

Infodemic in a Pandemic Era: An Analysis of Twitter Misinformation on COVID-19 in Nigeria

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Abstract

Using content analysis, the researchers content-analysed Twitter content on COVID-19 from January 2021 to march 2021. Coding sheet was used as the instrument of data collection. The technological determinism theory was used by the researchers to situate the study. The population of the study was 620 tweets on Twitter platform for the three months. The researchers found that majority of the tweets on misinformation on coronavirus originated from individuals with unverified handles. This is based on the fact that 54.7% of the tweets were from individuals. The researchers, therefore, recommended that social media organisations should device a way to track and remove blatant misinformation from trending searches or introduce a new reporting feature for users to flag misinformation as they come across it.

Keywords: Infodemic, Coronavirus, Misinformation, Twitter, Nigeria

Introduction

Infodemic is an excessive amount of information about a problem that is typically unreliable, spreads rapidly and makes a solution more difficult to achieve (Oxford Languages, 2021). Wikipedia, the free encyclopedia described misinformation as false, inaccurate or misleading information that is communicated regardless of an intention to deceive. Examples of misinformation are false rumours, insults, and pranks while disinformation is a subset of misinformation that is deliberately deceptive; for instance, malicious hoaxes, spear phishing and computational propaganda. The principal effect of misinformation is to elicit fear and suspicion among a population. News parody or satire can become misinformation if it is believed to be credible and communicated as if it were true. The words "misinformation" and "disinformation" have often been associated with the concept of "fake news," which some scholars define as "fabricated information that mimics news media content in form but not in organisational process or intent." According to the Oxford Language Dictionary (2021), social media are websites and applications that enable users to create and share content or to participate in social networking.

Social media are an invaluable means of disseminating information to the citizenry; hence, it is a powerful tool of propaganda. In lieu of the Nigerian situation, it acts as a two-edged sword as it allows citizens to be privy to information without impediments. However, this same tool has been used to misinform the populace and to circulate unverifiable and deceptive messages to citizens. "The Coronavirus (COVID-19) is an infectious disease causes respiratory infections, ranging from common cold to more severe respiratory difficulties. It originated from the Hunan seafood market at Wuhan, China where live bats, snakes, raccoon dogs, wild animals

among others were sold in December 2019” (Shereen *et al* 2020, 91–98). It was declared a pandemic by the World Health Organisation on 11 March 2020 (WHO, 2020). Since its identification, the virus is said to have accounted for about 512,311 deaths globally out of a swooping statistic of 10,514,028 positive cases which sadly increases exponentially daily (WHO, 2020).” Researchers first identified coronavirus in 1937.” The name “coronavirus” refers to the crown-like projections on the pathogen’s surface. “Corona” in Latin means “halo” or “crown.”

There are many types of Coronavirus. Some cause mild illnesses, such as the common cold. Others can cause severe acute respiratory syndrome (SARS) or Middle East respiratory syndrome (MERS), which can be life threatening. Many Coronaviruses are present in animals but do not affect humans. Sometimes, however, a virus mutates in a way that allows it to infect humans. Scientists call these human Coronaviruses, or “HCoVs” (*Medical News Today*, 2021). The first victim of the virus in Nigeria was an Italian man who arrived in the country on the 25 February 2020. He was admitted to an Isolation Centre in Yaba Lagos after showing symptoms of the virus (NCDC, 2020). Subsequently, the cases increased and, as at the time of this paper, almost 28,711 positive cases and 11,665 recuperated persons have been identified (NCDC, 2020). The outbreak of COVID-19 in Nigeria gave room for the growth of misinformation on COVID-19 related matters on Twitter. In recent times, Twitter has become a tool in Nigeria; a means or channel of disseminating infodemic amongst users in Nigeria. Unrestricted access to the internet, has made easy the flow of fake information that tends to misinform and misguided the society against that which is true and real (Ngozika, Chinenye & Mathias, 2020) states that ‘as the pandemic encroaches on and emasculates world activities, Twitter platform has become a veritable tool properly utilised by some to misinform the citizens.’ The significance of the misinformation gained more recognition owing to the lockdown policy by the federal Government to curb the spread of COVID-19 in Nigeria. As WHO Director-General Tedros Adhanom Ghebreyesus proclaimed at the Munich Security Conference on 15 February 2020, “We’re not just fighting an epidemic; we’re fighting an infodemic.” ‘It has even been claimed that the spread of COVID-19 is supported by misinformation’ (Shahi *et al*). Notable personalities were not left out in the spread of this misinformation on Twitter; for example, the claims of Pastor Chris Oyakhilome as captured in Adelaku (2020), cited in (Ngozika, 2020) that the virus is a manipulation to install the 5G network. He posited that the Federal Government imposed the lockdown of March 2020 to enable them install the 5G network, which he stated to be a ploy to implement the antics of the anti Christ. This made Nigerians to raise hash tags like #IStandWithPastorChris on Twitter to support the claims made by the preacher. Misinformation is deliberately promoted on social media. It can spread rapidly as anybody can say anything to anyone with multiple individuals online to consume the contents of misinformation. It has become pervasive with multiple digital sources without editorial oversight and could easily be trusted or taken serious (Ogbonna, 2021).

