is driven by a strong human desire to make sense of social forces that are self-relevant, important, and threatening, in this case, the recent pandemic (Byford, 2011; Ferara, 2020). Again, we must restate that the media remain one major tool at the centre of social control by people, especially, in periods of societal anxiety and disasters.

Epidemiology of Coronavirus Disease

'Corona' is a Latin word meaning crown. The outer surface of the virus has crown-like spikes thus, the name coronavirus. The virus belongs to the *Coronaviridae* family in the *Nidovirales* order. It is very small in size, that is, (65-125 nm) in diameter, contains a single stranded Ribonucleic acid, RNA, material with size ranging from 26 to 32kbs in length encapsulated by nucleocapsid protein (Yung *et al*, 2020; Parry *et al*, 2020) as shown in Figure 1.

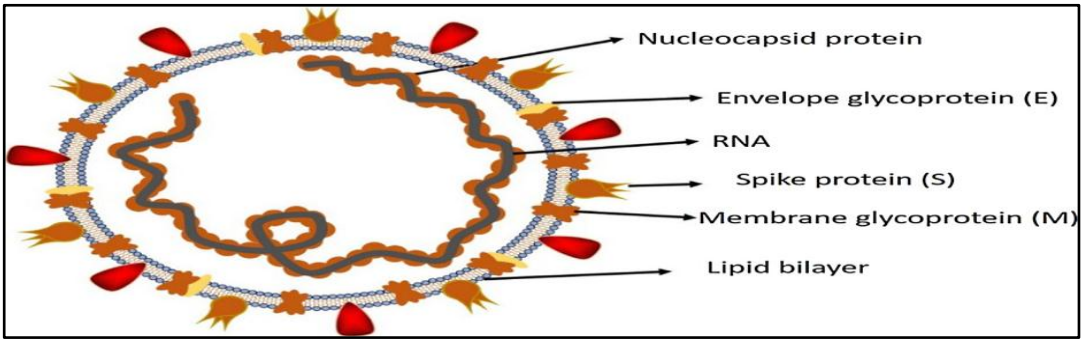

Figure 1: Diagram of the novel Coronavirus Sar-Cov-2 (Parry *et al*, 2020)

SARS-CoV-2, the coronavirus responsible for COVID-19, causes acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) leading to pulmonary failure, resulting in death (Lu *et al*, 2019).

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The virus is supposed to have originated from the Hunan Seafood Market at Wuhan, in Hubei Province of the Republic of China where bats, snakes, raccoon dogs, palm civets, and other animals are sold, and rapidly spread up to virtually all countries in the world. With the rapid spread, it suddenly became an awful global experience, and as at March 30, 2020, it had spread to almost all countries and WHO declared it a pandemic (WHO, 2020; NCDC, 2020; Lai *et al*, 2019).

Chinese scientists have linked the source of the virus to animals. Leo Poon, a virologist who was the first to decode the virus said: "What we know is it causes pneumonia and then doesn't respond to antibiotic treatment, which is not surprising, but then in terms of mortality, SARS kills 10% of individuals who contract it" (Source unavailable). Coronaviruses are common among animals, but in rare cases, they are zoonotic, that is, they can be transmitted from animals to humans (Lu *et al*, 2019). The zoonotic source of the virus has not been confirmed, however, sequence-based analysis suggest that bats are the key reservoir as shown in Figure 2. At first, the novel virus was named as Wuhan coronavirus or 2019 novel coronavirus (2019-nCov) by the Chinese researchers but the International Committee on Taxonomy of Viruses (ICTV) named the virus SARS-CoV-2 and the disease, COVID-19 (Zhong *et al*, 2018; Wang *et al*, 2013; Cui *et al*, 2019; Parry *et al*, 2020).

