

Is There a Relationship Between New Media and the Number of Recorded Covid-19 Cases in Ghana? No! Evidence from a Content Analysis of the Twitter Posts of Key Ghanaian State Actors in the First Year of the Pandemic

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Abstract

The covid 19 pandemic led to a public health crises which aside leading to the death of more than four hundred and fifty thousand people (WHO, 2020a), has also disrupted the way people live, by forcing us to make changes to how we work, school and live our social lives. Governments worldwide devised many strategies to help slow down the spread of the virus and reduce its impact on the economy and livelihoods of people. Eventhough social media platforms played a key role in information dissemination and awareness creation in relation to the novel Corona Virus, it is unknown if the activity of key government social media accounts have any relationship with the number of recorded cases. The researchers used a quantitative content analysis strategy to analyse the posts of 5 key Ghanaian government accounts on Twitter between 11th March 2020 and 11th March 2021, in relation to certain Covid 19 keywords. The researchers found that, no correlation exists between the Twitter posts of key government accounts and number of recorded Covid-19 cases in Ghana. The study also shows that, the lowest number of Covid 19 related tweets were posted in December 2020, the month of the Ghanaian elections, whereas, the highest number of Covid 19 related tweets were posted in March 2020, the month in which the first case was detected in Ghana. The researchers conclude that eventhough social media can contribute to crises and emergency communications, social media alone as a crises communication strategy may not be enough and must be paired with other traditional forms of communication such as radio.

Keywords: Social Media, Crises Communications, Twitter, Covid 19, Pandemic Communications

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1.0 Background

Aside disrupting international trade, travel and collapsing the health sector of numerous countries (Rafiq et al., 2020), the novel Covid-19 pandemic is recorded to have caused more than four hundred and fifty-five thousand deaths worldwide (WHO, 2020a). On March 11, 2020, the World Health Organisation proclaimed the novel corona virus which was discovered in the Chinese city of Huwan a pandemic after it killed about four thousand people (WHO, 2020b). Both developed and developing countries have been struggling to control the spread of the virus which can lead to unemployment and poverty levels that can collapse their economies, whiles simultaneously taking steps to reduce deaths and the effect of the pandemic on their health systems (Higgins-Desbiolles, 2020). According to Gostin and Wiley (2020), some of the measures which have been taking by governments to reduce the spread of the virus and the burden on the health sector include curfews, social distancing practices, travel restrictions and the wearing of masks (Gostin and Wiley, 2020).

Evidence from previous research suggests that various health communication errors are made by governemts and government agenices when responding to public health emergencies. Gamhewage, 2014; and Rowan, Botan, Kreps, Samoilenko and Farnsworth, 2014, assert that during most public health emergencies, the communication strategy of governments and governmental agencies may be biased and prejudiced because they may obviate certain key demographics of the target population and not include their desired channels of communication. The elimination of certain key demographics such as social media users from the communication of state actors during public health communications has the potential to increase fear and confusion about the covid 19 pandemic and reduce public trust in government communications (Taylor-Clark, Viswanath, & Blendon, 2010).

Social media channels such as Twitter reduce public anxiety in two major ways. First, it presents governemts and its public health actors with simple and viable channels in communicating and providing information to the public. Secondly, it presents a safe and reliable method for the public to have their questions

and grievances answered by the government and its actors (Goto et al., 2014), especially in instances where restrictions have been placed on movement as experienced in the Covid-19 pandemic.

Social Media platforms have become very important in providing information and playing key roles in the pandemic management and public health communications of governments worldwide. As opposed to previous years when information only existed in daily news papers and limited television and radio stations, mobile telephony and communication technologies nowadays provide people with numerous sources of communication through social media, even though some of these information may be biased and incorrect (Shin and Thorson, 2017). According to Mirbabaie and Zapatka (2017), social media platforms such as twitter offer an avenue for governments and their key actors to make sense of crisis situations and organise relief activities in times of crises and emergencies. As an increasing number of citizens turn to social media as their number one channel of communication and news, governments and state actors have also found a means to make social media one of their most important public communication tools (Burns and Burgees, 2004). Reuter et al. (2016), found that emergency and crises management professionals consider social media as a critical tool for reaching the public and communicating information during emergencies. Emergency management personnel also consider social media as a channel which connects them to citizens and news media during emergencies (Reuter et al., 2016). Whereas social media as a form of public communications in emergency situations has been studied by Briones et al. (2011) and Freberg et al., (2013) in America, and as citizens of developing countries now strongly depend on the internet and social media for news and government communications in the midst of the ongoing Covid-19 global pandemic, it is essential to study the online activity of key state actors in a developing country such as Ghana to be able to determine how important they consider social media (Twitter) in their pandemic communications to their citizens.

