SOCIAL MEDIA AND CRISIS OF MISINFORMATION AND DISINFORMATION MANAGEMENT IN COVID-19 ERA: TOWARDS A NEW MODEL OF HEALTH CRISIS COMMUNICATION

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Abstract

Social media is awash with avalanche of information on Covid-19 pandemic from a variety of unverifiable or questionable sources. Unfortunately, a greater percentage of this information is misleading and mere falsehood, thereby leading to a crisis of 'information validity-credibility syndrome'. Knowingly or unknowingly, these misleading and dangerous social media posts are shared in both celebrities' and social media influencers' handles thereby amplifying the spread of misinformation and disinformation in the public domain. These have negatively impacted genuine information processing and use by some categories of the citizens who rely on social media for 'infomedics' and news on the pandemic. Studies exist on social media and Covid-19 pandemic, but factors such as information validity, source credibility, trust and messaging channels appears under explored in handling or mitigating social media misinformation and disinformation crisis. This study was informed by these knowledge gaps and intends to conceptually and empirically explore the identified factors in tackling or managing social media misinformation and disinformation challenges in the post Covid-19 pandemic era. Objectives of the study includes to ascertain how the above factors impact information processing and use by recipients; ascertain how 'information source credibility' reduces social media disinformation; and to propose health crisis communication model for managing misinformation/disinformation in post-COVID-19 era. 392 randomly selected active social media users were selected in the execution of the study. Both quantitative and qualitative data was used in pursuing the objectives of the study.

Keywords: *Social media, Crisis communication, Validity–credibility syndrome*

Introduction

Social media is awash with avalanche of information on COVID-19 pandemic. A greater percentage of this information emanates from unverifiable and misleading

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sources (BBC, 2020; Okereke *et al*, 2021). This leads to 'information validity-credibility syndrome'—A situation where information emanating from diverse sources is subject to fact/doubt or credibility test, and its valence of acceptance or issue salience causes mixed feelings among users. Oftentimes, knowingly and unknowingly, misleading posts are shared in celebrities' and social media influencers' handles, thereby increase the spread of misinformation and disinformation in the public domain. This scenario negatively affects information processing and use by some 'netizens' who rely on social media for news on the pandemic. As corollary, the World Health Organization (WHO) and other international organizations (WHO, 2020) have warned against infodemic —"an excessive amount of information about a problem, which makes it difficult to identify a solution" (Who, 2020). It also means "proliferation of news and misleading information (Alonso-Galban and Alemany-Castilla, 2020, p.45).This over abundance of information spread misinformation, disinformation and rumours during a health emergency, like COVID-19 pandemic. Similarly, infodemic hinders adequate public health response, causing distrust and confusion among people.

In a recent research, it was estimated that in the first quarter of 2020, close to 6000 people globally were hospitalized due to coronavrius misinformation (WHO, 2021). Also, within the same period, nearly 800 people were presumed to have died because of "misinformation related to COVID-19(WHO, 2021, P.3). The crisis point of infomedic has made the World Health Assembly to pass Resolution WHAT3.1 on COVID-19 response. The Resolution recognizes that "managing the infomedic is a critical part of controlling the COVID-19 pandemic". The resolution also calls on the member States to provide reliable COVID-19 content, take measure to counter mis- and disinformation and leverage digital technologies. This call is extended to international organizations "to address misinformation and disinformation in the digital sphere, work to prevent harmful cyber activities undermining the health response and support the provision of science-based data to the public" (United Nations, 2020).