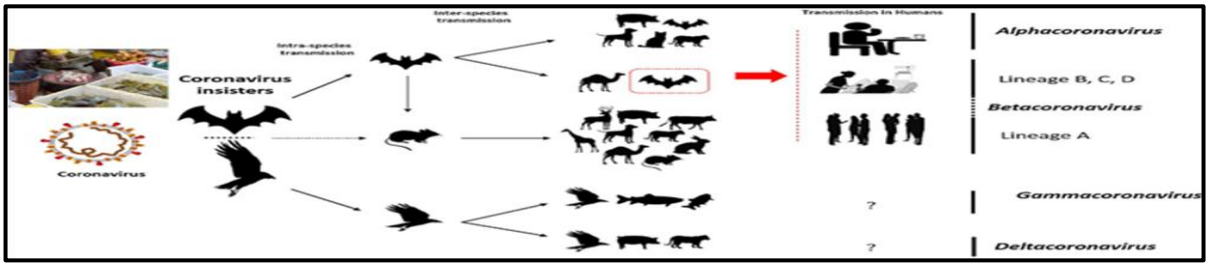

Figure 2: Key reservoir of Sar-CoV-2 and its transmission mechanism (Parry *et al*, 2019)

Initially, Covid-19 was suggested to have infected only those that visited the seafood market where live animals were sold or those who may have used infected animals or birds as a source of food. However, further findings revealed that some individuals contracted the infection even with no record of visiting the seafood market. These observations indicated a human-to-human spreading capability of this virus. The human-to-human spreading of the virus occurs due to close contact with an infected person, or being exposed to coughing, sneezing, respiratory droplets or aerosols that penetrate the human body (lungs) via inhalation through the nose or mouth (Lai *et al*, 2019; Cui *et al*, 2019; WHO, 2020).

Symptoms and Treatment of COVID-19

Cold or flu-like symptoms usually set in from 2-4 days after a coronavirus infection and are typically mild. However, symptoms vary from person-to-person, and in some, the virus can be fatal. General symptoms include: sneezing, runny nose, cough, watery diarrhoea, fever in rare cases, sore throat, exacerbated asthma, and sometimes, kidney failure (Parry *et al*, 2020, WHO, 2020; CDC, 2020).

To date, there is no anti-viral therapeutics that specifically target human coronaviruses, so treatments are only supportive by boosting the body immune system. In vitro, interferons (IFNs) are only partially effective against coronaviruses. People can take several steps to boost immunity including: resting and avoiding over-exertion, drinking enough water, avoiding smoking and smoky areas, taking acetaminophen, ibuprofen, or naproxen for pain and fever, using a clean humidifier or cool midst vapourizer. A doctor can diagnose the virus responsibly by taking a sample of respiratory fluids, such as mucus from the nose, or blood (WHO, 2020; NCDC, 2020).

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Covid-19 in Nigeria

On 27 February, 2020, Nigeria confirmed its first case of COVID-19 in Lagos State,. An Italian citizen who works in Nigeria had returned on 25 February, 2020 from Milan, Italy, through the Murtala Muhammed International Airport, fell ill on 26 February, 2020 and was transferred to Lagos State biosecurity facilities for isolation and testing. On 9 March, 2020, the second case was confirmed- a Nigerian citizen in Ewekoro, Ogun State, who had contact with the Italian (Odunsi, 2020; Ezigbo *et al*, 2020; NCDC, 2020).

With geometric increase in Covid-19, rising to 51 on 25 March, 2020, the FGN ordered the immediate closure of shops in markets and neighbourhood centers, except those selling food items, medicines and other essential commodities. The government also ordered the immediate closure of churches, mosques, schools and all social gatherings. After a week, a total lockdown was ordered in some states of the country. Since the index case was reported in Nigeria, cases have been recorded in almost all the states in the country, with Lagos and Abuja recording the most cases because of their economic and administrative positions and with both serving as major entry points into the country (Ezigbo *et al*, 2020; MacLean and Dahir, 2020; NCDC, 2020).