2.0 Research Objective

The objective of this paper is to assess if a relationship exists between the twitter posts of five verified Ghanaian state actors and the number of recorded Covid 19 cases during the first year of the Covi 19 global pandemic.

3.0 Literature Review

3.1 The Situational Crisis Communications Theory

Numerous theories have been propounded on how governments and organisations can control and figure-out the public communications that surround an emergency or crisis situation. One of the most prominent theories of crisis communication management is Coomb's (2007) The Situational Crisis Communications Theory. In line with public relations and strategic communications practice, the situational crisis communications theory splits crisis and emergency communications into three parts. The first part involves signal detection and crisis preparation and it is called the pre-crisis stage. The second part deals with crisis management and crisis containment and it is categorized as the crises event. The last part is post crisis and concentrates on evaluation and follow up communication (Coombs, 2012: 11).

The Situational Crisis Communication Theory is derived from the attribution theory which is used within the discipline of social psychology. As suggested by the attribution theory, individuals always want to find out the causes and implications of certain events in their lives. In the context of emergencies and disasters such as the Covid-19 global pandemic, citizens will ration blame and seek answers from their governments. The more citizens and publics attribute crises or emergency to the government or an organisation, the more the potential of the public and citizens to dwell on negative images and negative perceptions of the government or organisation (Coombs and Holladay, 1996).

Coombs (2012) suggests that the communication and messages of a government or organisation to crises and emergency situations, usually have behavioural implications on its citizens and stakeholders. Evidently, what governments and organisations say and do in times of emergencies and crisis usually affects its reputation within the rank and file of its citizens (Coombs, 2007). In such instances, the organisation or government may adopt a mix of several response mechanisms based on the needs of their citizens and publics and also the channels available to them (An and Gower, 2009).

According to Coombs (2015), crises and emergency response strategies that can be adopted by governments and organisations include instructing information, reputation repair and adjusting information (Coombs, 2015). Within the context of Covid-19 and the current global pandemic, twitter as well as other social media channels can be used by governments to communicate informations, adjust information and repair reputation (Jama Network, 2020).

Contrary to the ability of social media networks such as twitter to facilitate the quick spread of public health and pandemic management information, they also present new and previously unforeseen sets of disputes. With most parts of the economy on hold and a significant portion of the population unable to move out of their homes, face to face socialisation between people has marginally reduced. As such people can become vulnerable to online misinformation and unverified news on social media (Inuwa-Dutse, Liptrott, and Korkontzelos, 2018).

This brings to bear the image repair strategy embedded in the Situational Crisis Communication Theory (Coombs, 2012). According to Coombs (2012), the reputation repair strategy of the Situational Crisis Communications Theory aims to quench the negative effects that a crises situation such as the Covid-19 pandemic can have on the reputation of governments or organisations.

Effective communication is one of the cheapest and reliable ways a government can respond to a public health emergency such as the Covid-19 global pandemic (Benoit, 2004). As proclaimed by Coombs (2005), communication during emergencies and crisis plays a major role in crisis management, because it can direct the course of the crisis and mitigate its effects; both on the government/organisation and its citizens/stakeholders. The verbal and nonverbal communications issued by a government or an organisation constitutes its crisis and emergency communication strategy. The channel to be used for communication, usually depends on the strategy employed by the government/organisation, the characteristics of the citizen/stakeholder and the nature of the crisis (Coombs, 2012). Social media presents a new channel which has never been used by the key actors in the Ghanaian public health space in the management of any public health campaign. One of the important features that make social media a central part of the health communication and crises communications strategy of Ghana's key actors during the Covid-19 global pandemic is the fact that information is rapidly disseminated across different levels of regional and national publics/stakeholders when it is communicated through social media (Chen, Lerman and Ferrara, 2020).