The coronavirus pandemic has been a thorn in the flesh with its parallel ‘infodemic.’ Krause, Freiling, Beets & Brossard (2020) have emphasised that misinformation can be a matter of life and death for its primary consumers. Falsehood about COVID-19 might “generate racist sentiments.” WHO (2020) has announced that false news creates trouble for health promotion and disease prevention units operating in various countries including Nigeria. It is against this backdrop that the researchers sought to analyse misinformation on Twitter in Nigeria.

Research Objectives

The objectives of the study were to:

1. Identify the tone of tweets on COVID-19 misinformation.
2. Ascertain the sources of tweets on covid19 misinformation.
3. Identify the various form of misinformation on the tweet.

Twitter, “Infodemic” and Misinformation

Wu *et al* (2017) see misinformation as ‘an umbrella term to include all false or inaccurate information that is spread in social media.’ We define misinformation broadly as circulating information that is false. The term ‘misinformation’ is more commonly used to refer specifically to when false information is shared accidentally, whereas disinformation is used to refer to false information shared deliberately’ (shahi *et al* 2020). In its situation report on 2 Feb 2020, the World Health Organisation (WHO) described an infodemic as ‘an overabundance of information—some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it.’ ‘we live in an age of misinformation. Misinformation is not a new problem. Some predicted the risk of viral misinformation long before COVID-19 emerged. But the biggest health crisis in a century has underscored the ease with which doubt can be sown online’ (Jackson, 2020). The greatest problem of internet health information is finding valid and reliable information (Pranesh *et al* 2020). Previous studies have also documented the conspiracy theories associated with the Zika virus, including that it was a biological weapon, which was circulating in the social media during the 2015–2016 outbreaks. There are the well-documented issues with misinformation with Ebola, including false treatments, health workers were deliberately spreading the Ebola virus and Ebola epidemic was a hoax. Such conspiracy theories and misinformation may have impeded the ability of healthcare workers and emergency responders to communicate with people about out-break management and control measures. ‘The spread of rumours, stigma and conspiracy theories not only affect the individuals but can also have consequences at the societal level, including the healthcare system’ (Islam *et al* 2020). Twitter on the other hand provides a fertile ground for the spread of misinformation. It provides direct access to an unprecedented amount of content and may amplify rumours and questionable information.

Twitter offers a potentially novel investigation line to evaluate self-perception and awareness in the context of the public health response to the coronavirus disease (COVID19) pandemic. Studies have shown that Twitter content may provide crucial insights into the ongoing public health crisis. However, some studies suggest that Twitter may play an important role in propagating misinformation in previous epidemics such as the Zika, Ebola and yellow fever virus outbreaks. In the COVID-19 era, scientists and clinicians use Twitter to echo scientific evidence, especially toward an academic audience. However, in non academic contexts, the effect of Twitter in the COVID-19 era on public perception, whether beneficial or harmful, remains unknown. However, in analysing any piece of information on social media, Twitter precisely, there is no consensus on when a piece of information can be considered false. According to seminal work by del Vicario *et al* cited in Shahi *et al* (2020), it is “the possibility of verification rather than the quality of information that is paramount. Thus, verifiability should be considered key to determining falsity. To complicate matters further, claims are not always wholly false or true, but there is a scale of accuracy.

Several studies have been done and carried out on infodemic and misinformation of Twitter/ social media during the covid19 pandemic era. One of the studies carried out by Ramez & Joseph (2020) through their study explained that the rate of misinformation and unverifiable information is alarming high. It was also stated in the study that some tweets and Twitter account characteristics were seen to be associated with a higher chance of spread unverified and false information, while some tags and hash tags were associated with high rate of misinformation compared to others. The data from this study quantify the pervasive spread of false or unverified information and provide metrics that would allow early interventions to limit its spread.