Information/misinformation and social media

At the onset of the Covid-19 outbreak, prior to the release of any information by the Chinese government, an ophthalmologist, Li Wenliang, a whistle-blower for Covid-19, posted messages on the spread of a SARS-like disease. As screenshots of his posts went viral, he was disciplined by local police for promoting "untrue speech." Li died of complications from the virus on February 7, 2020. News of his death dominated Chinese social media, with a flurry of messages expressing grief as well as anger directed at the government. "Dr. Li Wenliang passed away" became the top search record on Weibo, the major Chinese social media platform. State censors intervened to remove posts on Li's death, but public outrage led to increased demands for free speech and greater information transparency from the government (Secon *et al*, 2020; Taylor, 2020; Young *et al*, 2020).

By changing our social norms, values, and culture, social media has increasingly become a critical element of human society. Information-sharing and the distribution of content have become important social desires. As the outbreak of Covid-19 intensified, social media such as *Facebook* and *Twitter* took on new and increased responsibilities of serving as conduits of information on the pandemic for the people, especially with the large-scale implementation of social distancing, quarantine measures and lockdowns of complete cities. According to Muhammad *et al* (2013) and Fisher (2020), these media enabled people locked down at home to survive isolation and seek help, co-ordinate donations, entertain and socialise with each other.

In doing the above, however, misinformation on social media occurred. Misinformation may reach citizens in different ways, depending on their age, culture, gender and other factors and globally, the narratives of misinformation are dominated by personal, negative, and opinionated tones, which often induce fear, anxiety, and distrust of institutions (Ezigbo *et al*, 2020). Once misinformation gains acceptance in such circumstances, it is difficult to correct, and the effectiveness of interventions varies according to the personal involvement of each individual and his or her literacy. Specifically, sociodemographic panic and anxiety about the virus were heightened among citizens of Nigeria due to information overload (Alkhhir *et al*, 2020, Ezigbo *et al*, 2020; MacLean and Dahir, 2020; Lazer *et al*, 2018; NCDC, 2020)

Misinformation on social media represents a risk to global health. The infodemic WHO warned of in February 2020 in relation to COVID-19 got worse with time. This has caused the spread of uncertainty, fear, anxiety and racism on a scale not seen in previous epidemics, such as SARS, MERS and Zika (Park *et al*, 2020; NCDC, 2020; WHO, 2020).

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Materials and Methods

Design of the Study

The design followed in this study is the exploratory content analysis of social media messages. The method used is Social Impact in Social Media (SISM) methodology, which combines quantitative and qualitative content analysis of the sample selected, considering the contributions of the social impact of the study. The design was adopted to understand study participants' conceptualisation of the studied phenomenon and by analysing the contents of social media discourse by Nigerian *Facebook* and *Twitter* users.

Population of the Study

As at the first quarter of 2020, *Facebook* was the biggest social network worldwide with over 2.6 billion monthly active users. In Nigeria, almost 59.6% of internet users are registered on *Facebook* with approximately 27 million monthly active users. *Twitter* accounts for 24.54% internet users with 1.6 million monthly active users as shown in Table 3.1. Almost (95%) of the networks users are very active in posting or tweeting about the Covid-19 pandemic in Nigeria (*Global Stat Counter,* 1999-2020). The population of this study therefore is all active users of Facebook and Twitter as captured by the *Global StatCounter,* 1999-2020, figures above.

Table 1: Social Media and their Nigeria Users Population (%)

Social Media	Users (%)
Facebook	59.57%
Twitter	24.54%
Pinterest	10.81%
YouTube	2.55%
Instagram	1.83%
LinkedIn	0.34%

Source: *Global StatCounter*, 1999-2020

Sampling, Sample Size and Data Collection

The period of data collection for this study was three weeks in which the researchers scanned through the various messages in individual timelines or through groups study participants belonged to. From these, they selected posts and tweets, especially those forwarded from different people belonging traversing all strata of society. These messages were initially screened and the broad themes developed from the messages focusing on the content. From the broad themes, focused categories were identified and then the patterns were evolved with respect to: (i) Relevance of the number of active users in millions according to first half of 2020 Statistics data: *Facebook* (28,806), *Twitter* (5008), (ii) Availability of public messages; and (iii) suitability for online discussions.