3.2 Social Media and National Communications in Crisis and Emergency

Social media and micro blogging platforms such as facebook and twitter are designed to facilitate personalised communication amongst users and the quick spread of information (Bakshy et al., 2011). The dynamics of personalised social media and its use by state actors such as presidents, politicians and state institutions contributes to how information shared through social media spreads through thousands of users in real time and how it affects the larger society in general (Riquelme and Gonzalez-Cantergiani, 2016). As a result of the Covid-19 global pandemic, an increased importance has been placed on social media and information communicated through it, this has made many government incorporate it into their official health communications and pandemic management strategy (Chen, Lerman and Ferrara, 2020).

Results from a study by Reynolds and Seeger (2012), alluded to the possibility of governments and key actors resorting to the use of social media in crisis communication. Another writer also shares these sentiments and proclaims that, of all the stakeholders and disaster management outfits, state actors and governments stand to benefit the most from social media if it becomes a time tested and approved channel of communicating to citizens in crisis and emergency situations as experienced in the Covid-19 global pandemic (Zarei et al., 2020). The influence of social media and the internet cannot be underestimated amongst demographic groups such as, the working class and university students who do not consider the traditional media to be their main source of information (Reynolds and Seeger, 2012). Zarei et al. (2020), argue that social media can be a critical crisis and health communication tool for state actors because most active users of social media are more likely to read and consume content created by influential pages than create content themselves (Zarei et al., 2020). Also, inactive social media users are more likely to use social media platforms in situations like the Covid-19 global pandemic where movements have been restricted and curfews have been imposed (Tomas, 2020).

The Covid-19 global pandemic proves to us that social media has become an essential part of the crisis communication strategy of governments worldwide (Chen, Lerman and Ferrara, 2020). Moreover, emergency and crisis situations have proven that information which is disseminated on social media can lead to positive change in people's behaviour, and can be responsible for people's willingness to accept and abide by their government's public health interventions (Kim, Fast and Markuzon, 2019). Social media platforms such as Facebook, Twitter and Instagram provides access to content and communication which may be in the form of text, photos, videos, or a combination of all. This has allowed sub groups within the population who for financial reasons are excluded from accessing traditional media such as newspapers and pay-tv to have a means to access cheaper, realtime versions of all communications from state actors they consider important. Also, social media uses algorithms and takes into account user's preferences which helps information to spread wider and quicker (Shaman, et al. 2013). An advantage of this is that, users of social media platforms do not have to actively search for communication from their preferred state actors, information on the disease rather finds citizens based on their previous online preferences (Viboud and Vespignani, 2019). The use of algorithms increase the personalised user experience of social media because users are most likely to come across communication and information adhering to their experience, interests or current location (Kulshrestha, 2017).

Social media is described as the new public sphere because of its ability to connect citizens to people in authority. Users can directly share situations with people in authority such as local assemblies and emergency response teams (Middleton, Middleton and Modafferi, 2013). An example is given by Abassi et al. (2012), who recount how the University of Arizona incorporated social media into their crisis communication strategy in an on campus emergency in 2011. According to the writers, social media communications enabled the university

authorities to locate victims and communicate with students who were off campus at the time (Abassi et al., 2012). Studies such as Davies (2007), record the importance of the communication between state actors and citizens during emergency and crisis situations. This opinion is largely supported by Mergel (2015), who recorded that social media platforms are of pertinent importance to governments and other state agencies because they help to communicate with, and inform citizens on developments and actions during crises and emergencies (Mergel, 2015).

To conclude, evidence from literature (Abassi et al.; Middleton, Middleton and Modafferi, 2013) proves that social media can be a great communication tool for governments and state actors during emergencies and crisis situations such as the Covid-19 global pandemic. Evidently social media permits satisfactory flow of information between officials and governments and also serves as a means for quick feedback and communication between parties on crises response ((Viboud and Vespignani, 2019).

4.0 Research Methodology

Quantitative content analysis was adopted by the researchers as the data collection and analysis strategy for this study. Neuman (2012) describes content analysis as a qualitative or quantitative research strategy used for making scientific inferences from media content presented as either video, audio or text (Neuman, 2012). Content analysis was chosen because of how practical it is in the analysis of content which comes in the form of text, audio, and video (Saxon and Waters, 2014). The study collected longitudinal data from the sampled twitter accounts of Ghanaian state actors between 11th March 2020 to 11th March 2021. 11th March 2020 was selected as an appropriate date for monitoring activity and collecting data because it was the day Covid-19 was officially declared a pandemic by the World Health Organisation. During the one year period the researchers monitored how frequent the indicators for the content represented in the twitter activity of the sampled accounts which belong to key actors in the Ghana's Covid-19 pandemic management. Activities and posts of these key actors were tallied to reflect the presence of the indicators used in the content analysis.