The study, therefore, is a response to that clarion call, given that Africa has widely shared from the pains of infomedicon COVID-19. There is a litany of studies on social media and COVID-19 and ways information is processed, shared and consumed (Allcott, Mathew & Yu, 2019; Allonso-Galban & Alemanay-Castilla, 2020; Okereke *et al*, 2021; Montesi, 2020), but factors (e.g. source and message credibility, information validity) influencing misinformation and disinformation crisis of COVID-19 in the social media have been understudied. Therefore, there is need for this empirical study in order to bridge the gap in literature and crystallize ideas for managing post-COVID-19 social media crisis of misinformation and disinformation. Based on theses notions, the study objectives include: (i) to ascertain the extent information validity and source credibility can influence social media crisis of misinformation and disinformation in post COVID-19 era, (ii) ascertain how the above factors impact information processing and use by recipients, (iii)ascertain how

'information source credibility' reduces social media disinformation; (iv) and to propose health crisis communication model for managing misinformation/ disinformation in post-COVID-19 era.

Review of Related Literature

Conceptualizing social media: Information production and distribution in the COVID-19 era

The advent of social media has greatly influenced the production and dissemination of information, and has also reconfigured media ecology. Social media, which is often described in various computer-mediated communication literature as 'new media' can be referred to as "group of technologies associated with rapid information dissemination via highly accessible web-based platforms (Ahlqvist, Back, Halonen, & Heinonen, 2008). In spite of this introductory description, there exist several definitional perspectives of the concept (Carr and Hayes, 2015; Lee, Sha, Dozier and Sargent, 2015; Kent 2015; Achor and Nnabuko, 2017).For avoidance of definitional dilemma or discrepancies, we adopted Kaplan and Haeliene (2010) definitional perspective or framework that epistemologically and ontologically support the main thesis of this paper.Social media is defined as "a group of Internet-based applications that build on the ideological and technological foundations of web 2.0, and that allow the creation and exchange of user generated content (UGC)" (Kaplan & Haenlein,2010,p.61).

Kaplan and Haenlein (2012) grouped social media platforms into eight different typologies: magazines, internet forums, weblogs, social blogs, micro blogging, social networks, podcast, photo-graphic or picture, video and social bookmarking. Some of the typologies share similar characteristics and this has blurred their line of distinction and operational mechanism.

In every sphere of human Endeavour, these platforms are used to propagate ideas, demarket negative behaviours, and share content. The COVID-19 pandemic era has received publicity concerning its origin, mode of transmission, and safety and healthy behavioral measures that would halt or reduce the spread of the virus (WHO, 2020). And due to their fluid nature, and unrestricted usage or user access, a great percentage of the social media networking platforms have become channels for peddling fake news, rumours, miss information and dissemination about the COVID-19 pandemic (Talwar, Dhir, Sing, Virk, and Salo,2020; Cheng and Chen,2020; Tandoc, Lim, and Ling, 2019; Montesi,2020; Pennycook and Rand,2019). The emergence of social media as a key source of news content has created a new ecosystem for the spreading of information" (factual/credibility, misinformation and disinformation) on COVID-19 (Pennycook and Rand, 2019, p.2521). The desire or penchant for information production and distribution on virtually every subject includingCOVID-19 pandemic is fuelled by the four out of the seven blocks of social media (Kietzman *et al*, 2011).The four building blocks include conversations,

sharing, relationship, and groups. The conversation building block activates the main essence of social media—"social media is designed for communication with other users The conversation may happen due to many reasons, including building self-esteem, and positioning oneself as a presenter of innovative ideas or trending information" (Tawar *et al*, 2020,p.3). This particular thought or scenario has made many a citizen news breakers and purveyors of news on COVID-19. Social media enables sharing or exchange, distribution and receiving of content either created by users or third parties. Some of the contents produced and shared are facts while a greater percentage of them are pure lies and misleading. The urge to belong to social media groups has also fueled creation and co-creation of user-generated content. Group members display intrinsic need to post content on the trending social, political and health issues. Group participants or members may "knowingly or unwittingly share fake news", blatantly false content (Tawar *et al*, 2020).

