SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA, LEGON ACCRA

COVID-19 RELATED INFODEMIC ON GRAPHIC ONLINE AND GHANA WEB ONLINE: A CONTENT ANALYSIS IN GHANA

BY

EMELIA ESI BENEWAA OTOO

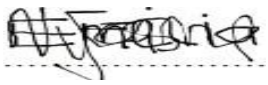
(10552519)

THIS DISSERTATION IS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA LEGON IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE AWARD OF THE MASTER OF PUBLIC HEALTH (MPH) DEGREE

JANUARY, 2022

DECLARATION

I, Emelia Esi Benewaa Otoo, hereby declare that apart from references to other people's work which have been duly acknowledged, this dissertation is my own work conducted under the supervision of Dr. Philip Teg-Nefaah Tabong. I further declare that no part or whole of this dissertation has been presented for any other degree elsewhere.



Emelia Esi Benewaa Otoo 30/09/2022
(Student) Date

Dr. Philip Teg-Nefaah Tabong 30/09/2022
(Academic Supervisor) Date

DEDICATION

I dedicate this Dissertation to God Almighty for His Divine protection throughout the entire programme. To my dear husband Dr. Kwabena Nyarko for his full support, unflinching love, and encouragement. I am grateful to you. And to my lovely children Nana Akua Otoo and Nana Kwaku Otoo who at their tender age have shown me much love and understanding.

ACKNOWLEDGEMENT

I am grateful to God Almighty for his immense protection and favour throughout the entire program. I would forever be grateful to you Lord. My profound gratitude goes to Dr. Kwabena Nyarko Otoo for your unflinching support and encouragement that has brought me this far. My amazing children – Nana Akua Otoo and Nana Kwaku Otoo – God bless you for your understanding. My sincere gratitude goes to my family especially my mother, father, sisters Nana Yaa and Hannah Nyame and my brother Nana Kwaku Nyame, your role in getting me this far is very much appreciated.

To Professor and Dr. Binka, words cannot describe how grateful I am to you. Your generous and supportive role got me into pursuing a master's in Public Health. I am here because of your efforts. Thank you

Above all else, I am most indebted to Dr. Philip Teg-Nefaah Tabong, my Supervisor and Lecture, for his guidance. I am grateful for your patience and your constant encouragement that pushed me to accomplish the tasks of finalizing this thesis.

To the following people who supported in diverse ways to get me this far I am most grateful. Mr. Daniel Kondoh (IFC-ACCRA), Dr. Justice Aheto (Lecturer, SPH), Benson Owusu Atuahene (Public Health Expert).

Finally, I extend my deepest gratitude to everyone who supported me in diverse ways during the course.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Covid-19 unexpectedly struck the world resulting in unimaginable hospitalizations and deaths. This left people of the world scavenging for information to stay safe. As has been the trend, the search for information in the age of multiple media outlets led to avalanche of information some of which were not accurate and hampered the fight against the spread of the virus. To an extent, the media was instrumental in providing information necessary in the fight against the virus. But the media also became veritable source of misinformation. This study therefore explored infodemics as related to COVID-19. The study applied the method of content analysis to study the COVID related stories, articles and publications carried on graphic online and ghanaweb.com - two media portals in Ghana. The analysis focused on stories, articles and publications on the causes of COVID-19, prevention, signs and symptoms, management, government response to the pandemic. These were benchmarked against WHO information based on available evidence to determine whether the information provided on these online portals were either factual or non-factual. The analysis showed that vast majority of the stories carried in the two media portals in respect of COVID were factual. About 98 percent of the stories analyzed from Graphic online were factual. For Ghanaweb.com, about 10 percent of stories were non-factual. The analysis also pointed to a situation where stories, articles and publications are carried in a manner that leave room for misinterpretation and possible misinformation. The study concludes that the flood of COVID-19 related stories and publications, some of which were not plausible could undermine government's containment efforts. The study underscores the need for media sensitization and education to ensure proper screening of publications and stories before making them available online for public consumption.

CHAPTER ONE

INTRODUCTION

1.1 Background

Towards the end of 2019, the world was hit with a strange disease that spread at an alarming rate. The disease was first discovered in Wuhan China and later countries in Asia, Western Europe, and North America began to record cases (Burki, 2020). On March 11, the World Health Organization (WHO) declared COVID-19 as a pandemic indicating the sustained risk of further global spread (Kenu, Frimpong, & Koram, 2020). Ghana recorded its first two cases of COVID-19 on March 12, 2020. By the end of September, infections had risen to more than 46,800, with about 301 recorded deaths (TUC, 2020).

The Government of Ghana formulated the Emergency Preparedness and Response Plan (EPRP) to deal with COVID-19 outbreak in the country (Tabong and Segtub (2021). A key strategy in the EPRP was to mobilize national resources and put in place approaches to enhance risk and behavioral change communication by using local and internet-based media. The role of media especially online news sources, during epidemics like the COVID19, was crucial in ensuring their reportage do not create fear and panic.

COVID-19 did not only result in a serious public health crisis, but it has also resulted in an infodemic due to the propagation of incorrect information (Alemayehu (2020). Misinformation fueled by rumors, stigma, and conspiracy can have potentially serious implications on the individual and community if ranked higher over evidence-based guidelines (Islam et al., 2020).

Entities such as news portals as well as health institutions and agencies needed to monitor misinformation associated with the COVID-19 in real-time and engage government, local communities, and other relevant stakeholders to debunk them.

The role of online news sources in preventing the spread of inaccurate information is critical during health emergencies or pandemics. Past outbreaks of epidemics have gone hand-in-hand with infodemics or massive throve of information – both accurate and inaccurate – and led people to make poor choices. Online newspapers and other social media platforms have been identified as the finest tools for monitoring misinformation and refuting rumors, stigma, and conspiracy theories among the general public (Islam et al., 2021).

COVID-19 is a disease birthed in conspiracy on many fronts. This led to avalanche of information on the disease with many of them being untrue. Rumors, stigma, and conspiracy theories have been reported around the world in connection with the COVID-19 pandemic. In the age of information and technology, digital media has been very instrumental in the COVID-19 pandemic, especially in the use of visual data to disseminate information, mobile health (mHealth) to organize medical resources, and social media to promote public health campaigns. While these sources offer good opportunities for health education, they also pose serious risks in terms of spread of inaccurate information that can militate efforts to combat the disease.

In the current COVID-19 health crisis there have been several pieces of information online that have turned out to propagate rumors, stigma, and conspiracy theories. When Ebola struck in West African countries, the local media played a crucial role in keeping the population informed about

the Ebola outbreak Borowski (2014). Other studies on the Ebola virus disease revealed that the disease spread fast due to misinformation about it, leading people to go about their normal lives without the necessary precautions needed to fight the disease. The WHO had warned after SARS, MERS, and Ebola, that highly pathogenic coronaviral diseases could be the next great international health crisis (Georgalakis, 2021). This was a signal for the media to position themselves to feed the public with accurate, authentic news devoid of rumor-mongering, causing fear and panic. However, COVID-19 took everyone (media) off-guard without any formal training in reporting on pandemics.

1.2 Problem Statement

During a crisis, the media is noted for playing important role in managing situations (Ghassabi & Zare-Farashbandi, 2015). That means during health emergencies their role in educating, informing, and gatekeeping cannot be downplayed as the general public has increasingly relied on online media during crises and health emergencies such as the COVID-19 pandemic. As a result, crisis communication professionals need to understand how to strategically optimize these tools, as they can either impede or facilitate behavioural change practices (Jin, Liu, & Austin, 2014).

How the news media communicate the outbreak of pandemics and how world leaders handle them is as important as scientists making the effort to find a vaccine against these diseases? What preventative measures the government adopted as policy framework to prevent the disease from degenerating from a few imported cases in Accra into community transmission? The situation requires finding out how the media framed news about the pandemic and how the government managed information flow for credibility consistency and to curtail infodemics - rumors, stigma,

and conspiracy theory. An analysis of the media content during the Ebola vaccine trial in African countries clearly shows that fear for the vaccine was accentuated by media reportage. About 33% of media reportage on the Ebola vaccine in four African countries: Sierra Leone, Ghana, Uganda, and Kenya claimed that the vaccine trials would cause an Ebola outbreak in those countries (Kummervolt et al., 2017).

It is therefore imperative for the media especially online news platforms to churn out correct reports especially during pandemics. Islam et al., (2020) maintained that rumors, stigma, and conspiracy theories, have been common during the COVID-19 pandemic saying the situation can affect people's health-seeking behaviours. Consequently, it is necessary for health agencies to monitor misinformation associated with the COVID-19 in real-time, and engage local communities and government stakeholders to debunk misinformation. The role of online news sources in preventing the spread of this inaccurate information as rumors, stigma, and conspiracy is critical. Citizens and political institutions may make poor decisions because of information on epidemics. This study, therefore, seeks to examine how the media helped to construct a narrative around COVID-19 aetiology, prevention, and the government's preparedness to contain the situation in the face of information overload or infodemic as coined by the WHO. The study would help in managing the communication crisis.

1.3 Objectives of the study

1.3.1 General Objectives

The General objective of the study is to identify and examine covid-19 infodemics in the online news portal.

1.3.2 Specific Objectives

The specific objectives of the study are to:

1. Identify how Daily Graphic Online and the GhanaWeb.com reported on the origin and transmission of COVID-19;
2. Determine how Daily Graphic Online and the GhanaWeb.com reported on the signs and symptoms of COVID-19;
3. Explore how Daily Graphic Online and the GhanaWeb.com reported on the remedies and prevention of COVID-19; and
4. To explore reportage in Daily Graphic Online and the GhanaWeb.com on government interventions to contain COVID-19 pandemic.

1.4 Research Questions

The study was guided by the following research questions

1. How did the Daily Graphic Online and Ghana Web.com report on the origin and transmission of covid-19?
2. How did the Daily Graphic Online and the GhanaWeb.com report on the signs and symptoms of COVID-19;
3. How did Daily Graphic Online and the GhanaWeb.com report on the remedies and prevention of COVID-19
4. What information did Daily Graphic Online and the GhanaWeb.com carry about government interventions to contain COVID-19 pandemic?

1.5 Conceptual Framework

Based on the specific objectives and review of relevant literature, a conceptual framework was developed to guide the study (Figure 1). The study would review and analyse COVID-19 information shared on two of the widely online news portals in Ghana-Graphic online and GhanaWeb.com. The news that would be shared on these online portals at the beginning of the pandemic would be the origin and transmission of the disease. COVID-19 which a viral infection was first reported in Wuhan, China and is believed to be a zoonotic infection, which mean it starts it transmission from animal to human. However, once human beings become infected, it moves into the second level of transmission-human to human.

In addition, the information that would be shared on the two online news portals would be the signs and symptoms of the condition. Although the signs and symptoms of COVID-19 often vary, the condition generally may present as fever, headache, general bodily pains, running nose and breathlessness. Other information that may be shared on the online news portals are prevention and government strategies to contain the condition.

Some of government strategies include enforcement of the COVID-19 protocol, travel restrictions and vaccination. The information that would be shared on the online news platforms as compared to available evidence from the WHO could either be factual or not. As expected during public health emergencies, some information may be misconceptions, rumours and conspiracy. The flood of this information results in the infodemic. Infodemic as an organised concept is relatively new, only appearing in the literature as late as 2003. The phenomena it describes are predates the coming of the terminology. It has, however, gained currency in recent disease outbreaks. The proliferation of social media outlets has played a role in this. Infodemic, describes variety of phenomena related to information and epidemics. In popular usage it is simply an epidemic of information about a

problem or a crisis. Some authors referred to it as ""an overabundance of information" including both factual and non-factual information (Islam, et.al., 2020). That overload leads to confusion in the minds of people seeking accurate information and guidance.

Others refer to infodemic as outright misinformation and disinformation that create fear and panic and leads to breakdown of trust. The misinformation and disinformation come in several guises. Among these are rumors (Islam, et.al., 2020), conspiracy theories (Pennycook et al., 2020), and fake news (Sharma et al., 2020) among others. The consequences include stigmatization, self-medication, increased risks, and a general difficulty in fighting the disease outbreak itself. The infodemic may directly affect behaviour of Ghanaians (Figure 1).