The study population was made up of five social media platforms. Namely, Facebook, Twitter, Youtube, Instagram and LinkedIn. The study adopted a multi-stage sampling process in the selection of accounts to monitor. In the first stage of the sampling process, the simple random method was used to select Twitter as the social media platform to be used in data collection for this study. In the second stage of the sampling process, the researchers purposely selected five active twitter accounts which belong to key actors in Ghana's Covid-19 pandemic management to participate in the study. The sampled accounts are; the official Twitter account of the President of the Republic of Ghana; @Nakufoaddo with 1.8 million followers, the official Twitter account of the Minister of Information of the Republic of Ghana; @konkrumah with 791,100 followers, the official Twitter account of the Ministry of Information of the Republic of Ghana; @moigovgh with 462,200 followers, the official Twitter account of the Ministry of Health of the Republic of Ghana; @mohgovgh with 112,400 followers and the official twitter account of the Disease Surveillance Department of the Ghana Health Service; @DSD_GHS with 52,200 followers.

These accounts were purposely sampled because they are verified accounts. This means, Twitter has independently verified and confirmed the identities of the owners of these accounts. This eliminates all fears and prevents the researchers from unknowingly selecting parody or fake accounts to represent key actors in Ghana's Covid-19 Pandemic management. Besides these accounts having verification badges, they have the links in their profiles which sends users directly to their official websites once they are clicked.

Twitter rose to prominence in 2006 when it was marketed as a microblogging and social networking platform (Java et al., 2007). One of the rare features of Twitter is the fact that users can only post a tweet in 280 characters. Users also have the option of attaching videos, photos and audio recordings to tweets. This makes content posted on Twitter very concise and straight to the point (Java et al., 2007). As far back as 2013, five hundred million tweets were posted daily on twitter by about one hundred and fifty million active users (Inuwa-Dutse, Liptrott, and Korkontzelos, 2018). Social (2020) reports that there are 14.76 million active internet users in Ghana. Social media penetration in Ghana as at January 2020 stood at 20%. The rise in the use of social media in Ghana is directly linked to the increase in the number of mobile internet connections in Ghana. As at January 2020, the total number of mobile internet connections was equivalent to 130% of the country's entire population (Social, 2020). According to Social (2021), any tweet has the potential to reach about 3.3% of the Ghanaian population. This means, nine hundred and ninety thousand Ghanaians are likely to see tweets which are posted on twitter (Social, 2021).

The instrument for data collection and analysis was the coding guide which was developed based on the objective of the study. A coding guide was used to tally all tweets and posts which had the various indicators adopted by the researchers for the study.

Coding sampled only tweets that were posted between the 11th of March 2020 and the 11th of March 2021. Tweets that have the following words, will be used in our analysis of the content analysis of the twitter activity of key Ghanaian state actors involved in the management of the covid-19 pandemic;

- Covid 19
- Safety
- MaskUp
- Social Distancing
- Vaccine

These units of coding were chosen by the researchers because we believe they will form the bases of allowing us to achieve the research objective in order to adequately draw conclusions and make appropriate recommendations.

Tweets were accessed from twitter’s API using the R statistical program. The *rtweet* package (Kearney 2019) was used. The tweets (including retweets) covered the period of March 10, 2020 to March 10, 2021.

Data was analysed and presented using descriptive statistical techniques such as percentages, graphs and charts. Analysis included trends of tweets containing COVID-19 keywords within the study period and the share of COVID-19 tweets versus non-COVID-19 tweets within the study period. We also looked at trends of tweets between elected officials and official accounts of government departments and agencies. In addition, we attempted to test the correlation between tweets and the number of cases reported in each month in the study period.

5.0 Results

5.1 Figure 1: Cumulative Number of Tweets Containing COVID-19 Keywords by Sampled Accounts.

Figure 1: Cumulative Number of Tweets Containing Covid 19 Keywords by Sampled Accounts.