Conceptualizing misinformation and disinformation

The Covid-19 health crisis has resulted to the glut of misinformation and disinformation. Both terms describe ideas and information disseminated by individuals, organizations and media that are not supported by facts (Martins *et al*, 2018, Rodriguez, 2020, Colomina 2020). The two concepts have been used to denote actions that deliberately influence the evolution of political, economic and social events or trends even in the health field (Alonso-Galban and Alemany-Castilla, 2020). A number of scholarly studies have extensively explored the nature of content, factors and essence of misinformation and disinformation (Bakri and McStay, 2018, Tandoc, 2019, Lazer *et al* 2018, McStay 2020, with 2021). Misinformation refers to "false or misleading information, while disinformation is false information that is disseminated intentionally to deceive people (Bernal-Trivino and Clares-Gavilan, 2019, Lazer *et al*, 2018). Bakir and McStay (2018) provided further insight into the anatomy of disinformation – it consists of deliberately creating and dissemination of false information. "Misinformation is the practice of those who, without being aware disseminate false information". These are phenomena that have been minimally studied in social media crisis communication and information management.

The phenomena of misinformation-disinformation have been explained to be false news. Fake news is a "fabricated information that mimics new media contents in form but not in organizational process or intents" (Lazer 2018, p.1094). Because of its manipulative intentions, fake news is regarded as a form of disinformation – its key characteristics are falsity, the intention to deceive or mislead the receiver. The common denominators in conceptual and contextual description of fake news is the intent to intentionally or unintentionally mislead people by misrepresenting true information or presenting false information (Al-Zamam, 2012, p.101).Though, there may be disparity in definitional perspectives as found in fake literature (Muigai 2019, Allcott and Gentzkow 2017. Tandoc *et al* 2020). It is instructive to acknowledge that fake news denotes misinformation and disinformation. This situation poses a problem

of infodemic, which the World Health Organization (2018, 26) has described as the repaid speed of information of all kinds, including rumours, gossips and unreliable information.

Social networks and online communication afford people the opportunity and to access and spread misleading and unverified news. Since the emergency Covid-19, Allcott, Gentzwo and Yu (2019) measure trends in the diffusion of content from 569 fake news website and 9540 fake news stores on Facebook and Twitter. Results suggest relative magnitude of the misinformation problem on Facebook (Allcott et al, 2019. p.1), Montesi (2012) studied a sample of fake news items that were spread in Spain during the covid-19 health crisis. A total of 242 fake news that items was collected from the malditaes website and analysed using cognitive and affective authority interactivity, themes and potential danger dimensions or criteria. 40.7% indicates "affective authority of these news items built through mechanism of discrediting people, ideas or movements" (Montes, 2020, p.1). A recent study by Talwar *et al* (2020) investigated sharing of fake news and motive behind it on social media. Through the use of qualitative data, the result of the study indicates that instantaneous sharing of news for creating awareness had positive effect on sharing fake news due to lack of time and religiosity. It also indicates that "social media users who engage in active corrective action are unlikely to share fake news due to lack of time" (p.1).

Crisis of misinformation and disinformation

We conceptualized crisis of misinformation and disinformation as a state of confusion and distrust and mistrust caused by infodemic in the social media. It is a tipping point of devastating nature of misinformation and disinformation spread across all the social media platforms. People tend be misled by over information that there sources are unverified because people tend to passively believe others without consciously considering whether they are being told the truth (Levin, 2014).The volume of information on COID-19 has made it difficult for proper verification of both source and message credibility. The only credible source that people tend to believe in are those of World Health Organization, Centre for Disease Control and other similar international bodies whose credibility are not doubt.

The World Health Organization (2021) has encouraged nations to embark on myth-busting of as a way to deal with infomedic and its attendant disinformation and misinformation. Scholars too have called for developing Natural Language Processing Hybrid model that will detect fake news (Collins *et al*, 2020; Al-Zaminain, 2021). Beyond inventing machine–aided device or language that detects fake news or misinformation, we have proposed or developed a conceptual health crisis communication model that will help various stakeholders in the management of health crisis communication and reduction of the misleading content in the social media domain. In this paper, a model of infodemic management will be proposed "Infodemic management means applying evidence-based interventions that bring

understandable, localized evidence-based information to citizens and drive positive health-seeking behaviour" (UN, 2020).