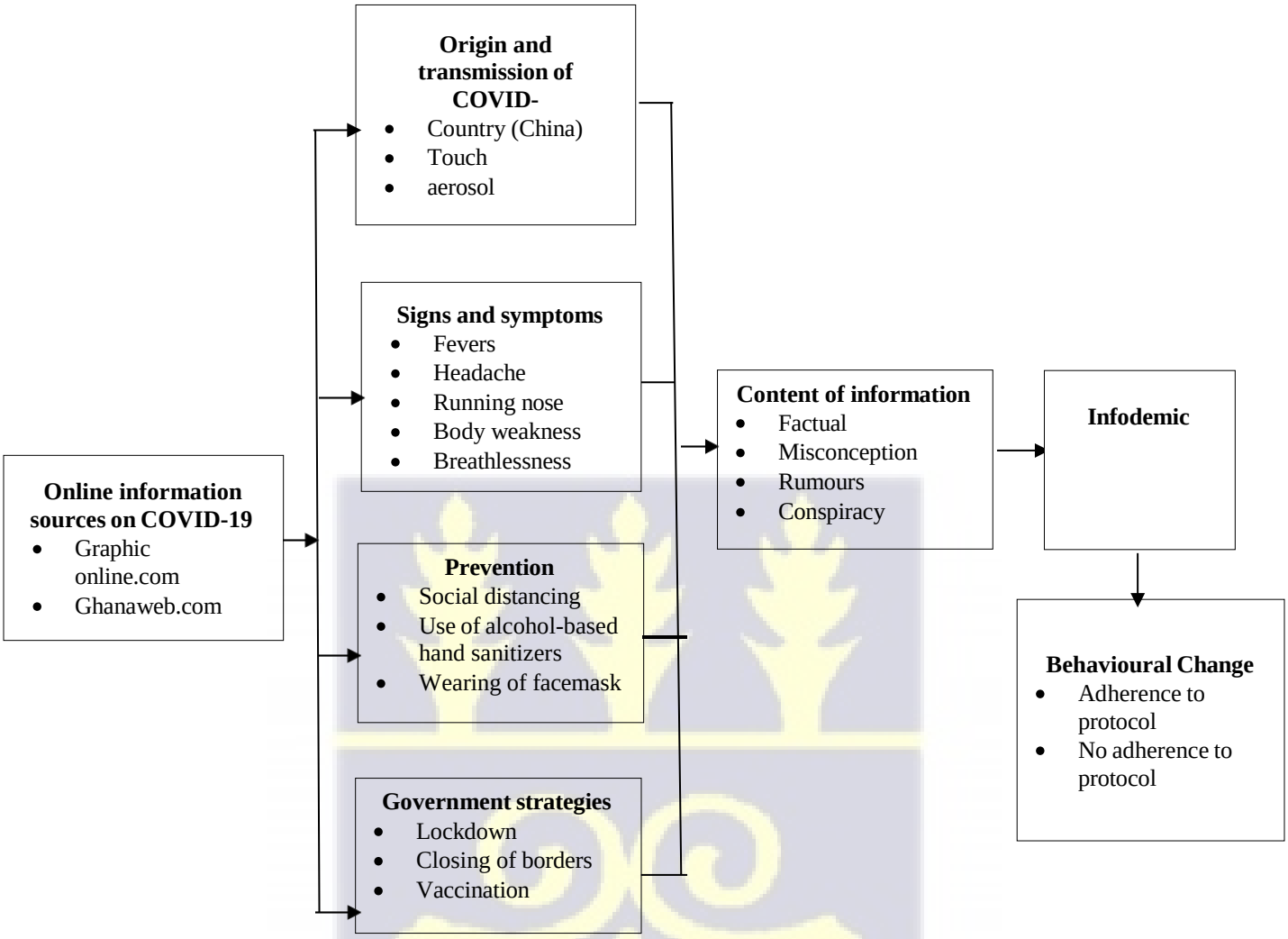


Figure 1: Conceptual frame for study of COVID-19 Infodemic in Ghana, 2021

1.6 Purpose of the Study

Effective media communication is fundamentally a central responsibility of public health professionals amid a health crisis (WHO, 2007). Local media are important sources of information for the public during health emergencies. This makes the role of editors, reporters, and health communicators as agents of change even more important (Embertson, 2006). Considering

their crucial roles during health emergencies they must be guided and shaped in a way that their reports online do not affect the mental health of individuals and also interfere with government policies. Misinformation and disinformation, particularly on the internet and social media, have contributed to COVID- 19 vaccination hesitancy and weakened use of face masks, putting millions of lives at risk (Petropoulos, 2021).

Accordingly, this study would help these categories of professionals to be better informed about the nature and impacts of online coverage of important health issues like the COVID-19, which also presents a communication crisis that needs to be managed for better results. For the Ministry of Health and Ghana Health Service, the significance of the study lies in the knowledge of what social and behaviour change communication messages are adaptable for digital platforms.

Major work on analysing news content as covered by online news platforms and how ownership affects news content on a digital platform in respect of their perceived credibility and depth of meaning of issues, the study will fill gaps in knowledge about the contribution of online news coverage and official government handling and managing of the COVID-19 disease.

1.7 Scope of the Study

This study is limited to only COVID-19 news coverage by two online news platforms: Graphic Online and GhanaWeb.com. The study seeks to identify and examine Covid-19 related infodemics from these two sources of news. With sampled news stories from a total number of news stories covered by the two digital media platforms over five months, from March to July 2020. These sources of news have been identified to provide accurate, up-to-date, accessible information and are a great source of news for most of the other media houses.

1.8 Organisation of the study

This study is organised into six chapters. The first chapter is the introduction, which covers the background to the study, problem statement, objectives of the study, research questions, significance of the study, and organisation of the study. The second chapter is devoted to the review of literature relevant to the study. The review focuses on both theoretical and empirical literature and ends with a chapter summary. The third chapter provides the research methods employed, which include the research design, nature and data sources, data processing and analysis, and chapter summary. Chapter Four presents the results of the study. Chapter five is the discussion based on the research questions. The last chapter (six) provides the summary, conclusions, and recommendations of the study, as well as the suggestions for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The emergence of the COVID-19 and its subsequent declaration as a pandemic by the WHO has generated volumes of information globally and particularly in Ghana. While some of these pieces of information are accurate, others are inaccurate or not true. This study examines COVID-19 related infodemics in Daily Graphic online and Ghanaweb.com, content analysis in Ghana. This chapter reviews literature relevant to the study. It specifically focuses on both theoretical and empirical studies in this area. The theoretical review highlights the communication theory and conspiracy theories and their implications for the study, while empirical addresses the empirical studies conducted on infodemics during health emergencies.

To situate the literature review in proper context, it is necessary to differentiate between two terms "infodemic" and "misinformation" and identify how infodemic aids misinformation during a crisis. Infodemic, a combination of two other terms "information" and "epidemic", means an overabundance of information, with some accurate, true or correct and others inaccurate, untrue or incorrect which makes it uneasy for the population to identity reliable, trustworthy, authoritative sources of information and reliable guidance when needed. Misinformation, on the other hand, is false, fabricated, or inaccurate information deliberately circulated to deceive people, especially during crises such as the COVID-19 pandemic. The observed global advancement in technology coupled with the proliferation of social media handles has significantly culminated in exponential production of information and the number of possible paths for getting it, promoting infodemic production. A colossal proportion of misinformation is influenced by conspiracy theories.

2.2 Overview of COVID-19 Pandemic Infodemic

This study is about infodemics as it relates to the outbreak of SARS COVID-2, more commonly referred to as COVID-19. Infodemic is a terminology coined by international relations professor David Rothkopf in a Washington Post article in May 2003 following the outbreak of the Severe Acute Respiratory Syndrome (SARS). The word is a combination of information and epidemics. It is used to describe "an overabundance of information, some of which could be accurate and others not (Islam et. al, 2020). An infodemic depicts a situation of rapid and wide spread of information especially wrong and falsified information comparable to the spread of a disease during an epidemic.

In the last few decades, infodemic has accompanied major public health emergencies compounding disease spread and incidence and making them more lethal than they would otherwise be. The world now has far superior avenues – emails, WhatsApp, Facebook, twitter, Youtube, online media platforms, electronic and print media among others – for the rapid spread of information of all kinds including outright lies. It is in this context that the world had to fight both COVID-19 and its associated infodemics. Indeed, the word infodemics has gained considerable prominence in the last two years since the outbreak of COVID-19. In a speech on February 15, 2020, the Director General of the World Health Organisation (WHO), Tedros Adhanom Ghebreyesus indicated that "the world was fighting both an epidemic and infodemic. He emphasised that fake news spreads faster and more easily than this virus and it is just dangerous".

Infodemic "makes disease outbreaks harder to control and contain" (Rothkopf, 2003). It leads to unwarranted panic and fear hurting public health. By propagating disease spread, infodemic often

leads to disproportionate adverse impact on the economy, national and personal security, politics and social relations. Infodemic can be more dangerous than the disease epidemic (Al-Zaman, 2021; Rothkopf, 2003). According to Al-Zaman (2021), "Highly concentrated alcohol could disinfect the body and kill the virus. This single piece of misinformation claimed 800 lives worldwide. Additionally, 5876 people were admitted to hospital and 60 more developed complete blindness caused by another source of misinformation related to a cure for COVID-19".

In Ghana, COVID-19 misinformation and myths flourished on both social and traditional media. Among the popular myths were: spraying alcohol or chlorine all over your body can kill the new coronavirus (37.5%); eating garlic helps prevent infection with the new Coronavirus (36%); taking a hot bath and prevents the new coronavirus disease (33.4%); covid-19 virus cannot be transmitted in areas with hot and humid climates (30%); regular raising your nose with salt water help infections with the new Coronavirus (30%); antibiotics are effective in preventing and treating the new Coronavirus (23%); and hand dryers are effective in killing the new coronavirus (27%) The survey was completed by mainly males (53%), 18 to 30 years (76%) mostly with tertiary level education (88%) and currently living in Greater Accra (36%) Ashanti (19%), Central (14%) and all other regions (31%) of Ghana (Ghanawebonline.com).

It is recommended that Ghanaians seek relevant information from credible authorities and that public health stakeholders address some of these misconceptions that are widely spread among Ghanaians.

2.3 Theoretical Review

This section of this chapter provides theoretical literature that supports the study while the second section addresses the literature on empirical works. The theories considered in this study include communication and conspiracy theories.

2.3.1 Communication Theory

The concept of communication theory, according to Littlejohn (1983), is often explained to encompass the body of theories that constitute our understanding of the communication process. Theories offer diverse ways through which observers perceive their environment, in the sense that theories are abstractions, every theory is partial. Every theory relies on a given set of assumptions and, therefore, it's worth can only be assessed based on how well it is developed. This fundamentally accounts for the observed disagreements about what constitutes an adequate theory of communication. The interest in who is doing what in a communication process and with what effects is the crucial focus of every communication theory, though it could be examined from dissimilar perspectives (Lasswell, 1948).

Whilst there are several authors on communication and several communication experts, there is no consensus on what "communication" or "to communicate" actually means (Van Ruler, 2018). In the view of Glare (1968), *communicare,* in classical Latin, meant "to share with," "to share out," "to make generally accessible" or "to discuss together". Amid the divergent views on what constitutes communication, Rosengren (2000) argued that communication has to do with the process of meaning creation: questions relating to how people make meaning psychologically, socially, and culturally; how messages are appreciated intellectually; and how ambiguity emerges

and is addressed.

Communication does not occur in a vacuum, without meaning, and people develop and apply meaning in interpreting events. Hence, the basic question concerns the understanding of "meaning" and how the process of meaning creation works (Littlejohn, 1983). There exists about three different lenses with which to consider how the process of meaning creation works in communication theory: (a) communication as a one-way process of meaning construction, a process whereby the sender attempts to construct or reconstruct the meaning created by the receiver; (b) communication as a two-way process of meaning construction, in which two or more people construct new meanings collectively; and (c) communication as an omnidirectional diachronic process of meaning construction, where the focus is on the continuous development of meaning itself (Van Ruler, 2018).

The initial theories of communication emphasised communication as a one-way process, where a sender does something to one or more receivers. But, the identity of this something remained a matter of debate. Some theories regarded communication as a process of dissemination, a flow of information in which a sender circulates a message to receivers by revealing its meaning within this message. The interest, at this point, is on the flow of information, where the information is considered as objective, as in Shannon's mathematical communication theory (Shannon & Weaver, 1949). Getting to the receiver is enough to ensure effective and successful communication. With the one- way transmission school of thought, other theories regard communication as an attempt by a sender to generate a predefined attitudinal change in the receiver, hence a change in the meaning of the situation as perceived by the receiver.

With the two-way lens of communication, interaction is an indispensable tool in communication.

Also, there are different interpretations of what "interaction" entails. Neumann (2008) asserted that the interaction originates from Latin and it not only means direct reciprocal dialogue but also to act upon each other and have influences on each other. In interpersonal communication theory, interaction is usually seen from the angle of person-to-person interaction or group interaction, as in Bales' interaction process analysis or Fisher's interaction analysis in which people respond to each other (Littlejohn, 1983). This notion can also be found in relational communication theory as constructed by Bateson, who concluded that every interpersonal exchange bears a message that contains the content of the communication, as well as a statement about the relationship itself. This is often termed as "metacommunication" (Watzlawick, Beavin, & Jackson, 1967).

Relationships develop out of the interaction between and among people, with several kinds of interaction rules to govern their communicative behaviours. By obeying the rules, the participants sanction the defined relationship. With the two-way process models, interaction is anchored on how people engage in conversations with each other and literally converge in creating meaning. However, at certain times and in this context, the concept of dialogue is applied to mean an emphasis on the acts of turning toward the other, and listening to each other with respect to differences to enhance the quality of the communication (Broome, 2009).