The views of Adekalu (2020) supported the above, stating that prevalence of health misinformation was the highest on Twitter. However, misinformation on major public health issues, such as vaccines and diseases, was also high. This exposure offers a comprehensive characterisation of the dominant health misinformation topics and a comprehensive description of the prevalence on different social media platforms, which can guide future studies and help in the development of evidence-based digital policy action plans. Meanwhile, Chinenye & Mathias (2020) had a qualitative study which explored social media outlets such as Twitter, Facebook, Whatsapp, blogs, online newspapers and Youtube where the contestation about the pandemic are mostly pronounced. The researchers interrogated the roles which social media play in either curtailing or aiding the spread of the news on the pandemic across the country and that these platforms have been greatly abused as people hide under its anonymity to spread fake messages and instigate fears and panic amongst members of the public. In relation to this study, Twitter misinformation appeared to be a threat to the truth. The non availability editors in social media outlets like Twitter, has appeared to be blamed for the misinformation overload on Twitter and other social media outlets.

During the pandemic lockdown, there was an experience of much presence of people on social media; the social media became a place for information gathering as regards to covid19 pandemic and most information disseminated on Twitter as regards to this the pandemic were confirmed to be misleading information as clergy men were not left out in this high level of misinformation Adelaku (2020) posited that Apostle Johnson Suleman of the Omega Fire Ministries International, who went from claiming the virus would “just disappear” to now peddling anti-vaccine conspiracy theories. He also shared some fabu about how powerful forces (including the Pope) are trying to get rid of the US president, Donald Trump, and create a new world order. Another misinformation from a Muslim clergy was that the leader of the Izala Muslim sect in Plateau State, Sheikh SaniJingir, who warned his followers that the pandemic is nothing but a Western conspiracy against Muslims to stop them from performing their religious rites. All these were to mislead the society from that which is true.

Theoretical Framework

This study was anchored on technology determinism theory. The theory is one of the new media theories that try to explain the nature of the technology in the society and how technology controls human nature. This theory was developed by Thorestain Veblen who viewed technology as a driving force of culture in the society. Communication theory (2021) explains technologies determinism theory as a technology which manifests itself at various levels starting with the introduction of newer technologies which leads to the introduction of new changes in the way things are done thereby creating a new form of knowledge in the society. Technology

determinism theory state that "media technology shapes how we as individuals in a society think, feel, act and how society operates as we move from one technology age to another "(uky.edu).

From the aforementioned definitions, it is evidence that technology determinism theory examines the influence technology has on the people as they make use of these technologies in their daily activities, and the changes that are experienced in the society as a result of these technologies. The relevance of this theory to this study is that it explains how Twitter is now used as a medium of communicating health related messages during the COVID-19 pandemic. Since the onset of the COVID-19 pandemic, social media users have been playing a role in all stages of knowledge translation, including COVID-19 morbidity and mortality, interventions, spreading rumours and conspiracy theories, and reporting stigma (Islam *et al* 2020). The lockdown during this pandemic made many people turn to the new media especially Twitter to gain information on issues related to the pandemic. Instead of listening to the radio and watching TV as it used to be; the society however turned to tweeter and other new media platforms for interactions and consumption of COVID-19 based information.

Methodology

The researchers used the content analysis research method to analyse the manifest content of Twitter misinformation. We used Twitter add-on search for tweets containing the two hashtags #coronavirus and #coronavirusNigeria. We performed an online search of the Twitter social media platform on the first three months of 2021, January, February and March was studied because this was the period of the uproar which is the height of misinformation on Coronavirus and the vaccine in Nigeria. The team used the Twitter filter to set the location to "near us" so our search was limited to original tweets and shares from Nigeria and to those that initially received at least five retweets.

The population of this study is 620 tweets. This population was derived from the number of tweets during the period of study which is January, 1 2021 to March, 31, 2021. The researcher also used Hero Stemple formula to derive population sample. The researcher used the coding guide and the code sheet as the instrument of the study. Two coders were used for this study. Inter coder reliability was tested using Pearson's r formula. Inter coder reliability result on each of the content categories were 0.8, 0.8 and 0.8. The units of analysis were original tweets and shares. The content categories were direction, tone, sources and forms of misinformation. In terms of direction, the researcher analysed the angle of tweets by Twitter users while tweeting on the virus. The researcher analysed how favourable, unfavourable or neutral these tweets were. Tone means the manner at which Twitter users tweeted about Coronavirus. The researcher analysed how harsh, sarcastic or friendly these tweets were. For sources of these misinformed tweets, the researcher looked at Government\Non-Governmental Organisations\ Business groups, news organisations and individuals originated tweets and for forms of misinformation, the researchers used a misinformation detection model, we collected the training data from an online fact-checker website called Poynter. Poynter have a specific COVID-19 related misinformation detection programme named 'CoronaVirusFacts/DatosCoronaVirus Alliance Database4.' This database contains thousands of labelled social media information such as news, posts, claims, articles about COVID-19 which were manually verified and annotated by human volunteers(fact-checkers) from all around the globe. The database gathers all the misinformation related to topics such as

COVID-19 cure, detection, the effect on animals, foods, travel, government policies, crime, lockdown. The misinformation was divided into three classes false, partially false\ true and others. Data was analysed and presented in tables and numbers.