Table 2: Data Collected from the Study Social Media Networks

Social Media	Keyword	Data collected
Facebook	Facebook page 1	7976 posts and 11,064 comments
	Facebook page 2	6580 posts and 12,312 comments
	Facebook page 3	8204 posts and 10,147 comments
	Facebook page 4	6046 posts and 13,078 comments
Twitter	# Covid-19	2268 tweets
	# SAR-Cov-2	562 tweets
	#Pandemic	1864 tweets
	# Vaccines	314 tweets

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The chosen sample from the collected data is exploratory and selective and was based on the following criteria:

Criterion 1: Selection of suitable searchable keywords. We selected the word "health" as a general topic and the specific keywords "Covid-19", "Sar Cov-2", "Pandemic" and "Vaccine." Specifically, the researchers used the hashtags #Covid 19, #Sar-Cov-2, #Pandemic and #Vaccine to extract *Twitter* information. In relation to *Facebook*, four public pages with large audiences were selected in relation to the topic "Covid-19."

Criterion 2: Data extraction: The data extracted from *Twitter* contained tweets published under the hashtags within three weeks of the study. For *Facebook* pages, the data were extracted from the last 400 posts published and the corresponding comments of the four *Facebook* pages selected. To identify which tweets (top 500 tweets for each of the three hashtags and 200 tweets for hashtag, vaccine) and *Facebook* posts (top 100 posts), received more attention, likes and retweets were used for *Twitter* while likes and comments were used for *Facebook.* Table 3 shows the final sample chosen.

Table 3: Sample Size of Study for Social Media Networks

Social media Networks	Keyword	Data Collected
Facebook	Facebook Page 1	100 posts and 300 corresponding comments
	Facebook Page 2	100 posts and 300 corresponding comments
	Facebook Page 3	100 posts and 300 corresponding comments
	Facebook Page 4	100 posts and 300 corresponding comments
Twitter	#Covid 19	500 tweets
	#Sar Cov-2	500 tweets
	#Pandemic	500 tweets
	# Vaccines	200 tweets

Ethical Considerations

This research adheres to international ethical criteria related to social media data collection and corresponding analyses; in particular, we have followed the ethical guidelines for social media research supported by the Economic and Social Research Council (UK) and Ethics in Social and Humanities Sciences of the European Commission (ESSH, 2018). Furthermore, we have perceived the risk of harm to and conserved the anonymity of users. Additionally, we have read the terms, conditions and legalities of each of the social media platform, and we have employed only public information without identifying any user.

The data were coded and anonymized to avoid the possibility of traceability. Sets of data have been secured, saved, and stored. The researchers cannot share all raw data due to the current terms of the social media platforms and the General Data Protection Regulation (GDPR).

Method of Data Analysis

The researchers employed SISM method to analyse the contents of the messages in the study. The method is focused on evidence of social impact. The unit of analysis was the full message published by the users (Tweets and *Facebook* posts and comments) which means that the information provided in the external links included in the messages was also analysed. In the analysis, we prioritised the analysis of the tweets and *Facebook* posts that received some type of interaction (likes, retweets or shares) because such interaction is an indication of citizens' interest.

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The researchers further applied a classification of messages according to the codebook guidelines and interactions received, in order to develop a qualitative content analysis for each message selected (tweets, *Facebook* posts and comments). The social impact coverage ratio (SICOR) - the ratio of the actual social impact in relation to the total amount of social media data found - was applied to each of the study social media networks.

Results and Discussions

Results

To answer the research questions formulated to guide the study, the social media messages to be analysed were classified (see Table 4). Thereafter, the Social impact Coverage, SICOR was calculated.