Following the omnidirectional lens of communication, interaction has a unique role to play differently from the one-way and the two-way processes afford-discussed. Considering the two-way models, the concept of interaction is normally narrowed to a consideration of the concrete interactions of the persons involved in conversations with each other. But with the lens of communication as an omnidirectional diachronic process of meaning development, interaction is perceived as a dynamic interplay between actors in their roles as senders and receivers,

which influences the outcomes of the communicative transactions at a fundamental level (Stappers, Reijnders & Möller, 1990).

Also, using this lens or process, interaction is centered on the social acts of all those engaged in a relationship with the communicative process itself and not so much focused on their relationship with each other. This could be described as a virtual process occurring at the level of the interpretations made by senders and receivers, which influence the meanings they give to a message and consequently the effects of the message. The lens on communication as an omnidirectional diachronic process of meaning development itself could be associated with Carey's (1975, 2009) ritual model of communication.

2.3.2 Conspiracy Theory

Conspiracy theories are efforts to explain the ultimate drivers of important social and political events and circumstances with accusations of secret plots by two or more powerful actors (Byford, 2011; Coady, 2006; Dentith & Orr, 2017; Douglas, Uscinski, Sutton, Cichocka, Nefes, Ang & Deravi, 2019; Keeley, 1999). While a conspiracy is regarded as a true causal chain of events, a conspiracy theory is an allegation of conspiracy that may or may not be true. Conspiracy theories could accuse any group perceived as powerful and malevolent. Conspiracy theories about the September 11 (9/11) attacks in the United States of America (USA) blame the Bush administration, the Saudi Government, corporations, the financial industry, and the Jews; and conspiracy theories about climate change criticize scientists, communists, the United Nations, Democrats, the government, and the oil industry (Douglas et al., 2019).

A concept closely linked to the conspiracy theory is conspiracy belief, which emphasizes belief in a specific conspiracy theory, or set of conspiracy theories. For instance, in Ghana, most people associated the demise of the Former President of the Republic of Ghana, H.E. Jerry John Rawlings

with COVID-19 infection. In the USA an estimated 60 percent of Americans believe that the CIA killed President John F. Kennedy (Douglas et al., 2019; Enders & Smallpage, 2018). Also, the term conspiracy theorist describes a wide range of concepts in both popular usage and literature. It refers to a person who believes in a particular conspiracy theory or has a strong tendency toward conspiracy thinking. It is sometimes applied specifically to denote a person who propagates conspiracy theories professionally or to people who vehemently advocate strongly for a conspiracy theory.

2.3.3 Factors that Influence the Adoptions of Conspiracy Theories

Conspiracy theories are adopted on the back of several factors including political, psychological (epistemic motives, existential motives, and social motives), and demographic factors.

Political Factors

Politics offers situations analogous to other social conflicts, where there are both losers and winners in competitive situations with one side being more powerful than other(s), and the stakes of the conflict are real. Fundamentally, conspiracy theories emerge often on the back of political events, particularly when such events inspire the psychological states linked to conspiracy beliefs, like low political trust, feelings of powerlessness, uncertainty, and unpredictability (Douglas et at., 2019).

Conspiracy beliefs could be fortified through the exposure of participants to redactions in government documents (Nyhan, Dickinson, Dudding, Dylgjeri, Neiley, Pullerits, & Walmsley, 2016) or to media environments in which conspiracies feature prominently in the news (Einstein & Glick 2013). Moreover, conspiracy theories can be strong during the period of uncertainty, i.e upcoming elections drive Americans to fear voter fraud (Edelson, Alduncin, Krewson, Sieja, &

Uscinski, 2017) and Poles to associate conspiracy theories portraying Jews as collective enemies to anti-Semitic attitudes (Kofta & Sedek, 2005). Premised on this, scientists are starting to investigate how conspiracy theories connect to political contests and events, what political factors influence conspiracy belief, and when conspiracy theories are used as persuasive political tools (Atkinson, DeWitt, & Uscinski, 2017). Public health events also have political undertones and people could use their writings for political gains. For example, Tabong and Segtub (2021) argued that Ghana experiencing the COVID-19 pandemic during an election year (2020) led to people using government response to propagate their political agenda on social media. It is therefore important to explore if such exist in the two online portals in Ghana.

Psychological factor.

Psychological factors influence the adoption of conspiracy theories. Several studies have focused on the psychological factors that increase the likelihood of believing conspiracy theories. Existing evidence seems to suggest that some conspiracy beliefs strongly correlate with each other. Moreover, individuals who rely on conspiracy theory usually turn to other conspiracy theories to justify why their pet theory has amassed no positive proof or support (Boudry & Braeckman, 2011, cited in Douglas et at., 2019). The psychological factors could take the forms of epistemic motives, existential motives, and/or social motives.

Epistemic motives also affect reliance on conspiracy theories. These theories appear to provide broad, internally consistent explanations that allow people to preserve beliefs in the face of uncertainty and contradiction. Again, belief in conspiracy theories seems to be stronger when people perceive patterns in randomness (van Prooijen, Douglas, & de Inocencio, 2018; Dieguez, Wagner-Egger, & Gauvrit, 2015). Conspiracy belief is also stronger among people who consistently seek patterns and meaning in their environment, such as believers in paranormal and

supernatural phenomena (Drinkwater, Dagnall, & Parker, 2012; Oliver & Wood, 2018). Nonetheless, conspiracy theories might appear to satisfy some epistemic motives at the expense of others. Other cognitive processes linked to conspiracy beliefs involve a tendency to accept epistemically unwarranted beliefs (Lobato, Mendoza, Sims, & Chin, 2014), a quasi-religious mentality (Wagner-Egger, Delouvee, Gauvrit, & Dieguez, 2018), and lower levels of intelligence (Stieger, Gumhalter, Tran, Voracek, & Swami, 2013). Lastly, conspiracy beliefs have been associated with factors like nonclinical delusional thinking (Dagnall, Drinkwater, Parker, Denovan, & Parton, 2015) and schizotypy (van der Tempel & Alcock, 2015). Generally, there is proof that conspiracy theories seem to appeal to individuals who seek accuracy, but maybe lack the cognitive abilities or experience problems that preclude them from being able to discover accuracy and meaning through other more rational means (Douglas et at., 2019). The flood of information on the two online portals (Graphic and GhanaWeb) may make it difficult for people to be able to distil between true information and conspiracy.

Existential motives influence the adoption of conspiracy theories. People may equally fall on conspiracy theories when their existential needs are threatened, as a way to compensate for those threatened needs (Douglas, Sutton, & Cichocka, 2017). For instance, individuals who lack agency and control may reclaim some element of control by believing conspiracy theories because they provide the opportunity to refute official narratives and allow people to feel that they have a better account. In line with this thinking, several studies have revealed that conspiracy beliefs are connected to feelings of powerlessness (Zarefsky, 2014), anxiety (Radnitz & Underwood, 2017), anxious attachment style (Green & Douglas, 2018), and existential anxiety (Newheiser, Farias, & Tausch, 2011).

Conversely, experimentally strengthening people's sense of control appears to reduce conspiracy beliefs (van Prooijen & Acker, 2015; van Elk & Lodder, 2018). Also, studies have shown that conspiracy beliefs are correlated with alienation from the political system and anomie (Nyhan & Zeitzoff, 2018). Belief in conspiracy theories is also associated with a belief that the economy is getting worse (Parsons, Simmons, Shinhoster, & Kilburn, 1999). Conspiracy theories may allow people to come to terms with particular problems, enabling them to regain some of the psychological goods that they have lost (Franks, Bangerter, & Bauer, 2013). Accordingly, Federico, Williams, and Vitriol (2018), and Jolley, Douglas and Sutton (2018) have established that conspiracy theories might cushion people from threats to the social system in which they live. On the social motives of the adoption of conspiracy theories, people commonly have the need to maintain a positive image of the self, and conspiracy theories could be helpful in this regard. The endorsement of conspiracy theories is associated with narcissism, an exaggerated self-view accompanied by the need for external validation (Cichocka, Marchlewska, & Golec de Zavala, 2016). Meanwhile, Lantian, Muller, Nurra and Douglas (2017) have demonstrated the existence of links between conspiracy beliefs and the social-psychological need to feel unique to others. Conspiracy theories are more likely to be prevalent among low-status categories of persons bidding to justify their status.

In conclusion, studies on the psychology of conspiracy theories conjecture that epistemic, existential, and social motives influence conspiracy belief. Whether or not these psychological motives are satisfied by conspiracy theories is another issue of concern, and research would recommend they are not and that conspiracy theories might even trigger more harm than good (Douglas et al., 2017).

Demographic Factors

Efforts have been made to chart the social traits of those susceptible to conspiracy theories. Higher levels of conspiracy reasoning correlate with lower educational attainments and lower levels of income in the USA (Uscinski & Parent, 2014). Moreover, Freeman and Bentall (2017) established that conspiracy believers were more likely to be male, unmarried, less educated, lower-income earners, unemployed, a member of an ethnic minority group, and/or have weaker social networks. Van Prooijen (2017) found support for two additional mediating factors - greater feelings of control and a general doubt that complex problems may have simple solutions.

Even though neither of the identified studies found a causal association between educational attainment and conspiracy beliefs, they presuppose that education could offer people intellectual and affective characteristics that afford them the understanding to fight conspiracy theories. Craft, Ahsley and Maksl (2017) intimated that news media literacy decreases conspiracy theory endorsement. The causal relationships between conspiracy beliefs and income are also indeterminate. This might imply that firms reject those who advocate conspiracy theories or that those who advocate conspiracy theories avoid businesses that pay higher wages (Douglas et at., 2019). People with the lowest levels of conspiracy beliefs are the most likely to work in the financial industry or for government or the military (Uscinski & Parent, 2014).

2.4 Empirical Review

2.4.1 COVID-19 Online Infodemics

This section of the study seeks to review empirical works done on infodemics during health emergencies. Kouzy et la, (2020) designed a study to quantify the COVID-19 misinformation epidemic on Twitter. Employing 14 dissimilar trending hashtags, keywords in connection with the

coronavirus pandemic, and 673 tweets, the study established that medical misinformation and unverifiable issues relating to the COVID-19 pandemic were circulated distressfully on social media.

Yang, Pierri, Hui (2021), in analysing social media information surrounding the COVID-19 pandemic, examined the credibility of information sources about the pandemic shared on two major social media platforms: Facebook and Twitter. They employed the content analysis technique based on the data collected. The study found evidence of coordination in the spread of pandemic information from low-credibility sources by so-called super-spreaders on both platforms. In assessing the results of the study, it was found that they provide more insights into the types of accounts that engage in spreading COVID-19 misinformation on social media platforms. However, this study did not show the research design and the actual sample used.

Pascual-Ferrá, Alperstein, Barnett and Rimal (2021) explored the expressions of dissatisfaction regarding a particular governmental COVID-19 policy. Specifically, the research team analysed the role of toxicity and verbal aggression in public discussions on Twitter about mandatory mask-wearing. By employing a qualitative approach, the results showed that anti-mask-related messages were more likely to include toxic exchanges in comparison to messages supporting this practice. The only exception was tweeted condemning the anti-mask supporters. The study further revealed that the presence of toxic language in the conversations around mask-wearing in public may create challenges for health agencies when trying to communicate the latest science-based evidence on the effectiveness of facial masks in slowing down the spread of the virus. The study also demonstrated that public health authorities could use the toxicity analysis to monitor and potentially predict the public's uptake of different health advice, directions, and mandates. It is therefore important to explore how the two the popular online news sources in Ghana construct

the narrative around COVID-19.

2.4.2 Online Reportage on Origin and Source of COVID-19

Following the initial outbreak of the condition in China, there has been debate about the origin of the virus in various news portal across the world. Some of these reportages are acknowledge the lack of clarity on the origin of the virus. The British Broadcasting Corporation (2021) online portal reports that US intelligence agencies say they may never be able to identify the origins of COVID-19, but they have concluded it was not created as a biological weapon. It was reported that the Office of the US Director of National Intelligence (ODNI) said an animal-to-human transmission and a lab leak were both plausible hypotheses for how the virus spread. The report also said Chinese officials were unaware of the existence of the virus before the initial outbreak of COVID in Wuhan, in late 2019. This assertion raised doubt about the origin and when the outbreak began. Contrary to the above position, the CNN also reports that there is consensus that the virus was not bioengineered, nonetheless the new portal acknowledges that there is a chasm within the scientific community on whether the virus spilled over directly from animals to humans or was the result of a possible lab leak (CNN, 2021). In related publication, Aljazeera reports that the United States intelligence community is unable to agree on the origins of the new coronavirus that causes COVID-19, but there are agreement Chinese officials did not “have foreknowledge” of it before the 2019 outbreak (Aljazeera, 2021).