COVID-19 pandemic: Infomedic and challenges of misinformation and disinformation

The surge in COVID-19 pandemic is classified by WHO (2020) into first and second wave. The first wave had a devastating effect on human lives, health infrastructure and exposed the chaotic nature of some countries' preparedness in tackling and responding to public health emergencies. In the same vein, the second wave is most devastating for some countries of the West and Asia. Deaths related to COVID-19 increased astronomically, while a great percentage of infested persons were hospitalized, thereby, becoming a huge burden on the health personnel and hospital infrastructures. In Africa, countries like South Africa, Ghana, Egypt, Nigeria, Central African Republic, etc faced multiple challenges ranging from increase in community infections, deaths, to the spread of myths, conspiracy theories, misinformation and disinformation. The social media helped significantly as purveyors of fake news, and infodemic that greatly confused and misled people, even the health practitioners who ought to be dispellers of unsubstantiated or unverified news on disease and health emergencies (WHO, 2020; Al-zaman, 2021).

African countries received their dosage of infomedic (fake news or misinformation and disinformation) on COVID-19. This infomedic spreads misconceptions about the, transmission, origin and treatment for the virus. In Sudan, people believed that the virus was made up and where it exists cannot spread in extreme temperatures (UNICEF Sudan, 2020). This belief made majority of rural dwellers not "to adhere to any precautionary measures like social distancing or the use of nose masks'' (Okereke, *et al*, 2021,p.544). One of the fake news is the fallacy, that the COVID-19 pandemic is a political conspiracy aimed at receiving aid from WHO and other health Organizations (CGTN Africa, 2020). It was also trending that drinking alcoholic beverages can kill the virus (BBC, 2020). One of the myths on COVID-19 in Nigeria was that the disease is meant those in the higher socio-economic status, while those residing in the rural communities are immune from the virus. This caused a rise in community transmission of the virus and non-adherence to health and safety protocols.

Source and message credibility: Towards evaluation of social media information

The concept of credibility is a measure of perceived quality as determined by people given their exposure or interpretation of several variables. In generic term, credibility measurement could be biased depending on what criteria used as established (Budzowski, 2019). Two distinct concepts of credibility can be identified in the mainstream communication literature: source credibility and message credibility (Metzger, Flanagin, Eyal, Lemus, & Mccann, 2003, Appelman & Sundar 2016, Li & Suh, 2015). Roberts (2010) explained message credibility as those characteristics of a

message that influence its believability; Newell & Goldsmith, (2001) adds that message credibility represents the impressions and judgments the receiver has in relation to a message. Preferably, when the perception is favourable, the message is positive (Ohanian, 1991). However, message credibility are the characteristics of a message that could make them more or less credible (Metzger *et al.*, 2003). Roberts (2010) reports that "the individual that receives the message decides on the credibility of the message". Earlier study by O'Keefe (2002) is in agreement with the above scholarship, hence credibility could be characterized as an individual's perception of how believable the communicator's content is. In measuring message credibility, adjectives such as accurate, authentic and believable are key words that should be used to determine message credibility Appelman and Sundar, 2016).

Ohanian model (1990) has been extensively used to discuss or conceptualized source credibility (Appelman and Sundar, 2016; Kutthakaphan & Chokesamritpol, 2013). The model describes characteristics of an individual--- trustworthiness, expertise and attractiveness, and uses them to measure how credible the source is or perceived. The concept of source credibility, according to Appelman and Sundar (2016) may have an effect on the message credibility and when such happens, there is a need to investigate both concepts to determine which has an apparent impact on the other. This has become imperative given the proliferation of social media/online tools and its attendant emergence of social media celebrities and influencers, who have become online personalities and content creators (De-Varsamis, 2017).

'Social media influencers' can be described as everyday individuals or regular people or networked individuals who through their online activities (engagements, conversations, and post/content) "have become well-known due to their presence on social media" (McQuarrie, Miller and Philips, 2013). These group of people have developed sort of theme or brand personality that stands them out from other social media users; their brand personality or theme cuts across politics, fashion, entertainment, etc. (Varsamis, 2018). The influencers by virtue of being self-regulators of their content can choose to use messages, images that portray good or credible. Here message credibility is often determined by the receiver of the message based on preexisting factors (Kutthakaphan & Chokesamritpol, 2013).