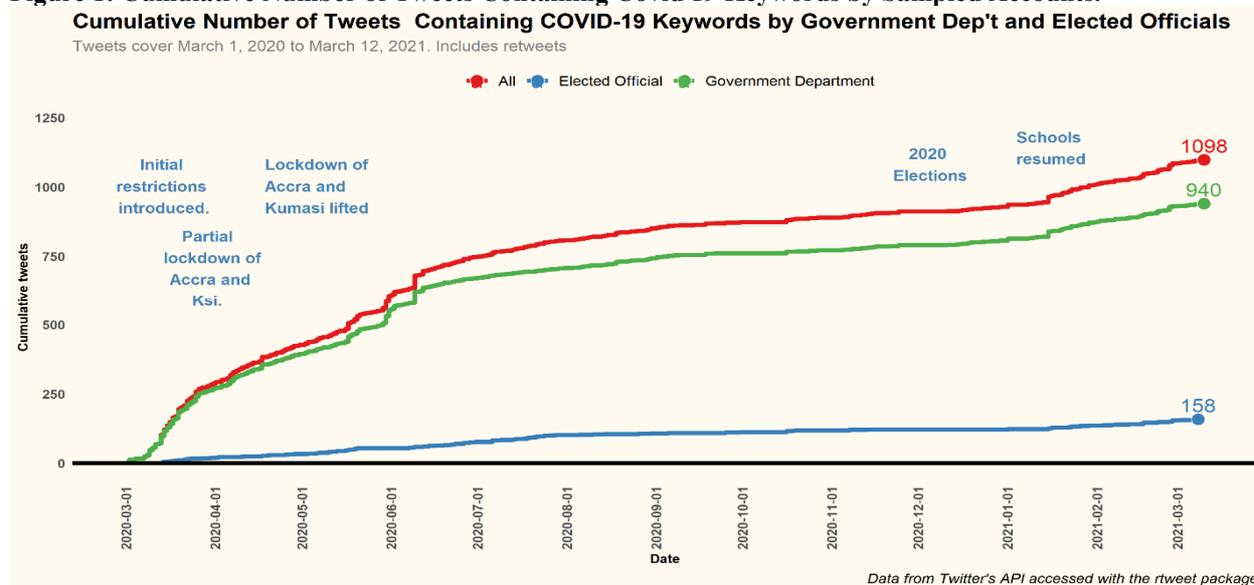


Figure 1 shows the cumulative number of tweets which contain the under study Covid-19 keywords. The distribution is shown from three angles; the blue distribution shows the number of tweets containing the selected keywords by elected officials, who in this case are the President of Ghana; @Nakufoaddo and the Minister of Information @Konkrumah. The total number of tweets for the period is 158. The green distribution shows the total number of tweets containing the selected covid 19 keywords by state agencies, that is, the Ministry of Health, @mohgovgh, the ministry of information @moigovgh and the Centre for Disease Surveillance @DSD_GHS. The total number of tweets by state agencies for the period under study is 940. The total number of tweets by the selected Ghanaian state actors for the period under study is 1098.