2.4.3 Online Reportage on Signs and Symptoms and Management of COVID-19

The signs and symptoms of disease vary and have been constructed differently by news portals as well as social media internationally. The BBC for example reported that COVID-19 presents as cold or flu. Along with a cough, there may be sneezing and a sore throat and runny nose, fever,

chills, muscle aches and headaches are rare (BBC, 2021). The signs and symptoms were similar across all news portal globally.

Haupt, Li and Mackey (2021) also assessed the quality of information shared on social media. Specifically, the study examined the Twitter discourse around the use of the antimalarial drug hydroxychloroquine for treating COVID-19. The study found two alarming trends in their data. First, tweets supporting COVID-19 treatment relied on carefully crafted narratives that misused and mischaracterized scientific literature as a ploy to increase tweets' perceived credibility. Second, the authors found that many accounts that shared false claims on this topic appeared to be supporters of former US President Donald Trump and those medical doctors or scientists who engaged in debunking false claims about hydroxychloroquine were less influential on Twitter than the proponents of the drug. Here, the study did not tell the type of research approach, design and analytical tool used.

Green, Musi, Rowe, Charles, Pollock, Kypridemos and Sheard (2021) also examine the public discourse and information sharing practices on Twitter based on a large sample of tweets ($n > 2$M). The reason is to test the impact of the first lockdown order in the UK on the subsequent spread of COVID-19 related misinformation. The study revealed an increase in the volume of tweets following the lockdown announcement in general. However, the study further indicated that misinformation- related tweets were not any more prominent after the announcement than before. Once again, this study also did not tell the type of research approach, design and analytical tool used.

In a related manner, Rimal and Storey (2020) in explaining people's perceptions on COVID-19 vaccination assert that vaccination decision-making and its associated information is also influenced by people's social networks, which include family members, friends, health professionals and others with whom they interact, as well as the sources of information they consult. They continued that the likelihood of vaccine uptake is found to be reduced when a large proportion of people in one's social network did not recommend vaccination.

2.4.4 Effects of Infodemics on Social and Behavioural Change Communication

Gallotti, Valle, Castaldo, Sacco and De Domenico (2020) examined the COVID-19 co-evolving infodemics and rapid and far-reaching spread of information of questionable quality. The study was based on more than 100 million Twitter messages posted worldwide during the early stages of the epidemic spread across countries and classified the reliability of the news being circulated. The study developed an Infodemic Risk Index to capture the magnitude of exposure to unreliable news across countries. The study found that measurable waves of potentially unreliable information preceded the rise of COVID-19 infections, exposing entire countries to falsehoods that pose a serious threat to public health. The study further indicated that, as infections started to rise, reliable information quickly became more dominant, and Twitter content shifted towards more credible informational sources. In all, infodemic early-warning signals provide important cues for misinformation mitigation through adequate communication strategies. However, the study is devoid of in-depth analysis for policy development.

In addition, the study indicated that, encouragement and social pressure from people that an individual respects and trusts were found to increase vaccine uptake. Thus, a willingness to get vaccinated, or an unwillingness to do so, can spread through a social cascade as one group of individuals influences another, and then the two influence a third, and so on. Targeting people who are centrally located in the network such as health professionals who have more opportunities to influence vaccination behaviour can lead to a greater impact of behaviour change efforts. Nonetheless, this study failed to indicate the methods and research design employed the carry out the study.

Alvarez-Galvez, Salinas-Perez, Montagni and Salvador-Carulla (2020) studied the persistence divide in the use of health information using a comparative study based on a sample of 28 European countries. The findings of the study indicated that the spread of self-medication cases, the proliferation of miracle diets and treatments, the anti-vaccine movements and the growing vaccine hesitancy, uninformed decision making about health-related questions, and inexpert diagnosis are some of the common risks associated with the use of new media. It can be inferred from the study that, even though the study stressed the use of information and medication-related issues of COVID-19, the research design and the statistical tool for analysing the responses gathered in the study were not disclosed.

Regarding misinformation related to COVID-19, Micallef, He, Kumar, Ahamad and Memon (2020) investigated the tendency of the misinformation and counter-misinformation tweets based on two predefined topics, namely Fake Cures and 5G Conspiracy Theories. The study concluded that there were many infodemics related to COVID-19 which put fears in many people

and it is still fast-evolving. This study did not disclose the methodology, approach and research design employed in investigating the dataset used the implications of the information.

Pulido, Villarejo-Carballido, Redondo-Sama and Gómez (2020) examined the type of tweets that circulated on Twitter around the COVID-19 outbreak for two days, to analyze how false and true information was shared. the study employed a content analysis approach based on 1000 tweets. The results of the study showed that false information is tweeted more but retweeted less than science-based evidence or fact-checking tweets, while science-based evidence and fact-checking tweets capture more engagement than mere facts. However, a detailed analysis should have been done for policy recommendations and implications.

In a similar study, Rodríguez et al., (2020) aimed at comparing the type of Tweets and Sina Weibo posts regarding COVID-19 that contain either false or scientific veracious information. For analysis, the study sampled 1923 messages from each social media, classified and compared. The results show that there is more false news published and shared on Twitter than on Sina Weibo, at the same time science-based evidence is more shared on Twitter than in Weibo but less than false news. Nevertheless, this study did not show the research approach and design employed in carrying the study.

Shahi and Nadini (2020) studied the frequency of infodemics associated with the COVID-19 pandemic by employing a content analysis. The based on the information gathered indicated that detecting misinformation is a cumbersome task requiring a specially trained workforce to distinguish between fake news and real news. Thus, the velocity, veracity, and diversity of fake news available on social media platforms, newspapers, and news channels occur in multiple

domains. The study further prosed that due to the volume of information and resource constraints, an automated tool for misinformation detection is required. However, the study should have indicated the approach and the implications of the results.

Wang, McKee, Torbica and Stuckler (2019) in their systematic review analysed the spread of health-related misinformation on social media by employing a systematic review approach based on some sample of individual studies. The study indicated that, although mass media can also contribute to the propagation of poor-quality information during public health emergencies, social media seem to be an ideal channel to spread anecdotal evidence, rumors, fake news, and general misinformation on treatments and existing evidence-based knowledge about health topics. According to them, for instance, it is easy to find poor quality and misleading information on the MMR vaccine (and its relationship with autism) both on the internet and social media such as Twitter, Facebook, or YouTube.

Liang, Fung, Tse, Yin, Chan and Pechta (2019) analysed the spread of information on Twitter in China during the time Ebola outbreak using content analysis. The study revealed that during information dissemination in the event of an Ebola outbreak, opinion polarization and echo chamber effects can increase (mis)information divides due to the homophily between social media users, but also the resistance to evidence-based knowledge and behavioral change between community members. The study further stressed that, in the context of social media such as Facebook or Twitter, people tend to spread either good or bad information to their friends.

Xiong and Liu (2014) assessed the opinion information on social media with a focus on empirical approach in China. The study used a systematic review approach and found that unequal access to

information and the development of abilities for using new media can produce inequalities in the accessibility to health-related information, and therefore in health and social the well-being of the population. However, this did not indicate the analytical tool used in analyzing the selected articles.

Lewandowsky, Ecker, Seifert, Schwarz and Cook (2012) in their study on misinformation and its correction about the continued influence and successful debiasing using content analysis depicted that predominantly narratives in the media can also skew people's perception of what the majority believe and do. Thus, the study further stressed that anti-vaccine sentiments expressed by relatively small but vocal groups may be promoted so that they are erroneously seen as capturing a widespread or even majority view. The study continued that, during a pandemic in which people may be confined to their homes, perceptions of other people's behaviours are more likely to be inferred from mainstream and social media and via information online, and less likely to result from direct interactions. The study finally suggested that maximum education should be given on the media on the importance of providing context when reporting on anti-vaccine sentiment, to make sure that people do not form an erroneous impression that this is the dominant viewpoint.

2.4.5 Online Reportage on Prevention and COVID-19 Remedies

Onwe, Chukwu, Nwamini, Nwankwo, Elem, Ogbaeja and Ogbodo (2020) in their study on analysis of Online Newspapers' Framing Patterns of COVID-19 in Nigeria, showed three online newspapers framed the outbreak of COVID-19 pandemic in Nigeria. The study used relational Content Analysis as its design. The study's findings show that fear and death, government and/political influence, and palliative frames emerged as the dominant frames across the three online newspapers studied for three months. It however did not add the period within which data

was collected. The study makes it clear that online newspapers reported COVID-19 outbreak in ways that made the people who used them nervous before the eventual outbreak of the pandemic. The study therefore recommends that online newspapers should report more on palliative than the usual online stories on fear and death frames especially during future health emergency reporting. Steam inhalation was also reported in some online portal This was believed to prevent the virus from descending into the lower respiratory tract to cause more severe condition. The misconception about the use of steam has its roots in traditional management of flu in Ghana. Steam inhalation is something that has been used to cure cold over the years as it relieves the person of nasal congestions and other flu symptoms. Although steam inhalation can provide relief for nasal congestion (Little et al., 2016), it has not been established it can protect one against COVID-19 infection as was widely circulated and patronized.

In the fight against Ebola in the Democratic Republic of Congo, for instance, many did not believe the disease exists nor associated its spread with healthcare workers and therefore avoided seeking treatment (Mian et al., 2019).

2.5 Chapter Summary

This chapter reviewed literature relevant to the study. It covered both theoretical and empirical literature relevant to the study, infodemics during health emergencies. In terms of theory, the two important theories such as the communication theory and the conspiracy theory were adequately reviewed. The empirical review, however, also considered several empirical works done on infodemic, particularly during the COVID- 19 pandemic.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter is devoted principally to the description of the research methodology employed in this study. The chapter elaborates the specific area of the study and specifies the research design. It also describes the approach to data collection including a description of the sampling technique. The chapter also explains the technique for data analyses, which is based on the content analysis framework. The main variables of interest are also delineated and explained.

This study examines information on COVID-19 published in two popular online news portals from March to June 2020. This period marked a pivotal time in Ghana's battle against the virus. In March 2020, the country recorded its first case of the virus. The Ghanaian government began rolling out series of measures not only to curb the spread of the virus but also to mitigate the economic and social impacts of the containment measures. Information about the disease was scanty during this period many people relied on unverified sources in their quest to learn more about the virus. Unfortunately, significantly proportion of the available information was not factual. The closure of the country's borders and lockdowns of Accra and Kumasi considerably raised awareness of the disease among the population. But the information persisted and was occasionally filled with rumors, myths, misinformation, and outright falsehoods. Apart from creating fear and panic, it provided a fertile ground for further spread of the disease and made it more lethal. For example, the recourse to unscientific cures meant that people with symptoms either failed to report earlier the health centres or did not report at all. This resulted in avoidable deaths. It also meant exponential spread of the virus.

3.2 Study Design

As indicated earlier, this dissertation undertakes content analysis of COVID-19 related infodemic in Ghana. Content analysis is a research tool that is mostly applied in qualitative research. It involves systematic analysis of communicative materials to determine the presence or otherwise of certain words, themes, or concepts within the text. The analysis is done with the view of interpreting the identified words and making inferences. Holsti (1968), defines content analysis "any technique for making inferences by systematically and objectively identifying special characteristics of messages." According Berelson (1952) content analysis is "a research technique for the objective, systematic and quantitative description of the manifest content of communication."

Content analysis is useful in identifying intentions or trends in communication of given individuals, groups, or institutions. It also helps to describe attitudes and behaviour responses to communication. The paucity of information on COVID-19 in the early phase of the pandemic and the general polarization of the Ghanaian society, makes the technique of systematically anaylsing content in a situation of scarce knowledge and information attractive. Content analysis can be done using wide array of data sources including texts that come different formats – video, picture, and audio. The popularity of content analysis as research design technique has soared in recent times. Between 1991 and 2002, more than 4,000 studies across the world relied on employed the technique of content analysis (Hsiu-Fang, Sarah & Shannon, 2005).

The literature has three approaches to content analysis. These are conventional, directed, and summative (Hsieh & Shannon, 2005). The three approaches converge on the tasks of identifying and interpreting meaning from texts. The main difference among the three approaches is in their

coding schemes and origins of codes. Conventional content analysis is based on coding categories derived from the text data being analysed. In directed approach, content analysis proceeds from a theory or relevant research findings, which becomes a guide for the coding. Summative content analysis, however, is based on counting and comparisons of keywords or themes and subsequent analysis and interpretation of their fundamental meanings or context.

This study utilizes summative analysis. This is because the coding scheme is simpler and convenient. It is more relatively less prone to biases unlike say the directed approach where findings of other research become the guide for coding, which can seriously influence coding and interpretation. By directing coding from the text being analysed, the summative approach almost eliminates external bias that flows from the knowledge of findings elsewhere.