Table 4: Percentage of Coded Messages in Relation to Data Collected from study Social Media Networks.

Social Media	ESISM	INFO	MISFA	OPINION
Facebook page 1 (posts and comments)	7%	42%	23%	28%
Facebook page 2 (posts and comments)	10%	48%	15%	27%
Facebook page 3 (posts and comments)	3%	43%	8%	46%
Facebook page 4 (posts and comments)	8%	45%	13%	44%
Twitter #Covid-19	38%	50%	5%	8%
Twitter #Sar-Cov-2	18%	51%	20%	10%
Twitter #Pandemic	32%	43%	14%	11%
Twitter #vaccine	0%	30%	48%	22%

From Table 4, the *Facebook* data sample reveals that posts with the highest percentage are those under the INFO code of *Facebook* 2(48%), followed by *Facebook* 4(45%), *Facebook* 3 and *Facebook* 1. However, OPINION (46%) is higher than INFO (43%) on *Facebook* 3. The posts with the lowest percentage were those under the ESISM code on *Facebook* 3(3%). In general, the MISFA code posts are the higher than those of ESISM only.

For *Twitter*, the analysis show that tweets with the highest percentage were those published under INFO code with hashtag #Sar-CoV-2 (51%), followed by #Covid-19 (50%), #pandemic (43%) and #vaccine (30%). In the case of #vaccines, the lowest percentage of ESISM found was (0%), but MISFA had the highest percentage (48%). The higher percentage of the four hashtags selected in the node of OPINION is highest in the #vaccines hashtags with 22%. The percentages in the nodes of ESISM and INFO codes are higher under *Twitter* as compared to those of MISFA and OPINION codes. The percentages under ESISM code of the *Facebook* pages are lower than those of *Twitter*. The percentages under the node of OPINION code are higher on the *Facebook* pages, with the highest on *Facebook* page 3 (46%) and lower on *Twitter* with the lowest at hashtag #Covid-19 (8%).

Table 5 shows the Social Impact Coverage (SICOR) - the percentage of ESISM found in the full sample - for each study social media network, with *Twitter* recording a higher SICOR figure than *Facebook*. In this case, the SICOR is the percentage of tweets or *Facebook* posts with evidence of social impact, that is, under ESISM, in relation to all the tweets or posts collected respectively.

Table 5: SICOR- Social Impact Coverage of the study Social Networks

Social Media	**SICOR** - Social Impact Coverage
Facebook	7%
Twitter	22%

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Discussions

The major objectives of the study were investigated and discussed with the research questions as follows:

Research Question 1

To what extent did Social Media Discourse by Nigerian *Facebook* and *Tweeter* Users on Covid-19 Pandemic Populate the Study Networks?

Generally, social media discourse on the Covid-19 pandemic increased exponentially compared to other social media topics of discourse such as corruption, governance, elections, political parties' internal wrangling, etc., as the pandemic grew. The conversations by social media users approached the pandemic from varying perspectives as exemplified in the posts. While some posts centred on health institutions and the government; others focused on individuals or groups of people not connected to government and the health ministry in any way. Those whose attention were on the government, described the central government as inept and health officials and institutions as incompetent. In a sample *Facebook* post, the writer said: "*I can recall that you, Hon. Minister, was among the clueless persons who said Nigeria is ready for Coronavirus outbreak in the country. Wetin Musa no go see for gate?*" In the heat of the pandemic, no day witnessed zero posts on *Facebook* or zero tweets on the government and health institutions especially, officials and activities of the NCDC. On *Twitter*, however, the conversations were driven by the NCDC itself with such tweets under the #Covid-19, as:

- "*Covid -19 is real. Being responsible is taking the government advice on Covid -19 prevention seriously. You might be infecting other people without knowing it*.
- "*The fight against #Covid-19 requires a collective effort. Wear a face mask, observe physical distancing, wash your hands frequently with soap and water."*

The use of *Facebook* and *Twitter* by NCDC and other health institutions for health education on and strategic response to the pandemic was timely and focused on the well-being of the people, in line with the postulations of the Situational Crisis Communication Theory (SCCT) that crisis response strategies are employed by crisis managers in the event of a crisis.