5.2 Figure 2: Share of COVID 19 Related Tweets Containing Selected Keywords

Figure 2: Share of Tweets Containing Covid-19 Keywords

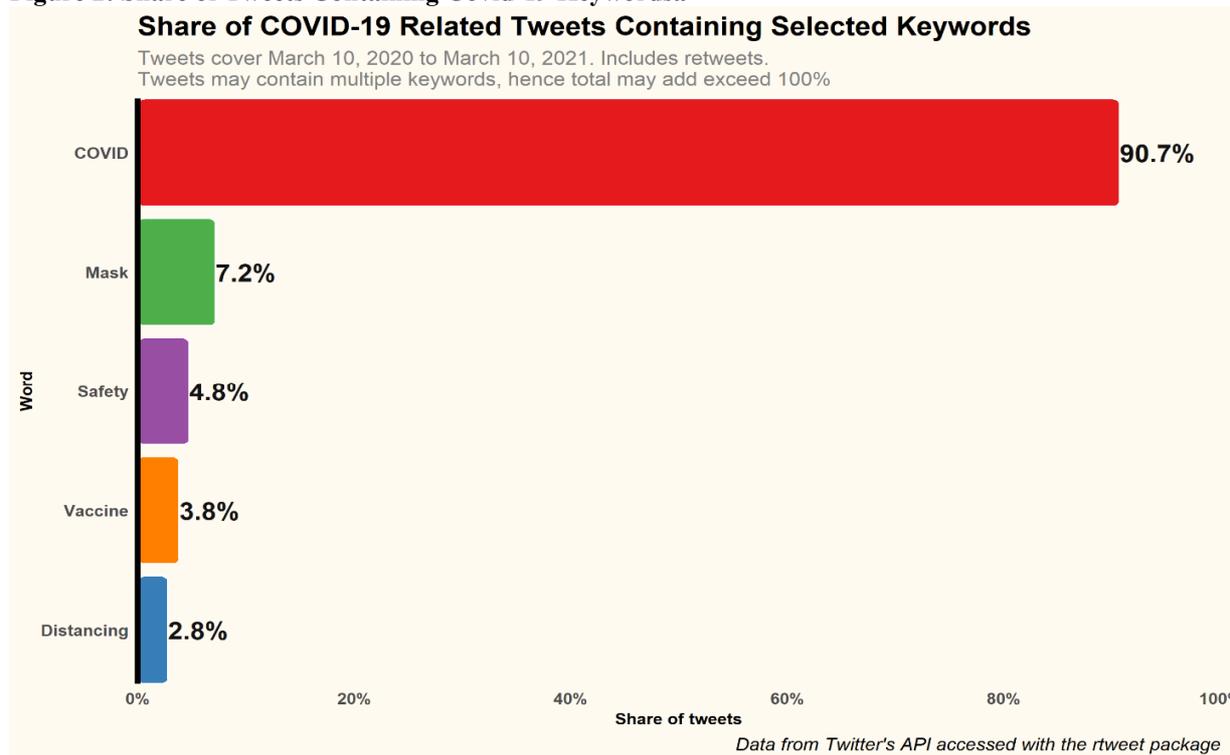
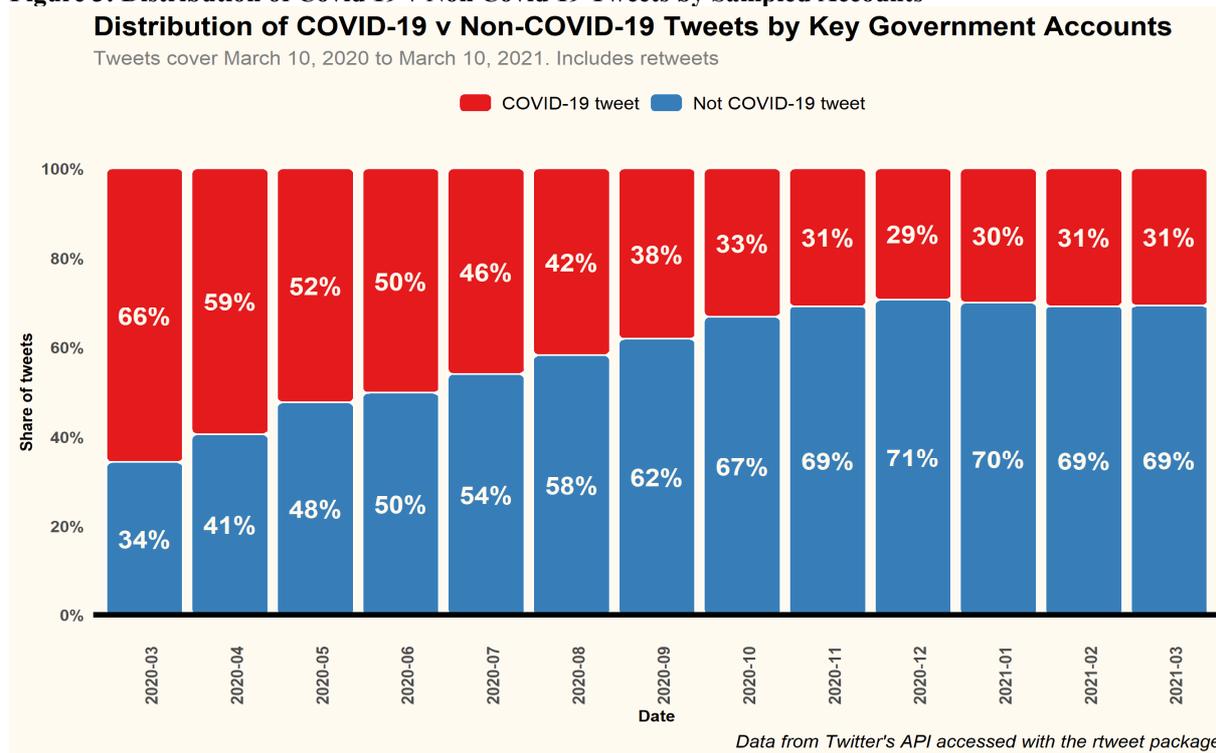


Figure 2 presents a graphical distribution of which keywords were most frequent in the tweets of the selected state actors during the period under study. The keyword “COVID” leads the distribution because it was present in 90.7% of tweets by the selected state actors. The keyword “Mask” follows with 7.2%, while “Safety” was recorded in 4.8% of the tweets by selected state actors during the period. “Vaccine” was present in 3.8% of tweets, “Social Distancing” came last by being present in only 2.8% of tweets during the period under study. It is important to mention that, some tweets contained more than one keyword, as such the percentage of keywords present in tweets may exceed 100%.