By using the summative approach, I identified keywords associated with COVID- 19 and government measures to either curb it or assist citizens impacted by its outbreak. These were referred to as themes. The immediate goal was to count the frequency of use of those keywords – the manifest content analysis. The study progressed to undertake the latent analysis, exploring the veracity of the content derived from the themes. Stated differently, having identified the themes, the analysis was extended to explore the underlying context and, in this case, to determine the weather content is true of false. That exploration was a simplified fact check where content was compared with information from WHO or Ghana Health Service (GHS) websites.

The summative approach to content analysis, while useful and convenient has its own drawbacks. One of such disadvantages is that broader meanings might elude the analyst. Also, the likelihood of subjectivity could be high. This is particularly so when meanings in the data being analyzed are not explicit.

3.3 Selection of Sources and Sampling Strategies

The data for this study were sourced directly from articles and publications on COVID-19 from two media outlets namely, graphic online and ghanaweb.com between the period (March to July 2020). The sample included fifty (50) articles and publications. The sampling methodology was purposive – all articles/publications with the words/phrase "COVID-19", "SARS-COVID2", "global pandemic" and "novel coronavirus" published in the period were sampled. This included feature articles, opinion pieces, special reports, research reports, events reporting and letters to the editor. Publications on Ghanaweb.com that were sourced from Graphic were assigned to the Daily Graphic. Articles were downloaded from Graphic online and Ghanaweb.com from dedicated Covid -19 news category and surfing online (n=50). Twenty-two were from the Daily Graphic and 28 from Ghanaweb.com. Articles or publication with foreign origins were excluded. Also excluded publications that came directly from the Ministry of Health (MoH), Ghana Health Service (GHS) or from the Government of Ghana (GoG). And stories that fall out of the study period or made no reference to the themes/phrases were also excluded.

3.4 Ethical Approval

This study did not involve interviews with human participants. As such ethical approval was not required

3.5 Data Analysis

All articles and stories retrieved through the search were reviewed for correctness. Deduplication was done before analysis of the content. The articles were copied to MS word and saved in Portable Display Format (PDF). The PDF forms of the articles were imported into NVivo 10 software for

coding. A codebook was developed based on the study objectives. Nodes were created in NVivo to reflect the names on the codebook. Each article was then opened and coded according to the nodes. Coded segments were regrouped into themes. The main themes of interest were: COVID-19 origin coded as CR-19; Transmission mechanism coded as TM-19; Symptoms of COVID-19 coded as SC-19; Effects of COVID-19 designated as EC-19; Remedies or cure for COVID-19 coded as RC-19; Government interventions coded as GI-19. Each publication was assigned to one of the six main groups/themes.

In addition, the information was compared with WHO evidence to classified publications into factual or non-factual information using a data extraction sheet (see appendix B). The themes provided the framework for further analysis – the latent content analysis. Information extracted from each publication or article on these variables were cross-checked with information on either GHS website or WHO website to determine their veracity or otherwise.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter provides the results of the study, which examines COVID-19 related infodemics in Graphic online and Ghanaweb.com. The results are presented based on the thematic areas identified from analysis stories/publications from the two online portals during the period covered by the study.

4.2 Data Presentation

As indicated earlier, the search of COVID-19 related stories on the graphic online and ghanaweb.com produced several stories. Fifty of such stories were sampled for the detailed analysis included in this study. Based on the analysis, the stories were categorized into six (6) different themes. These are COVID-19 origin coded CR-19, transmission mechanism (TM-19), symptoms of COVID-19 (SC-19), effects of COVID- 19 (EC-19), remedies/preventions of COVID-19 (RC-19), and government interventions (GI-19). Table 1 details the allocation of the stories/publications/articles to the different themes. And as shown in the table, more than half of the stories/publications/articles retrieved and analysed made reference to remedies and cures for COVID-19. One-third of the stories referred to how the virus is transmitted from an infected person to another (i.e., the transmission mechanisms of the virus).

Table 1: Distribution of sampled articles/publications

Theme	*Daily Graphic*	*Ghanaweb.com*	*Total*
CO-19	5	5	10
TM-19	10	7	17
SC-19	2	1	3
EC-19	0	2	2
RC-19	8	18	26
GI-19	8	10	18

4.3 Origin and Transmission of COVID-19

In all, 17 out of the 50 publications/stories/articles alluded to how virus that causes COVID-19 is transmitted. This represents a little over one-third of the publications/stories analyzed for the study. Ten of these were from the Graphic online and 7 were from the Ghanaweb.com. COVID-19 was reported as an infectious disease caused by the SARS-CoV-2 virus which origins from China. The bulk of the stories referred to the idea that the COVID-19 virus was transmitted from animals (bats) to humans. While alluding to the animal origins of the virus, a couple the stories indicated that there is no conclusive evidence on the origins of the virus. Two publications/stories referred to the idea that COVID-19 originated from a laboratory in Wuhan, China. One publication/story mentioned the notion of a virus purposefully made to control the growth of the human population. And one publication/story referred to the COVID-19 virus as coming of the 5G network. However, there was a contrary reportage on the

origin of the virus. For example, in March 2020, it was reported on graphic online about politicalizing the origin of the virus as follows:

> *"Origin-tracing is a matter of science. It should be and can only be done by scientists. Unfortunately, however, under the political manipulation of individual countries, origin-tracing has been politicised and used as a tool to shift responsibility and divert contradiction"*

As part of helping the population to understand the COVID-19 disease and how it emerged, the sources used in this study explained that the disease originated from Wuhan, the capital of Hubei Province of China due to human contact with animals including bats and rats. Accordingly, the Chinese have been criticised for their indiscriminate consumption of animals such as snakes, rats, bats, and even cockroaches on reportage on Ghanaweb.com as follows:

> *"Chinese do not discriminate in what they eat. As a result, they have caused a global pandemic and people are from COVID-19"*

Similar stories were reportage by graphic online in April 2020 an extract from a publication reads as follows:

> *"Eating of snakes, bats and other animals have in recent times caused the world four outbreaks of infectious diseases such as SARS, MERS Ebola and now COVID-19. thanks to the people of China"*

There were reportages on another dimension that suggests that the COVID-19 disease was an outcome of a laboratory experiment that got leaked. In other words, the SARS COVID-2 virus was specially created in a laboratory. There is also the view that blamed advancement in technology as the source of the virus. In this view, the attempt to introduce the 5th generation mobile network (5G wireless) technology – to deliver higher multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users has specifically been blamed as the source of the deadly virus. Both graphic online and Ghanaweb.com carried stories that linked the COVID-19 pandemic to mobile

technology. Extracts from reportage on both graphic online and Ghanaweb.com are as follows:

> *"There are claims that COVID-19 was created in the laboratory... and linked to the so call 5G network"* (graphic online, 15th April, 2020)

> *"The WHO has deplored a team of scientist to Wuhan China to investigate the claim that COVID-19 was created in a laboratory in China. We hope the truth comes out"* (Ghanaweb.com, 18 June, 2020)

Also, some publication identifies sexual intercourse as a potential mechanism for the transmission of the COVID-19.

4.4 Reportage on Signs and Symptoms, and Management

Given the differences in human physiology, people tend to display different symptoms when afflicted by any disease. COVID-19 is, therefore has several and different symptoms. The symptoms of the disease of infected persons do not only differ from one patient to the other, but also from one geographical area to another. In the absence of clinical confirmation, the identified symptoms of the disease go from common mild conditions, moderate illness and recovery without medication and hospitalisation to serious symptoms. Of the 50 articles/publications/stories analysed for this study a mere three of them talked about symptoms of COVID-19. The publications/stories largely report of symptoms COVID-19 to include fever/chills, cough, tiredness, loss of taste or smell, sore throat, headache, body aches and pains, nausea or vomiting, diarrhea, congestion or runny nose, a rash on skin, or discolouration of fingers or toes, red or irritated eyes, difficulty breathing or shortness of breath, loss of speech or mobility, or confusion and chest pains. An extract from one of the publications authored by a virologist stated:

> *"The initial signs and symptoms of COVID-19 include increase in body temperature (fever), cold with running nose, breathless and difficulty in breathing and general weakness*" (Ghanaweb.com, 15 June, 2020)

One publication classified the symptoms as follows: most common and usually mild symptoms, less common symptoms, and severe or serious symptoms. The first category of symptoms include

fever, cough, tiredness, loss of taste or smell; the common symptoms comprise sore throat, headache and body aches and pains, diarrhoea a rash on skin, or discolouration of fingers or toes, red or irritated eyes; and the last symptoms category are difficulty breathing or shortness of breath, loss of speech or mobility, or confusion, and chest pain. One article reports the signs and symptoms of COVID-19 as follows:

> *"The signs and symptoms of COVID-19 can be grouped into fever, cough, tiredness and loss of sense of smell. These are usually mild and very common. However, as the condition can also present in a more severe form such as shortness of breath and loss of speech and mobility"* (Graphic online.com, 28th June, 2020)

An article correctly reported that, on average, it takes 5–6 days from exposure (infection) to the virus for symptoms to appear, but it can take up to about two weeks (14 days) depending on the physiology but also health status of the infected individual In March 2020, Ghanaweb.com published an article titled "Nigerians in Ghana raise questions over confirmed coronavirus" in which they raised skepticism over the announcement of the first cases of COVID-19 in Africa, especially Nigeria. Some of the persons interviewed explained that "I believe it's a scam. The Ministry of Health, I believe they know about it, they have convinced the government to scam us". This is because they believe there are inconsistencies in the ministry's accounts of how the first case of COVID-19 came about. This is an indication of misinformation on COVID-19 since it is real and not a scam as propagated by those interviewed and reported by the online news portal, Ghanaweb.com.

There was also publication on the effects of the virus on mental health of individual. Some publication linked the disease to increasing levels of depression, anxiety and stigmatization for people who have recovered from the condition at the community level. This report indicated reintegration of COVID-19 survival was another pandemic that was imminent for Ghana to deal with as follow:

> *"..with the increasing stigmatization of survival, Ghana may have prepare to battle another pandemic which is reintegration of recovered individual into the community and the families"* (GhanaWeb, 15 June, 2020).

4.5 Reportage on Prevention and Remedies

There was a large volume of information in the system with regards to what individuals can do to prevent themselves, their households, and families from contracting COVID-19. Among the measures and precautions that flourished in society and media space to prevent the spread of the disease are frequent handwashing, sunbathing, taking of hard alcoholic drinks, drinking warm water, regular intake of fruits like pineapple, orange etc., consistent wearing of facemask, exposure to hot weather conditions, avoidance of handshakes and crowded areas, and not staying too long in an enclosed area among other. One publication in Graphic online states:

> *"COVID-19 can be prevented through drinking of warm water, eating fruits to boost your immune system.....use of barrier methods such as wearing of mask would be inhalation of the virus in the air"* (13th May, 2020)

While most people resorted to practicing some of these measures to prevent themselves from infection, others did not believe in them and continued to live their normal life (pre- covid period). There was a rumor that being black reduces the likelihood of COVID-19 infection. One publication on GhanaWeb alleges as follows:

> *"It has become obvious that the black race has protection against the virus…we do not only have fewer cases than in Europe and America but deaths as well. God has blessed the black race"* (30th June, 2020)

There were also publications on the use a locally manufactured nutrition supplement COA FS. This was believed to a good immune booster and could be a potential curse for COVID-19. Graphic online reported that this believed led to an increase in the demand, increase in the price and scarcity of the product in the Ghanaian market. An extract from a publication on Graphic online on 13

May, 2020 reads:

> *"Ghana may become the first country to discover a cure for COVID-19, the magical drug COA FS is very effective and is under consideration for approval"*

4.6 Reportage on Government Intervention to Prevent and Control COVID- 19

It was reported that government locked down parts of the country considered epicenters of the virus in the early phase of the pandemic. Thus, Greater Accra Metropolitan Area (GAMA) including Tema and Kasoa and Greater Kumasi were locked down. Government also placed a ban on public gatherings ban on all public gatherings. Schools and universities were also closed. The land, sea and air borders of the country were closed as well. Some extracts from articles published online as follows:

> *"The lockdown of Accra and Kumasi as a way of containing the spread of COVID-19 in Ghana was necessary but it resulted in hardship among some residents"* (Graphic online.com, 12th April, 2020)

> *"Government has closed land, air and sea borders after the condition has already been imported into the country.....it is better late than never*" (Ghanaweb.com, 18th April, 2020)

The Government again intensified public education on improved hygiene, social distancing, and face masks usage, distribution of PPEs to healthcare workers, increased domestic production of PPEs, and expansion of healthcare infrastructure. For example, the Ghana *Infectious Disease Centre* (GIDC) was constructed in a space of three months.

> *It is possible to look within for resources to develop the country.....thanks to COVID-19. Ghana is able to build an infectious disease hospital without borrowing" (*Ghanaweb.com, 24th July, 2020)

Frontline health workers were given allowance equivalent to 50 percent of the pay. They were also exempted from paying personal income tax. Schools, universities, and major marketplaces were disinfected by the government in collaboration with Zoomlion Ghana Limited.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter is devoted to detailed discussion of the resulted presented in Chapter four. The discussion is done based on the themes identified in the content analysis of the sampled publications and stories. The chapter there is organised around the six (6) themes namely, COVID-19 origin, its transmission mechanism, signs and symptoms of the disease, effects of the disease, remedies, and cures as well as government interventions. The chapter compares the information retrieved under each theme with information available on the WHO, GHS, and Ghana Government websites to determine the accuracy or otherwise of the information.