Online misinformation and disinformation have become a major danger in the management of information in the society (Del Vicario, Bessi, Zollo, Petroni, Scala, Caldarelli, Stanley & Quattrociocci, 2016). The trust-deficit that has pervaded the social media has made credibility of information doubtful, but if information emanates from credible source like World Health Organization(WHO) or Center Disease control (CDC), for instance, people will perceived such information as being credible because the source is perceived as credible. Message disseminated by these credible sources tend to be believed more than any other sources that have low credibility quotient or attributes (Lin, Bruning & Swarna, 2018). Source credibility can be measured via trustworthiness (honesty and believability) of an individual or organization and or how authentic they are perceived by someone. Expertise of a

communicator, person or organization is an index for determining source credibility; hence the ability of a person to provide valid assertions could be seen as being credible

Research Methodology

Mixed method (a combination of quantitative and qualitative) survey research design was adopted; this is because the nature of the study relies on evaluation of opinions of active social media users. Active social media users denotes individuals who use social media platforms (e.g. Facebook, Twitter, and WhatsApp) for at least one hour daily to read, and share contents on COVID-19 pandemic during its first and second wave(Talwar *et al*, 2020).

A sample size of 392 active social media users was determined using Freund and William model at 95% confidence level and 5% margin of error. Since the actual number of the social media (population) is of not known we conduct two pilot studies and grouped the active social media users in to two categories: professionals/students, and business/traders. 20 copies of a pretest questionnaire were administered randomly to each of the two categories. Percentage for positive and negative response was 85% and 15% respectively. The same percentages were recorded for both pilot studies. Substituting and solving for sample size (N) for both categories, we arrived at 196 for each, giving a grand total of 392. Data were collected through questionnaire worded in five-point Likert scale of strongly disagree (1) to strongly agree (5), and open-ended questions. The open-ended questions were intended to elicit unguarded and unabridged opinions of the participants regarding source and message credibility of COVID-19 contents shared in the social media, including their response on health emergencies' crisis communication. A content validity of the instrument was carried by three experts in social and behavioural communication studies, while the reliability analysis of the variables yielded Cronbach Alpha of 0,82. This was accepted as valid and reliable measure. The questionnaire was a web-based or online survey distributed online via Google survey form post in two Facebook groups and Whatsapp groups. Participants were briefed before completing the survey.

Data gathered from 5-point Likert scale worded questions were analysed using descriptive statistics (percentage, mean and standard deviation), while data obtained from the open-ended questions were analysed using Thematic analysis, which is a qualitative data analysis method. The main focus of the thematic analysis is to look for similarity in pattern of ideas, themes and frames in responses. The pattern of ideas, themes and frames were interpreted using inductive and deductive interpretation (Barun and Clarke, 2006).

For further analysis and decision making, the five-point Likert scale was used as shown thus:

Strongly disagree 1, Disagree 2, Undecided 3, Agree 4, Strongly agree 5. Total =15

A cut off point is determined by finding the mean of the nominal value assigned to options using the formula below: Mean X = ∑f/nf
Were: X = mean,
∑ = summation sign,
n = number of items
f = frequency

Discussion of Finding/Results

The discussion of findings is done in relation to research objectives. The first research objective sought to ascertain the influence of information validity and source credibility on covid-19 social media crisis of misinformation and disinformation. Four statements and sought opinions of the respondents. The first statement had a mean score of (M=3.38) and SD = (1.1162) suggesting that contents not validated of facts creates misinformation. Second statement yields mean (M = 3.32 and StD (1.0%297 which indicates that post/content shared or forward severally with unverified source is prone to misinformation. Results also indicate that sources not fact-checked (M=3.18, SD=1.2021) for fake news creates disinformation. Continuous sharing of content (M = 3.80,SD =1.0851 from less credible sources creates a trend of misinformation. These findings lend credence to general theory of information behavior and Levine's truth-default theory (TDT). Information behaviour involves studying humans interacting with various forms of information" (Zimmerman, Njeri, Khadr, Allen & Eaves 2020, p.e312). The study also revalidates the essence of information behaviour, which focuses on determining quality, reliability and validity of information. Basically, information reliability authenticates its validity, which lack of these virtues influence high degree of sharing misinformation disinformation.