5.3 Figure 3: Distribution of COVID 19 VS Non COVID 19 by Ghanaian State Actors

Figure 3 presents a graphical distribution of monthly tweets by the sampled Ghanaian state actors. This distribution shows the percentage of tweets which contained the covid 19 keywords used for this study against tweets which did not contain the keywords on a monthly basis. We notice that at 66%, March 2020 saw the highest number of covid 19 related tweets by Ghanaian state actors. Followed by April 2020 which recorded a 59% of Covid 19 related tweets as against 41% of non Covid related tweets. At 29%, tweets from December 2020 have the lowest representation of the Covid 19 related keywords used for this study, as against 71% of non covid 19 related tweets.

Figure 3: Distribution of Covid 19 v Non Covid 19 Tweets by Sampled Accounts



5.4 Figure 4: Relationship between Number of COVID 19 Cases and Number of Tweets by Ghanaian State Actors

Figure 4: Bivariate Analysis of Covid 19 Tweets Against Number of Cases Recorded

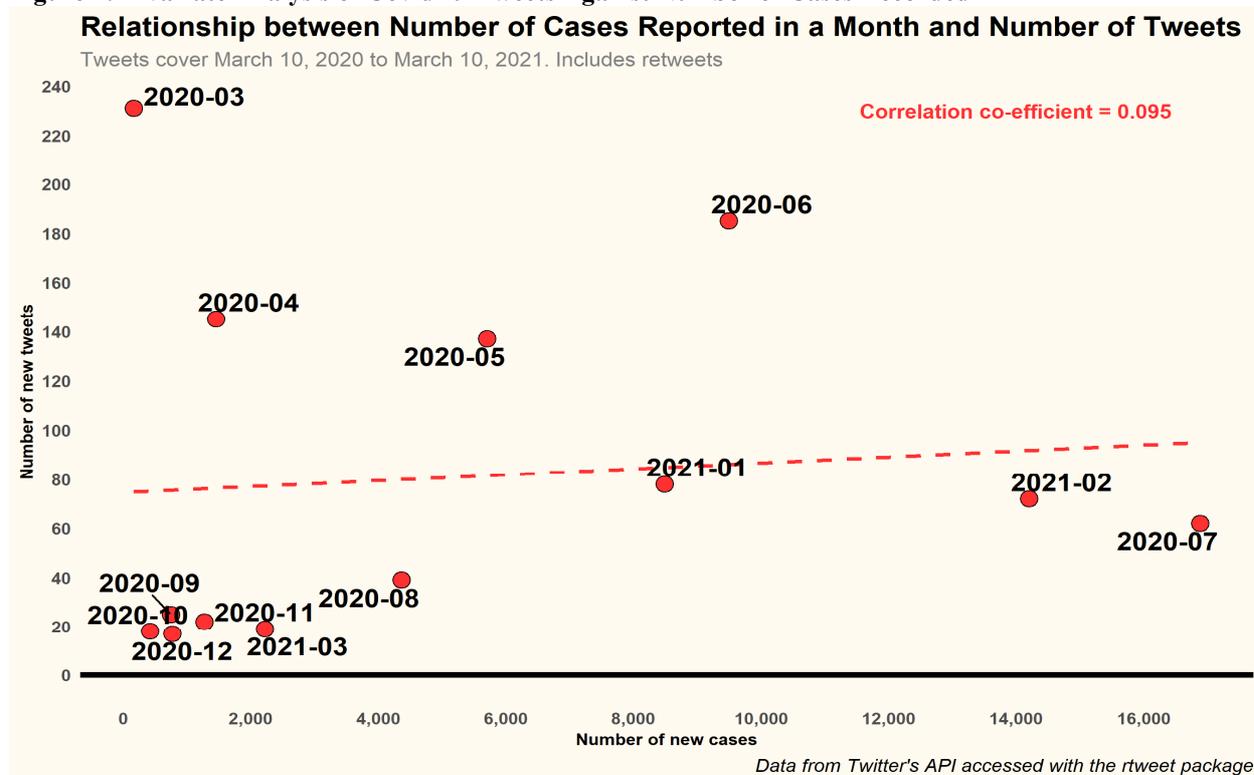


Figure 4 shows the results of the analysis of the correlation of number of tweets as against the number of new Covid 19 cases. With a correlation co-efficient of **0.095** the researchers found no correlation between the number of Covid 19 related tweets by Ghanaian state actors and the number of new Covid 19 cases in Ghana. In other words, the number of new Covid 19 related tweets and the number of new covid 19 cases in Ghana do not

affect each other.

6.0 Discussion

The findings from our analysis provides evidence to the fact that in Ghana, personalised social media platforms and microblogging websites such as twitter are not considered appropriate channels for emergency and crises communication such as that witnessed during the first year of the Covid 19 global pandemic. This may be due to the fact social media even though a preferred form of communication amongst users in Ghana, hasn't gained grounds as an official health communications channel for elected leaders and state agencies in Ghana (Amenyeawu, 2020). Also, the year 2020 which saw the height of the global Covid 19 pandemic was also an election year in Ghana. This may be one of the reasons why the total number of Covid 19 related tweets from elected officials are so low. The simple explanation we can give is that, elected leaders chose to dedicate their posts on twitter to political campaigns and other activities which relate to retaining their offices instead of posting about the Covid 19 pandemic.

Another major observation made from the results is the disparity in the month on month record of tweets containing the Covid 19 related keywords that were used for this study. At 66% the month which recorded the highest number of Covid 19 related tweets against non Covid 19 related tweets is March 2020; the month in which Ghana recorded its first case of Covid 19. Further, we notice the month on month number of Covid 19 related tweets compared to non Covid 19 tweets reduce throughout the year under study, with December 2020 recording the lowest percentage of Covid 19 related tweets at 29%. A possible reason for the month of December having the lowest number of Covid 19 related tweets may be the fact that Ghana's Parliamentary and Presidential elections were held on December 7th. The authors believe this is a valid reason because we notice a rise in Covid 19 related tweets against non Covid 19 related tweets from January through March 2021, the months which succeeded the election month.