5.2 Origin and Transmission of COVID-19

The ability to establish the truth or otherwise of information of this nature can be challenging. Although these are largely proclaimed as origins of the COVID-19 pandemic, the actual sources of the disease remain unknown and a mystery thereby increasing the conspiracies about the disease. There is a growing debate among some sections of the population that do not believe in the existence and reality of the disease. They argue that they have not seen anybody infected with the COVID-19 even though they hear some people have died from the virus.

While these publications/stories alluded to street ideas of COVID-19 origins, they largely made efforts to emphasize that the global scientific community is yet to confirm the origins of the virus that causes COVID-19. Therefore, for the most part publications/stories from the two online portals analyzed for this study were true and in accord with information provided by the World Health Organisation (WHO) and the Ghana Health Service (GHS).

The disease is commonly transmitted through the respiratory processes when people inhale droplets and small airborne particles of an infected person while talking, breathing, coughing, sneezing, or singing (Wang, Prather, Sznitman, Jimenez, Lakdawala, Tufekci & Marr, 2021). An infected person has a higher probability to transmit the disease when they are in proximity physically than when they are distant apart. But COVID-19 infection can happen over longer distances, especially in an enclosed area. This mechanism of transmission of COVID-19 runs quite common in the publications of the news portals analyzed in this study. This accounts for the persistent insistence on social distancing and wearing of nose-mask protocols.

An individual person can get infected with the COVID-19 indirectly through touching or contact with an object or a surface such as a door handle that is contaminated with the disease before touching their face - mouth, nose, or eyes. Nonetheless, there is no strong evidence to support the volumes of new infections through this mechanism. Since prevention is better than cure, the publications from the two online news platforms sampled for the study encourage the citizenry to regularly wash their hands with soap and under running water, as well as use alcohol-based sanitizers.

In all, 17 out of the 50 publications/stories/articles alluded to how virus that causes COVID-19 is transmitted. This represents a little over one-third of the publications/stories analyzed for the study. Ten of these were from the Graphic online and seven were from the Ghanaweb.com. Some of the articles published on the portals were meticulous as they attempt to show how the virus is transmitted from person to person. They explained that the transmittable particles vary in size, ranging from small airborne particles often termed as aerosols that can practically suspend in the air for relatively longer period to larger droplets that remain airborne for shorter period or fall to

the ground. This finding supports Stadnytskyi, Bax, Bax and Anfinrud (2020) who made similar claims on the SARS-CoV-2 transmission. Moreover, new articles on the COVID-19 provide a traditional explanation of how respiratory viruses get transmitted. Some of the publications/stories explain that largest droplets can travel over short distance. These can be inhaled as they travel, or they can settle on membranes on the eyes, nose, or mouth leading to an infection. When people are in enclosed areas, the viral loads are highest in concentration and make for easier transmission. The airborne mode of transmission can happen at longer distances, particularly in poorly ventilated areas where small particles can suspend in the air for several minutes to hours. This then calls for ensuring adequate ventilation in offices, dormitories, homes, cars, public transports etc.

Also, some publication identifies sexual intercourse as a potential mechanism for the transmission of the COVID-19. It is common knowledge that partners' getting intimate sexually entails a lot including body contacts, sharing of fluid from their mouths, and body sweats. This could increase the risk of infection if one of the partners is infected. Apart from human contacts during sexual intercourse, shaking of hands and frequent hugging independently heightens the probability of COVID-19 infections since some aerosols can settle on human bodies and dresses. The publications/stories that mentioned sexual intercourse as key transmission mechanism for the virus had one thing in common. They all failed to explicitly explain that it is the close proximity of partners and possible exchange of body fluids that lead to transmission rather than the actual act of coitus. The reader might be left with the idea that transmission occurs through the exchange of semen.

Apart from this, unintended impression, nearly all the publications/stories on the transmission mechanism of the virus were true and factual when crossed check with available information from the website of the World Health Organisation (WHO) and the Ghana Health Service (GHS).

5.3 Signs and Symptoms and Management of COVID-19

In the absence of clinical confirmation, the identified symptom of COVID -19 goes from common mild conditions, moderate illness and recovery without medication and hospitalization to serious symptoms. The publications/stories analyzed showed people reported to facilities with fever/chills, cough, tiredness, loss of taste or smell, sore throat, headache, body aches etc., however others did not show any of the signs and symptoms (Asymptomatics)but still and had the virus and was contributing the fast spread of the disease. For Asymptomatics they may ignore any health advice that would help prevent the transmission to of the disease from one person to the other (Tabong and Segtub, 2021).

The challenge, which the publications failed to draw attention to is that many health conditions including common flu and even pregnancy have the same or similar signs and symptoms as those identified for COVID-19. This situation makes several people doubt the existent of COVID-19, because before 2020 people were suffering from health conditions that exhibit virtually all these symptoms. This also increases the belief in the conspiracies around the disease and amplifies the voices questioning the number of cases being reported particularly in the early stages of the pandemic (Kummervold et a., 2017)

Some of the information on the signs and symptom were not factual bordering on rumours. As COVID-19 spreads, so are rumors, misinformation, and fake news, as such the role of the media must not be underestimated. The media must be involved and trained in the delivery of COVID-

19 information and other news items on the outbreak in order to prevent misinformation. In addition, various avenues in information and risk communication such as videos, text, and voice must be employed. In general, the containment plan for Africa must involve an inter-sectoral approach to the fight against the outbreak. Sectors such as media, health system practitioners, and other relevant sectors including mental health, educational, finance, transport, gender, local government, traditional and religious leaders, local pharmaceutical companies must be involved.

5.4 Effects of COVID-19

Like many other health conditions, the COVID-19 has immediate and short-to medium term impacts. The impact is different from person to person. COVID-19 is largely a health pandemic and there has health impacts. But as we have come to know it, the COVID-19 impact has transcended health. It has now produced economic, employment, and political impacts never seen in generations. However, in this study, the assessment of the effects of COVID-19 is limited to the health-related effects/conditions on the persons who survived the infections of the disease. This analysis is further conducted based on the publications from the two online news portals chosen for the study. In all, two articles with one each from both portals were published on the effects of COVID-19 on the victim-survivors within the study period.

Both publications/stories on the effect of COVID-19 mention the increased risks of other health challenges such as fatigue, depression and anxiety, organ damage, erectile dysfunction, memory loss, concentration problem, poor sleeping patterns, and blood clots associated with COVID-19. They mention the attack on the immune system of an infected person compromising one's immunity to be able to fight other diseases. Once the immunity is weak the victim tends to feel tiredness. At the early stage of the disease in Ghana, the COVID-19 patients were discriminated

against by family members, friends, and colleagues. People were avoiding the company of patients for fear of getting infected. Such practice and experience contributed to the depression, nervousness, and anxiety the patients had. This feeling, however, was not peculiar to the COVID-19 victims alone, but to the entire population. The fear factor emanating from the idea, that COVID-19 is a death sentence and the general lack of knowledge about the disease and how it is transmitted. These effects were commonly articulated in two publications of Graphic online news portal.

The idea of erectile dysfunction among COVID-19 victim-survivors, especially males appeared in one publication but was not given enough emphasis. But it continued to make the rounds as part of the rumor mill. This also increased the level of anxiety on COVID-19 among the population. These rumors are not correct, true, or accurate since no survivor of the disease has officially and clinically been diagnosed or reported of organ damage or erectile dysfunction, or both. Moreover, some people describe these effects as the long-term effects of the disease on its survivors. There are also issues of blood clots, poor concentration, and sleeping patterns.

5.5 COVID-19 remedies and cures

This section of the chapter presents the remedies and cures for COVID-19 as reported by Graphic online and Ghanaweb.com news portals. These included preventive remedies as well as curative ones. Thus, it considers the measures put in place to prevent COVID-19 infections.

The two online news portals tried to provide adequate education on some of these measures and thinking especially on the drinking of hard alcoholic beverages and the myth that being black skin lowers the chances of getting infected. This effort reflects in about 26 publications from both portals. This means that more than half of the publications/stories sampled for this study had

something to say about COVID-19 remedies including measures to prevent infection. And this is also where misinformation and myths were most prevalent. There was outright misinformation – one on graphic online and 5 on ghanaweb.com – but there were also publication/stories that had tendency to lead to misrepresentation of facts – these were mostly on ghanaweb.com. This arose out of the way COVID-19 news were presented by the portals. For example, the idea that alcohol-based sanitizers could prevent infections was transposed to mean that alcohol in general could prevent infections. Actually, some of these thinking and orientation shifted in Ghana as the number of confirmed cases increased.

For the most part, the two online portals carried information that is factual about COVID-19. A few of the stories regurgitated unverified information about the virus. These were mostly about COVID origins and remedies. Few of the stories were also carried in a manner that lend themselves to misinterpretation and ended up misinformation. For example, the well-intended information that the use of alcohol-based sanitizers could be effective in preventing COVID infections also provided reason for people to think that using or drinking alcohol could prevent infection. Graphic online stories about COVID-19 mostly factual, in about 98 percent of the times. Ghanaweb.com had about 10 percent of its stories/publications being non-factual or at least prone to misinterpretation and hence misinformation. The difference between graphic online and ghanawe.com is attributed to the fact that the former (graphic online) being part of the famous Graphic Communication Group is endowed with stronger editorial history, which might have served as guardrails against non-factual stories.

5.6 Government interventions on COVID-19

The government of Ghana acted proactively and pragmatically on the COVID-19 pandemic. This is evident in the measures instituted to stop the importation of the virus, limit its spread, check the community spread and mitigate its impact on the economy. Among other things, the Government imposed restrictions on entry into the country, set up health screening at the ports of entry into the country, instituted a 14-day mandatory self-quarantine upon arrival in Ghana.

In addition, government locked down parts of the country considered epicenters of the various in the early phase of the pandemic. Thus, Greater Accra Metropolitan Area (GAMA) including Tema and Kasoa and Greater Kumasi were locked down. Government also placed a ban on public gatherings ban on all public gatherings. Schools and universities were also closed. The land, sea and air borders of the country were closed as well. The Government again intensified public education on improved hygiene, social distancing, and face masks usage, distribution of PPEs to healthcare workers, increased domestic production of PPEs, and expansion of healthcare infrastructure. For example, the Ghana *Infectious Disease Centre* (GIDC) was constructed in a space of three months. Frontline health workers were given allowance equivalent to 50 percent of the pay. They were also exempted from paying personal income tax. Schools, universities and major marketplaces were disinfected by the government in collaboration with Zoomlion Ghana Limited.

Government of Ghana also instituted several measures to assist households to cope with the economic and social impacts of the pandemic. Among these measures were distribution of cooked and dry food packages to vulnerable households in the areas affected by the lockdown measures. For the country, households were provided with free water. Lifeline consumers of electricity had

free electricity while other electricity users received 5 percent rebate on their consumption.

From March to July 2020, Graphic online and Ghanaweb.com reported on several of these government interventions intended to curb spread of the virus and to mitigate impact on Ghanaians. For example, in March 2020, Graphic online reported on the government's disinfection exercise of major markets in Greater Accra under the caption "Markets in Accra, Tema being disinfected to prevent Coronavirus spread". In the same month, this portal reported on the closure of Ghana's borders for two weeks to check the importation of the disease and to limit its spread. The publication was dubbed as

> "*President Nana Addo Dankwa Akufo-Addo has directed the closure of all borders in Ghana — land, sea and air — to human traffic for the next two weeks, with effect from midnight Sunday, March 22, 2020".*

In a similar article in April, Graphic online reported that "Ghana starts local production of nose masks to fight COVID-19". The same portal reported on the government's selection of five companies to produce PPEs. This intervention aimed to boost local production of nose masks to help check the spread of COVID-19 principally among frontline health workers. The emphasis in these articles was on the government mobilising forces and taking measures to fight the COVID-19 spread in Ghana. These pieces of information were devoid of rumors and misinformation probably because they could be verified easily.

For the Daily Graphic, overwhelming proportion (95%) of the information retrieved were factually correct when cross-checked with information from the website of the either the WHO or GHS. The few inaccurate information relate to the manner in which news were carried. A good example is when stories encouraging the use of alcohol-based sanitizers are misconstrued to mean the use of

alcohol in general could either prevent one from getting the virus or could cure an infected person. For the Ghanaweb.com, almost 10 percent of the information retrieved was not factual. Much of the non-factual information related to COVID remedies, transmission mechanisms and long-term effects of contracting COVID-19.