Data Presentation and Analysis

Data were analysed quantitatively and presented in tables. Data presented answered the research questions raised in this study. Analysis of spread within the tweets indicated that 210 tweets representing 61.8% were original tweets while 130 representing 22.7% shares or retweets.

Table 1: Analysing the Tone of the Tweets from Twitter on COVID-19 Misinformation

Content Category	Units of analysis		Total	Percentage
	Original Tweets	Shares		
Serious	78	61	139	40.9%
Friendly	34	34	90	26.5%
Sarcastic	76	35	111	32.6%
Total.	210	130	340	100 %

This finding reveals that Twitter users were more serious in their tone of tweets on misinformation about coronavirus. This was made evident when 40.9% of the tweets were serious as opposed to 26.5% that was more-friendly and 32.6% that was sarcastic. This implies that Twitter users are more serious in their tweets on misinformation on Coronavirus.

Table 2: Sources of Tweets on Coronavirus Misinformation

Content Category	Units of Analysis		Total	Percentage
	Original Tweets	Shares		
Government \NGOs\ Business organisations	50	20	70	20.6%
Individuals	100	86	186	54.7%
News organisations	60	24	84	24.7%
Total.	210	130	340	100 %

The data revealed that the dominant source of tweets were mostly from individuals with unverified handles. A total of 54.7% answered in that direction.

Table 3: Analysing the Various Forms of Misinformation on COVID-19 in Nigeria

Content Category	Units of Analysis		Total	Percentage
	Original Tweets	Shares		
Partially false\true	36	5	41	12.1%
False	88	74	162	47.6%
Misleading	86	51	131	40.3%
Total.	210	130	340	100 %

The information in the table shows that the tweets during the three months' period were completely false. Tweets on misinformation were completely false as against 12.1% which was partially true or false. These tweets indicated that Twitter users in Nigeria are spreading fake news nationwide.

Discussion of Findings

Findings revealed that 40.9% of the tweets had a serious tone attached to it. This means that majority of the Twitter users in Nigeria used serious tones while tweeting about COVID-19. In relation to the theory, Asemah, Nwammuo & Nkwam-Uwaoma (2016) noted that technological determinism theory puts technology in a position of absolute power over society and this belief can lead people to feel helpless to change any perceived direction in which technology is driving society. Hence, people find themselves spreading misinformation with serious tones because they believe it's the truth.

Findings revealed that 54.7% of the tweets were from individuals with unverified accounts. This means that majority of the misinformation spread is from private individuals. This finding is quite clear when compared to that of Kouzy *et al* (2020) who noted that the rate of misinformation and unverifiable information is alarmingly high. Individual account characteristics were seen to be associated with a higher chance of spreading unverifiable and false information. The findings of this study revealed three forms of misinformation on the Nigerian Twitter with the forms like false, partially true/false and misleading. Twitter users expressed false claims on coronavirus as against the other two forms. This is in relation to the findings of Pranesh *et al* (2020) who was able to detect misinformation distribution all false across eight major languages and presented a quantified magnitude of misinformation distributed across different languages in last 5 months. Stating that prevalence of health misinformation was the highest on Twitter. Adelaku (2021) also discovered in his study that misinformation on major public health issues, such as vaccines and diseases was also high. This finding is also related to the technological determinism theory which explains that the media technology shapes how we as individuals in a society think, feel, act and how society operates as we move from one technology age to another "(uky.edu).

Conclusion

We live in an age of misinformation. COVID-19 also has made us realise how well the world is interconnected through the internet. Social media are a significant conduit where people share their response, thoughts, news, information, etc. In the heat of the pandemic, Twitter was one of the platforms that was used to share ideas and join conversations on the said matter. Nigerians had their views which they shared through tweets. Every tweet and retweet or share increased visibility. Based on the narratives of the tweets, the researchers conclude that majority of Twitter users in Nigeria spread completely false information about COVID-19 with serious contents. Thus, the researchers recommend that:

1. Social media platforms should provide users with the ability to report inappropriate content; that is, introduce a new reporting feature for users to flag misinformation as they come across it.
2. A further method of counteracting misinformation is to seek the assistance of influential public authorities and bodies such as public figures, government accounts, relevant scientific experts, doctors or journalists.

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