The second objective sought to ascertain the impact of source credibility on information processing and consumption. "The third research objectives sought to ascertain how source credibility can be used to reduce covid-19 disinformation. It was found out that sharing of only messages from highly perceived credible sources (M = 3.8, SD = 1.081) will reduce disinformation. Self-validation of source's expertise on content shared reduces disinformation on covid-19 pandemic. Findings also indicate that perceived trustworthiness of a source of shared content will reduce sharing of misleading information (M= 3.68,Std = 1.1744), while prompt validation of a source before sharing content on social media will also reduce disinformation on COVID-19 Pandemic. Some of the findings of source credibility support scholarly arguments in the field of information behavior, while others hold sway. One of such scholarly propositions suggests that "when messages are pro-attitudinal, credible sources should initiate self-validation because recipients maybe motivated to confirm (Bolster) their existing views". In some instances, the credibility of social media influencers may be in jeopardy, if they share unverified or misleading information. Because followers tend to believe the messages shared by them, misinformation or

disinformation continues to spread. For this reason, self-validation of messages and their sources must be the guiding rule.

Generally, our research findings suggest detection of bias, lies and misleading content is necessary in order to enthrone a system that will ensure a reduction of disinformation and disinformation and their management. A deception is defined as "a psychological process by which an individual makes a deliberate attempt to create in another a belief which the communicator considers to be untrue with the intention to mislead (Levin, 2014). Basically, findings support and revalidate Truth-default theory propositions which states that humans operate on a default presumption that people are honest, thus making them vulnerable to deception when one abandons the presumption (Levin, 25140.378). The general findings also impact information veracity; this is because, "the truthfulness of a message predicts whether the communication will be judged accurately. Again, individual tend to trust information shared with them, and this trust is strengthened as the majority of information proves to be trustworthy (Zimmerman, 2020, p.e31.7).Four statement that sought opinions of respondents yielded high mean values of (M=3.83,M= 3.5,M= 3.1, and M= 3.0) and Std of (SD = 1.2936, 1.2551, and 1. 1478) respectively. These mean values indicate that source credibility significantly impact on information processing and use by recipients. Specific findings of the some credibility impact on information processing and consumption. First, high credible sources may elicit greater reliability perception and information use. Self-validation of sources credibility accounts for adoption of information by recipients while the opposite is the case. Trust worthiness of a source of COVID-19 message motivates recipients to use or comply with the information. Result also indicates that non-expert view of a source creates doubt in adoption of message. Our findings here, collaborates recent research findings by that, "highly credible communicators elicit based more on recipient thoughts (i.e. self-validation) compared with non-credible sources". These findings also reaffirm that some credibility sources may produce different effects on thought confidence and persuasion depending on the position of an advocacy.

Conclusion

Social media has offered multi-access to both individuals and organizations to share information and engage in open conversation by collaboratively harnessing their intelligence for a purpose. At the peak of the COVID-19, till the time it was declared a public health emergency, the social media became awash with diverse information emanating from multiple sources. This abundance of information resulted to misinformation and disinformation or what the Eysenbach (2006) refers to infodemic. One of the challenging effects of this anomaly on information management in social media is the dilemma of ascertaining the veracity of information and the credibility of the sources. Because the sources were not easily verified by some social media users, lies and fake news about the COVID-19 were spread in the digital media domain. This study has made some revelations about the importance of message and source

credibility and their values on the reduction or mitigation of misinformation and disinformation crisis, particularly in the post-COVID-19 ERA.

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