Graphic online carried accurate information about covid -19 given that it's part of the graphic group linked to state the state and has robust editorial policy Ghanaweb.com carried most of the non-factual information, probably because it lacked the editorial infrastructure available to Graphic group. Earliest publications/ stories proved to be non- factual given the dearth of knowledge on covid-19 in the early stages, most of the appeared as speculations. As more information became available about the virus, stories also became more and more factual. All this while GHS/GOG continued to focus on the epidemiology of the virus and paid little attention to the non-factual information that was leading people to risky behaviors - infodemics.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMEDATIONS

6.1 Summary

The study undertook rigorous analysis of media content. The aim was to identify COVID related infodemic that were either impeding the fight to contain the virus or mitigate its multifaceted impacts. It focused on COVID related articles, publications, and stories on two online media portals namely graphic online and ghanaweb.com. The analysis of the covid related text from the two online portals resulted in the identification of six major themes around the stories/publications revolved. These were COVID origins, transmission mechanisms, COVID effects, symptoms, and remedies as well as government containment and mitigation measures. The contents of the stories were compared with verified information about COVID-19 as captured on either WHO or GHS website. Content analysis was conducted with the aid of NVivo 1o software. The main findings of the study include:

1. The condition was correctly reported to have originated from Wuhan China and transmitted from animal to human and human-to-human, nonetheless, there a few misinformation that alleged that the disease was produced om the laboratory and linked to 5G network. One-third of the stories referred to how the virus is transmitted from an infected person to another.
2. The signs and symptoms as on two online news portals were factual with a few exaggerated. The publications/report of symptoms COVID-19 alerted people to report to health facilities/isolate and call when they experience fever/chills, cough, tiredness, loss of taste or smell, sore throat, headache, body aches and pains.
3. Publications on prevention emphasized the regular use of facemask, alcohol- based

hand sanitizer, social distancing, and frequent hand washing. However, they were few misinformation.

4. Government Interventions, that were reported included lock down of parts of the country, the setting up of a Covid fund, government preventive measures and support to businesses.

6.2 Conclusions

These media outlets have enabled an avalanche of information flow with implications for managing public health emergencies. Managing COVID-19 faced such information overflow. While the swell of information was good in getting the Ghanaian population adequately informed about the deadly virus and how people can shield themselves from it, the sheer amount of information also had it negative side. Embedded in it, are myths, lies, fabrications, falsehoods and conspiracy theories that created confusion, fear, and panic in the population. The wrong information made the work of public health authorities difficult. It placed large swathes of the population under undue risks. The well thought out and scientifically proven methods of prevention and care came up against wrong and unverified preventive and curative measures. Some of these proved lethal for people that believed them. Many with a false sense of security based on wrong information got infected and killed.

Another important conclusion that emerges from the analysis is that infodemic as an aspect of public health did not receive much attention in the early part of the COVID fight in Ghana. The public health authorities were so focused on curbing the spread of the virus and caring for the infected. While the GHS was giving right information and updates, it appeared to have underrated the potential adverse impact of the steady flow of COVID-related information doing the rounds on

the many and varied media platforms on the fight to contain the virus. The alternate media was churning out more information on COVID-19 and at faster rate than the public health authorities.

6.3 Recommendations

The main recommendations flow from this study. First, there is need for further research on how COVID-related infodemics affected the fight to contain the current pandemic. Much has been done on the contributions of social media – Facebook, Twitter, Instagram and others to infodemic in respect of COVID-19. This study has looked two online platforms and their effects on infodemic. These are more less elitists media platforms accessible to Ghanaians with smartphones. Millions of Ghanaians rely on radio and Television. Expanding the infodemic research to radio and TV will shed will add to body of knowledge.

Second, the public health authorities must prioritize infodemic as an important area focus as they fight this and other public health emergencies that may arise in future. Given the multiplicity of media outlet and the promise of more expansive digitalization, information flow can only be expected to be fast-track. This combined with increased polarization at all levels will lead to dissemination of blatant misinformation, which can seriously hamper national efforts to combat future epidemics and pandemics. We can only win the future public health crisis if we begin the fight again the epidemic of information now.

Finally, the health authorities in Ghana must work with the National Media Commission (NMC) and the National Communications Authority (NCA) to structure a robust system for regulating non-traditional media including online media portals. The information epidemic will be won or lost based on how media regulation manages to catch up with the fast-paced online platforms and

curb misinformation thereof. Graphic online stellar performance in churning out factual information is probably an extension of better regulation of its mother company – Graphic Communications Group.

REFERENCES

Aljazeera. 2021. US Classified information. Retrieved on 13/09/2021 from

https://www.aljazeera.com/news/2021/8/27/us-intel-community-remains-divided- on-covid-19-origin.

Alvarez-Galvez, J., Salinas-Perez, J. A., Montagni, I., & Salvador-Carulla, L.

2020. The persistence of digital divides in the use of health information: A comparative study in 28 European countries. *International Journal of Public Health., 65*, 325-333.

Al-Zaman, M. S. 2021. COVID-19-related online misinformation in Bangladesh. *Journal of Health Research*.

Anwar, A., Malik, M., Raees, V., & Anwar, A. 2020. Role of mass media and public health communications in the COVID-19 pandemic. *Cureus*, *12*(9).

Atkinson, M., DeWitt, D., & Uscinski, J. E. 2017. Conspiracy theories in the 2016 election. *Conventional Wisdom, Parties, and Broken Barriers in the 2016 Election*, 163.

British Broadcasting Corporation. 2021. Covid origins may never be known - US intelligence report. Retrieved on 12/10/2021 from https://www.bbc.com/news/uk-59100147.

Berelson, B. 1952. Content analysis in communication research.

Broome, B. J. 2009. Dialogue theories. In S. W. Littlejohn & K. A. Foss

(Eds.), *Encyclopedia of communication theory*, 301–305. Los Angeles, CA: Sage.

Burki, T. 2020. Outbreak of coronavirus disease 2019. *The Lancet Infectious Diseases*, *20*(3), 292-293.

Byford, J. 2011. *Conspiracy theories: A critical introduction*. Basingstoke, United Kingdom: Palgrave MacMillan.

Carey, J. W. 1975. A cultural approach to communication. *Communication, 2, 11–22.*

Carey, J. W. 2009. *Communication as culture. Essays on media and society.*

Revised edition. New York, NY: Routledge.

Cichocka, A., Marchlewska, M., & Golec de Zavala, A. 2016. Does self-love orself-hate predict conspiracy beliefs? Narcissism, self-esteem, and the endorsement of conspiracy theories. *Social Psychological and Personality Science,7*(2), 157– 166.

CNN. 2021. CNN Special Report – THE ORIGINS OF COVID-19: Searching for the Source. Retrieved on 14/10/2011 from https://cnnpressroom.blogs.cnn.com/2021/09/14/cnn-special-report-the-origins- of-covid-19-searching-for-the-source/

Coady, D. 2006. *Conspiracy theories: The philosophical debate*. Farnham, United Kingdom: Ashgate.

Craft, S., Ashley, S., & Maksl, A. (2017). News media literacy and conspiracy

theory endorsement. *Communication and the Public, 2,* 388–401. Retrieved from https://doi.org/10.1177/2057047317725539

Dagnall, N., Drinkwater, K., Parker, A., Denovan, A., & Parton, M. 2015. Conspiracy theory and cognitive style: A worldview. *Frontiers in Psychology, 6,* (206)

Damiano, A. D., & Allen Catellier, J. R. 2020. A content analysis of coronavirus tweets in the United States just prior to the pandemic declaration. *Cyberpsychology, Behavior, and Social Networking*, *23*(12), 889-893.

Dieguez, S., Wagner-Egger, P., & Gauvrit, N. 2015. Nothing happens by accident, or does it? A low prior for randomness does not explain belief in conspiracy theories. *Psychological Science, 26*(11), 1762–1770.

Dentith, M. R., & Orr, M. 2017. Secrecy and conspiracy. *Episteme, 14,* 1–18.

Douglas, K. M., Sutton, R. M., & Cichocka, A. 2017. The psychology of conspiracy theories. *Current Directions in Psychological Science, 26*(6), 538–542.

Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. 2019. Understanding conspiracy theories. *Political Psychology*, *40*, 3-35.

Drinkwater, K., Dagnall, N., & Parker, A. 2012. Reality testing, conspiracy theories, and paranormal beliefs. *Journal of Parapsychology, 76*(1), 57–77

Edelson, J., Alduncin, A., Krewson, C., Sieja, J. A., & Uscinski, J. E. 2017. The effects of conspiratorial thinking and motivated reasoning on belief in election fraud. *Political Research Quarterly, 70*(4), 933–946.

Einstein, K. L., & Glick, D. M. 2013. *Scandals, conspiracies and the vicious cycle of cynicism*. Paper presented at the Annual Meeting of the American Political Science Association, Chicago, IL.

Embertson, Mari K. "The importance of middle managers in healthcare organizations." *Journal of Healthcare Management* 51, no. 4 (2006): 223.

Enders, A. M., & Smallpage, S. M. 2018. Polls, plots, and party politics: Conspiracy theories in contemporary America. In J. E. Uscinski (Ed.), *Conspiracy theories and the people who believe them* (pp. 298–318). New York, NY: Oxford University Press.

Franks, B., Bangerter, A., & Bauer, M. W. 2013. Conspiracy theories as quasi-religious mentality: An integrated account from cognitive science, social representations theory, and frame theory. *Frontiers in Psychology, 4*(424), Retrieved from https://doi.org/10.3389/fpsyg.2013.0042

Federico, C. M., Williams, A. L., & Vitriol, J. A. 2018. The role of system identity threat in conspiracy theory endorsement. *European Journal of Social Psychology, 48,* 927–938.

Freeman, D., & Bentall, R. P. 2017. The concomitants of conspiracy concerns. *Social Psychiatry and Psychiatric Epidemiology, 52*(5), 595–604. Retrieved from https://doi.org/10.1007/s00127-017-1354-4

Gallotti, R., Valle, F., Castaldo, N., Sacco, P., & De Domenico, M. 2020. Assessing the risks of 'infodemics' in response to COVID-19 epidemics. *Nature Human Behaviour*, *4*(12), 1285-1293.

Green, R., & Douglas, K. M. 2018. Anxious attachment and belief in conspiracy theories. *Personality and Individual Differences, 125,* 30–37.

Green, M., Musi, E., Rowe, F., Charles, D., Pollock, F. D., Kypridemos, C., & Sheard, S. 2021. Identifying how COVID-19-related misinformation reacts to the announcement of the UK national lockdown: An interrupted time-series study. *Big Data & Society*, *8*(1), 20539517211013869.

Haupt, M. R., Li, J., & Mackey, T. K. 2021. Identifying and characterizing scientific authority-related misinformation discourse about hydroxychloroquine on twitter using unsupervised machine learning. *Big Data & Society 8*(1), 20-53.

Holsti, O. R. (1968). Content analysis. *The handbook of social psychology*, *2*, 596-692.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, *15*(9), 1277-1288.

Islam, M. S., Sarkar, T., Khan, S. H., Mostofa Kamal, A. H., Hasan, S., Kabir, A., Yeasmin, D., Islam, M. A., Amin Chowdhury, K. I., Anwar, K. S., Chughtai, A. A., & Seale, H. (2020). COVID-19-Related Infodemic and Its Impact on Public Health: A Global Social Media Analysis. *The American journal of tropical medicine and hygiene*, *103*(4), 1621–1629. https://doi.org/10.4269/ajtmh.20-0812

Kummervold PE, Schulz WS, Smout E, Fernandez-Luque L, Larson HJ (2017). Controversial Ebola vaccine trials in Ghana: A thematic analysis of critiques and rebuttals in digital news. *BMC Public Health*.

Lewandowsky, S., Ecker, U. K. H., Seifert, C. M., Schwarz, N., Cook, J. (2012). Misinformation and its correction: continued influence and successful debiasing. *Psychology of Science and Public Interest,13*,106–131.

Liang, H., Fung, I. C. H., Tse, Z. T. H., Yin, J., Chan, C. H., & Pechta, L. E. (2019). How did Ebola information spread on twitter: Broadcasting or viral spreading? *BMC PublicHealth. (2019) 19*, 1-11.

Little, P., Mullee, M., Stuart, B., Thomas, T., Johnson, S., Leydon, G., Rabago, D., Richards-Hall, S., Williamson, I., Yao, G., Zhu, S., Raftery, J., & Moore, M. (2016). Effectiveness of steam inhalation and nasal irrigation for chronic or recurrent sinus symptoms in primary care: A pragmatic randomized controlled trial. CMAJ. https://doi.org/10.1503/cmaj.160362

Mian, Q., Claude, K. M., Underschultz, J., & Hawkes, M. (2019). 50 Ebola epidemic in war-torn Eastern Democratic Republic of Congo 2018: Rapid assessment of knowledge, attitudes, and practices. Paediatrics & Child Health. https://doi.org/10.1093/pch/pxz066.049

Kofta, M., & Sedek, G. (2005). Conspiracy stereotypes of Jews during systemic transformation in Poland. *International Journal of Sociology*, *35*, 40–64.