Although we believe our findings are important for understanding if there is a relationship between the social media posts of key state actors and the number of daily recorded cases during the first year of the Covid-19 pandemic in Ghana, it is important to note the limitations of this study. First, our analysis focused on only one social media platform (Twitter). Our analyses do not capture data from Facebook, which is according to Social (2021) the most popular social media platform in Ghana. Evidently, Twitter has a cap of 280 characters and a limit of 4 photographs on a Tweet. Future studies should take into account that these features make the use of Twitter a more personalised blogging experience, unlike Facebook which allows more freedom in use, therefore Twitter may not be the easiest platform to use by state actors during crises and emergency situations such as what was witnessed during the Covid 19 pandemic, and that is a possible reason why we found no correlation between the Covid 19 related tweets and the number of new recorded covid 19 cases.

7.0 Conclusion

In response to the relationship between number of Covid 19 related tweets and number of new cases daily, our findings show that there is no correlation and as such is statistically insignificant. With a correlation coefficient of **0.095** our analysis of the twitter activity of the five sampled verified Ghanaian state actors shows that any form of relationship between the number of Covid 19 related tweets and the number of new Covid 19 cases is entirely due to chance. A closer look at our results show that the earlier months of the pandemic saw more covid 19 related cases than the later months. Thus, while we agree that it is important for state actors to have social media handles with which they can communicate with the public, it is not sufficient. For their activity to actually have impact in national communication campaigns such as that witnessed during the height of the Covid 19 pandemic, political figures and state agencies need to adopt measures which liberalise their use of personalised microblogs such as Twitter. For example where there is a limit on the number of characters to be used, links to external websites can be shared through Twitter. Also, Twitter can be integrated into the national public communications framework, this is because the public believes information to be more credible when it is disseminated through social media (Smith, 2010; Sweetser and Metzgar, 2007). Our research used purpose sampling to collect data for our analysis, as with all research that adopts qualitative methods, we cannot generalise our findings for all elected leaders and state agencies across all platforms. Future research can explore activity across different social media platforms and different countries, and look out for how they were used differently by officials and agencies in different countries.

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