Research Question 2

What were the Nature and Thread of the Discourse by Nigerian *Facebook* and *Tweeter* Users on the Covid-19 Pandemic?

Most social media messages on the Covid-19 pandemic on the selected networks were mostly non-scientific and without evidence. Again, a significant percentage of post and tweet arguments on the pandemic were not based on scientific evidence or data. In addition, indicators such as infection figures, symptoms and preventive measures, were quoted out of context and sometimes, even falsified. Data in From Table 4.2 show that the Social Impact Coverage of the two social media networks were low: *Twitter* (22%) and *Facebook* (7%). This implies that only 22% of the tweets were based on medical or other evidence and had the potential for having an impact on the society. The higher SICOR score for *Twitter* could be attributed to a higher degree of *Fact Check* placed on the tweets before publication. This was lacking on *Facebook* posts.

In terms of the nature of the threads on the pandemic, the analysis shows that most the most trending threads on the pandemic were those that described it as an invading entity, moving from country to country and leaving death and devastation in its wake. This image was vivified through the preponderance of such words as 'sweeps', 'growing', 'fire', 'inferno', and 'raging out of control', used in the posts that trended. Other images in the threads on the pandemic by users included: Covid-19 as unstoppable, killing both the rich and

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under Volume: 4 Issue: 2 in Feb-2023 https://globalresearchnetwork.us/index.php/ajshr

the poor; Covid-19 as a threat to humanity; Covid-19 as a fierce predator. These images cumulatively, had the potential to provoke fear and build a sense of helplessness in the citizens.

In terms of tone, the Covid-19 discourse that trended the most – shares, comments and retweets – were those that were very aggressive and approached the pandemic from a religious point of view. The two examples below exemplify this:

- "Y*ou politicians are even (more) dangerous than the so called virus. Since this pandemic saga started, you have never advised the citizens to pray for God's intervention. All you keep saying is don't do this, don't go there, cases are increasing, etc."*
- *"This useless pandemic you are lying against in Nigeria will later kill every and each of your government officials, if you guys are lying in order to embezzle Nigerian money."*

Another finding is that a significant number of posts, tweets and arguments showed some form of hostility towards other posts, tweets and arguments based on scientific argument, and countered them with posts that contained false information. Some went as far as defaming and attacking renowned scientists in the field of vaccines. The following posts containing false information and attack on vaccines and scientists are examples:

- *"Vaccines have a long history of damaging the brain from day one"*
- *"The so-called Father of vaccination left his first son brain-damaged by vaccinating him; Jenner was smart enough not to vaccinate his second."*

Contrary to the arguments in the posts above, Jenner's sons died from tuberculosis, to which he devoted his life to find a cure, and not from smallpox vaccines. It is recorded that his discovery had a significant social impact that facilitated the eradication of small pox in human society. However, the posts cited above falsified this information and this "type of conversation affects the public health of cities and villages where people decide to follow the anti-scientific arguments" (Riedel & Edward, 2005, p.141). Messages that contain the potential or real social impact of health - coded in this study as ESISM - are respectful and transformative and these usually come from health institutions and the government and most of the posts and tweets in this category encountered in this were published under the hashtag #Covid-19.

Research Question 3

How significantly was the Discourse by Nigerian *Facebook* and *Twitter* Users on the Covid-19 Pandemic Factually Inaccurate, Misleading, Conspiratorial or Politicised?

Table 4 indicates that 18.3% of the sample posts and tweets on the pandemic were represented under the MISFA code. These messages contained factually inaccurate, misleading, conspiratorial and politicised information and posed questions that could deliberately counter scientific evidence using falsehood and misinformation. For instance, as indicated in Table 4, 85.5% of the sample were non-evidential or could not be proven scientifically. Notwithstanding the measures of social media platforms to control the spread of misinformation, as the study analysis shows in reality, social media networks spread more health panic among the users and citizens through the spread of misinformation than awareness and education-related messages.