Georgalakis, J. (2021). Countdown to a Pandemic: BBC News representation of the response to COVID-19 as a global crisis approached. *Available at SSRN 3931855*.

Ghassabi, F., & Zare-Farashbandi, F. (2015). The role of media in crisis management: A case study of Azarbayejan earthquake. *International Journal of Health System and Disaster Management*, *3*(2), 95.

Glare, P. G. W. (Ed.). (1968). *Oxford latin dictionary*. London, UK: Oxford University Press.

Islam, M. S., Sarkar, T., Khan, S. H., Kamal, A. H. M., Hasan, S. M., Kabir, A., & Seale, H. (2020). COVID-19 related infodemic and its impact on public health: A global social media analysis. *The American journal of tropical medicine and hygiene, 103*(4), 1621.

Islam, M. S., Kamal, A. H. M., Kabir, A., Southern, D. L., Khan, S. H., Hasan, S. M., & Seale, H. (2021). COVID-19 vaccine rumors and conspiracy theories: The need for cognitive inoculation against misinformation to improve vaccine adherence. *PloS one, 16*(5), e0251605.

Jin, Y., Liu, B. F., & Austin, L. L. (2014). Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses. *Communication research, 41*(1), 74-94.

Jolley, D., Douglas, K. M., & Sutton, R. M. (2018). Blaming a few bad apples to save a threatened barrel: The system-justifying function of conspiracy theories. *Political Psychology, 39*, 465–478.

Keeley, B. L. (1999). Of conspiracy theories. *Journal of Philosophy, 96*, 109–126. Retrieved from https://doi.org/10.2139/ssrn.1084585

Kenu, E., Frimpong, J., & Koram, K. (2020). Responding to the COVID-19 pandemic in Ghana. *Ghana Medical Journal, 54*(2), 72-73.

Kouzy, R., Abi Jaoude, J., Kraitem, A., El Alam, M. B., Karam, B., Adib, E., & Baddour, K. (2020). Coronavirus goes viral: quantifying the COVID-19 misinformation epidemic on Twitter. *Cureus, 12*(3).

Lantian, A., Muller, D., Nurra, C., & Douglas, K. M. (2017). "I know things they don't know!" The role of need for uniqueness in belief in conspiracy theories. *Social Psychology, 48*(3), 160–173. Retrieved from https://doi.org/10.1027/1864-9335/a000306

Lasswell, H. (1948). *The structure and function of communication and society: The communication of idea*. New York: Institute for Religious and Social Studies.

Littlejohn, S. W. (1983). *Theories of human communication* (2nd ed.). Belmont, CA: Wadsworth.

Lobato, E., Mendoza, J., Sims, V., & Chin, M. (2014). Examining the relationship between conspiracy theories, paranormal beliefs, and pseudoscience acceptance among a university population. *Applied Cognitive Psychology, 28*(5), 617–625.

Micallef, N., He, B., Kumar, S., Ahamad, M., & Memon, N. (2020). The role of the crowd in countering misinformation: A case study of the covid-19 infodemic. *arXiv preprint arXiv:2011.05773*.

Neumann, W. R. (2008). Interaction. In W. Donsbach (Ed.), *The international encyclopedia of communication (Vol. V, pp. 2305–2309).* Malden, MA: Blackwell.

Newheiser, A., Farias, M., & Tausch, N. (2011). The functional nature of conspiracy beliefs: Examining the underpinnings of belief in the Da Vinci Code conspiracy. *Personality and Individual Differences, 51*(8), 1007–1011.

Nyhan, B., Dickinson, F., Dudding, S., Dylgjeri, E., Neiley, E., Pullerits, C., & Walmsley, C. (2016). Classified or coverup? The effect of redactions on conspiracy theory beliefs. *Journal of Experimental Political Science, 3*(2), 109– 123.

Nyhan, B., & Zeitzoff, T. (2018). Conspiracy and misperception belief in the Middle East and North Africa. *Journal of Politics, 80*, 1400–1404.

Oliver, J. E., & Wood, T. J. (2018). *Enchanted America: How intuition and reason divide our politics*. Chicago, IL: University of Chicago Press.

Onwe, E. C., Chukwu, J., Nwamini, S. C., Nwankwo, S. U., Elem, S., Ogbaeja, N. I., ... & Ogbodo, J. N. (2020). Analysis of online newspapers' framing patterns of COVID- 19 in Nigeria. *European Scientific Journal*, *16*(22), 1857-7881.

Parsons, S., Simmons, W., Shinhoster, F., & Kilburn, J. (1999). A test of the grapevine: An empirical examination of the conspiracy theories among African Americans. *Sociological Spectrum*, *19*(2), 201–222. Retrieved from https://doi.org/10.1080/027321799280235

Pascual-Ferrá, P., Alperstein, N., Barnett, D. J., & Rimal, R. N. (2021). Toxicity and verbal aggression on social media: Polarized discourse on wearing face masks during the COVID-19 pandemic. *Big Data & Society*, *8*(1), 20539517211023533.

Petropoulos, G. (2021). The great infodemic: time to consider a fake news tax. *Bruegel-Blogs*, NA-NA.

Pulido, C. M., Villarejo-Carballido, B., Redondo-Sama, G., & Gómez, A. (2020). COVID-19 infodemic: More retweets for science-based information on coronavirus than for false information. *International Sociology*, *35*(4), 377-392.

Radnitz, S., & Underwood, P. (2017). Is belief in conspiracy theories pathological? A survey experiment on the cognitive roots of extreme suspicion. *British Journal of Political Science*, *47*(1), 113–129.

Rimal, R. N., & Storey, J. D. (2020). Construction of meaning during a pandemic: The forgotten role of social norms. *Health Commun. 8*, 1-3.

Rodríguez, C. P., Carballido, B. V., Redondo-Sama, G., Guo, M., Ramis, M., & Flecha, R. (2020). False news around COVID-19 circulated less on Sina Weibo than on Twitter. How to overcome false information? *International and Multidisciplinary Journal of Social Sciences*, *9*(2), 107-128.

Rosengren, K. E. (2000). *Communication, an introduction*. London, UK: Sage.

Rothkopf, D. J. (2003). When the buzz bites back. *The Washington Post*, *11*, B1-B5.

Schumaker, E. (2020). Timeline: How coronavirus got started. *ABC news*, *28*.

Shahi, G. K., & Nandini, D. (2020). FakeCovid--A multilingual cross-domain fact check news dataset for COVID-19. *arXiv preprint arXiv:2006 (*11343).

Shannon, C. E., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana, Ill: University of Illinois Press.

Stadnytskyi, V., Bax, C. E., Bax, A., and Anfinrud, P. (2020). The airborne lifetime of small speech droplets and their potential importance in SARS-CoV-2 transmission. *Proceedings of the National Academy of Sciences. 117* (22).

Stappers, J. G., Reijnders, A. D., & Möller, W. A. J. (1990). *De werking van massamedia. Een overzicht van inzichten*. [How media work; an overview of insights]. Amsterdam, Netherlands: Arbeiderspers.

Stieger, S., Gumhalter, N., Tran, U. S., Voracek, M., & Swami, V. (2013). Girl in the cellar: A repeated cross-sectional investigation of belief in conspiracy theories about the kidnapping of Natascha Kampusch. *Frontiers in Psychology*, *4*(297),

Tabong, P. T. N., & Segtub, M. (2021). Misconceptions, misinformation and politics of COVID-19 on social media: A multi-level analysis in Ghana. *Frontiers in*

Communication, *6*, 70.
Uscinski, J. E., & Parent, J. M. (2014). *American conspiracy theories*. New York, NY: Oxford University Press.
van der Tempel, J., & Alcock, J. E. (2015). Relationships between conspiracy mentality, hyperactive agency detection, and Schizotypy: Supernatural forces at work? *Personality and Individual Differences, 82,* 136–141.
van Elk, M., & Lodder, P. (2018). Experimental manipulations of personal control do not increase illusory pattern perception. *Collabra: Psychology*, *4*, 19
van Prooijen, J.-W. (2017). Why education predicts decreased belief in conspiracy theories. *Applied Cognitive Psychology, 31*(1), 50–58.
van Prooijen, J.-W., & Acker, M. (2015). The influence of control on belief in conspiracy theories: Conceptual and applied extensions. *Applied Cognitive Psychology*, *29*(5), 753–761
van Prooijen, J.-W., Douglas, K., & De Inocencio, C. (2018). Connecting the dots: Illusory pattern perception predicts belief in conspiracies and the supernatural. *European Journal of Social Psychology*, *48*, 320–335
Van Ruler, B. (2018). Communication theory: An underrated pillar on which strategic communication rests. *International Journal of Strategic Communication, 12*(4), 367-381.
Wang, Y., McKee, M., Torbica, A., & Stuckler, D. (2019). Systematic literature review on the spread of health-related misinformation on social media. *Social Science Medicine*, 240(11), 25-52.
Wang, C.C., Prather, K.A., Sznitman, J., Jimenez, J.L., Lakdawala, S.S., Tufekci, Z., and Marr, L.C. (2021). Airborne transmission of respiratory viruses. *Science. 373 (6558)*
Wagner-Egger, P., Delouvee, S., Gauvrit, N., & Dieguez, S. (2018). Creationism and conspiracism share a common teleological bias. *Current Biology*, *28,* R867–R868.
Watzlawick, P., Beavin, J., & Jackson, D. (1967). *Pragmatics of human communication: A study of interactional patterns, pathologies, and paradoxes.* New York, NY: Norton.
Winters, M., Oppenheim, B., Sengeh, P., Jalloh, M. B., Webber, N., Pratt, S. A., & Nordenstedt, H. (2021). Debunking highly prevalent health misinformation using audio dramas delivered by WhatsApp: evidence from a randomised controlled trial in Sierra Leone. *BMJ global health*, *6*(11), e006954.
World Health Organization. (2007). *Effective media communication during public health emergencies: a WHO handbook*. World Health Organization.
Xiong, F., & Liu, Y. (2014). Opinion formation on social media: An empirical approach. *Chaos. 24*(13), 129-130.
Yang, K. C., Pierri, F., Hui, P. M. (2021). The COVID-19 infodemic: Twitter versus Facebook. Big Data & Society *8*(1): 20539517211013860. Retrieved from https://doi.org/10.1177/20539517211013861.
Zarefsky, D. (2014). Conspiracy arguments in the Lincoln-Douglas debates. In

Rhetorical Perspectives on Argumentation, Argumentation Library V (24), 195 209

Zhong, Y., Liu, W., Lee, T. Y., Zhao, H., & Ji, J. (2021). Risk perception, knowledge, information sources and emotional states among COVID-19 patients in Wuhan, China. *Nursing Outlook*, *69*(1), 13-21.

APPENDICES

Appendix A: Summary of Publications

NUMBER OF STORIES RETRIEVD	THEMES	NUMBER OF STORIES/PUBLICAT IONS THAT MADE REF. TO THEMES	SOME SPECIFIC INFORMATION PROVIDED IN PUBLICATION
Twenty-two (22) retrieved from graphic online	TRANSMISSION MECHANISM ***NB(spreads between people through close contacts and via aerosols and respiratory droplets inhaled when taking, breathing, coughing or sneezing)***	10	*sexual transmission, Sweat Close contact with an infected person, Duration a virus could stay on a surface Civid-19 is airborne, activities that facilitated the spread of the virus such as talking and singing, apart from coughing and sneezing, were relatively low in public transport. Wearing of face mask limits the transfer of the virus; covid-19 was transmitted through food and water.

	GOVERNMENT INTERVENTIONS All the things government did to contain the spread of the virus	8	*Government rolls out a three-and-a-half-year recovery and revitalization programme' CARES closure of all beaches across Ghana Closure of all borders in Ghana — land, sea and air boaders Disinfection of markets in the Greater Accra Region Free water, electricity, salary increment for health workers
	ORIGIN OF COVID-19 ***Its origin still remains a mystery***	5	Originated from animals (i.e. bats), Wuhan lab leak, Purposefully produced in the lab for experiments, Caused by 5G

	Remedies and cures	8	"We want to encourage everyone to wear masks especially those showing flu-like symptoms,"
	SIGNS AND SYMPTOMS ***The case definition for covid -19***	2	Headache, cough, fever, loss of taste and smell, aches and pain, tiredness, symptomatic and asymptomatic
GHANAWEB ONLINE	Twenty-eight retrieved from Ghana web online	*7 publications talked about Transmission mechanism *10 talked about government interventions *5 publications on the origin of covid-19 *18 were on remedies and cures *2 effects of contracting the virus	

Appendix B: Data Extraction Sheet

No	Publication date	Source	Author	Aspect of COVID-19 on story, article or publication					Comparison with WHO evidence	Conclusion	
1				Source/cause	Signs/Symptoms mentioned	Transmission	Prevention	Government Strategy		Factual	Non-factual
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											