Again, the results of the analysis of the research data show that there was a high level of public distrust of the political leaders as well as the heath institutions responsible for managing the pandemic. Resulting from this, the government and managers of the pandemic blamed the social media companies for not doing enough to check messages they described as irresponsible. As observed, a significant percentage of the Covid-19

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under Volume: 4 Issue: 2 in Feb-2023 https://globalresearchnetwork.us/index.php/ajshr

discourse on social media had tones that seemed conspiratorial and had the potential to increase political tension within the country and even in relations with other countries. In the course of the pandemic, a conspiracy theory video - *"Plandemic"* - went viral on social media. Despite being taken down by *Facebook*, the video continues to get uploaded and viewed millions of times. The video which Facebook adjudged as containing misinformation and theories of conspiracy, was an interview with Judy Mikovits, a former virology researcher who argued that the Covid-19 pandemic was based on vast deception and aimed at profiting from sales of vaccines. The *"Plandemic"* video advanced that SARS-Cov2 came from a laboratory in Wuhan – and argued that most people already have the coronavirus from previous vaccinations, and wearing masks activates it. It suggested that scientists, including Anthony Fauci, the director of America's Centre for Infectious Diseases engineered the COVID-19 pandemic, a plot which involved killing hundreds of thousands of people for potentially billions of dollars of profit. However, subsequent publications by outlets such as *Science, Politifact and FactCheck* debunked the content of the video. The foregoing underlines how much damage the social media did to citizens' perception of and response to the pandemic.

Research Question 4

How did the Health Evidence-based conversations by Nigerian *Facebook* and *Twitter* Users on Covid-19 Pandemic Change Users' Perceptions about the Pandemic?

Prior to the index case, citizens were relaxed and undisturbed with the Covid-19 pandemic, and this could be attributed to the assurance given by the FGN and the announcement of NCDC on its preparedness to tackle the pandemic. In fact, some citizens even doubted the existence of the disease, particularly in Nigeria. This is illustrated in a post: *"Nothing like Corona virus in Nigeria. God will surely expose those behind the bars that were bribing those that wanted to pen up and stand for the truth."* Some others also claimed that the disease could not withstand climatic conditions of Nigeria.

One of the findings of this study is that deliberation contexts in social media promote the possibility of contrasting information and open dialogue based on valid claims. In view of this, immediately the announcement of the index case was made by NCDC and the government, the latter began to collaborate with health and other professionals to ensure that citizens adhered to health advisories. This was illustrated in a post by NCDC: "*We launched the Nigeria #COVID19 Research Consortium, convened by NCDC & @nimrnigeria in collaboration with @OfficialNUC & @TETFundNg By bringing indigenous experts & scientists, we can better guide @NigeriaGov 's response to #COVID19 as it applies to our context."* This collaboration ensured that as the government and heath institutions tested, discharged, announced and confirmed the death from the disease of VIPs in the country, there was a gradual change in the perception of citizens of the disease. This development is in consonance with the Social Cognitive theory that individuals' knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences.

Conclusion and Recommendations

Based on the findings of this study, it can be concluded that social media discourses on COVID-19 among Nigerian users were mostly non-scientific, non-evidential, aggressive and religiously-textured, contained factually inaccurate, misleading, conspiratorial or politicised and misleading information that negatively affected the perception of the people of the disease. Against this backdrop, it is recommended that governments should increase social media literacy among the people while creating more accessible platforms for the people to get accurate information, especially in times of health emergencies and crises.

ISSN 2690-9626 (online), Published by "Global Research Network LLC"
under Volume: 4 Issue: 2 in Feb-2023 https://globalresearchnetwork.us/index.php/ajshr

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