COVID-19 Dialogue on Facebook: Crisis Communication Relationship between Ghanaian Authorities and Citizens

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ABSTRACT

The paper explored how the Ministry of Information (M.O.I.), the official mouthpiece of the government of Ghana, interacted with citizens during the COVID-19 outbreak within the context of crisis communication as a tool for authority-citizen engagement on Facebook. Content analysis of COVID-19 comments on the Ministry of Information's official Facebook page showed higher participation in the discussion from citizens. However, authorities only provided information by being inactive participants in the interaction. The dominant issues focused on Ghanaian authorities and their actions, the course of events surrounding the pandemic, infected cases and deaths, and Ghana's recovery efforts. The active publics provided information, asked and answered questions, and expressed their opinions as the discussions were ongoing. The comments portrayed negative, positive, and neutral tones. The paper also revealed diverse challenges that are likely to hinder crisis communication during the pandemic, from the inflexibility of action, quality of information, and disparity of knowledge.

KEYWORDS: COVID-19, crisis communication, authorities, citizen, Ghana

COVID-19, which was first reported in Wuhan, China, incited distress and unease across the world as millions of people were infected and died. Due to its danger, COVID-19 has gained widespread media coverage in Ghana and worldwide. Chinese officials notified the World Health Organization (WHO) on December 31, 2019, about the outbreak of pneumonia cases in

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Wuhan City of Hubei province, China. Furthermore, on January 30, 2020, the WHO stated that the novel coronavirus (COVID-19) is an epidemic and a Public Health Emergency of International Concern (WHO, 2020a). On March 11, 2020, the WHO declared COVID-19 a pandemic based on its dangerous spread worldwide (WHO, 2020b). As of February 18, 2021, there were 109,426,406 COVID-19 confirmed cases, including 2,419,363 deaths globally, according to the WHO (2020c). In Ghana, as of February 18, 2021, there have been 77,748 confirmed cases of COVID-19, including 561 deaths reported by the WHO (2020c).

The influx of new media has impacted the way society shares information and networks during an emergency. Hence, social networking sites, like Twitter and Facebook, help broadcast information, share ideas amongst publics and organizations, and provide a platform for authority-citizen engagement during crises (Spence et al., 2015). Facebook is important for crisis communication during pre-crisis, in-crisis, and post-crisis stages of disasters. Therefore, social media is quickly incorporated into the emergency tools and merit systematic research due to its feasibility in supporting a developed community response (Mirbabaie et al., 2020). Social media's proliferation has increased the networking system among publics, whereby easy sharing and communication happens regularly (Castells, 2012). The public voluntarily interacts with others by sharing, approving, or disapproving social media messages (Kang et al., 2019).

Scientific study has shown that government or health officials use social media to interact with citizens during health crises to increase awareness and engagement. Several studies have explored social media use during epidemics (Biswas, 2013; Guidry et al., 2017; Mollema et al., 2015). For instance, how developed countries and health organizations like the Netherlands, the U.S. Centers for Disease Control and Prevention (CDC), and the WHO have used Facebook and Twitter to share information and interact with the public about measles and Ebola outbreaks crises reports, health risk, dangers, and protect and prevention measures. There exists limited research about how authorities and citizens in developing countries use social media as a crisis communication setting during a pandemic. The publics' comments on Facebook show their

sentiments and viewpoints regarding an issue (Cho, 2014), which impacts other people's assessments of the real issue's worth and trustworthiness (Gearhart & Kang, 2014). Hence, it is important to explore Ghanaian authorities' and citizens' discussions about COVID-19 as it impacts efficient crisis communication during a global health crisis.

Therefore, this study investigates how authorities in Ghana used Facebook to communicate crisis-related information with citizens during the COVID-19 pandemic. The second aim fills a research gap in crisis communication by focusing on Ghana, a developing country. Hence, this research helps discover the publics' information desires and the nature of the relationship between authorities and citizens to understand the effective ways of using social media as a setting for crisis communication.

Literature Review

Crisis Communication

Currently, an increase can be noted in empirical studies about risk and crisis communication research on numerous issues, comprising "infectious diseases, public health interventions, disasters, terrorism, environmental issues, and misdeeds by organizations and their leaders" (Liu, 2019, p. 8). Crisis communication has increased in scope, but there are existing limitations with its usage in the social media era. Hence, in the new media era and the advancement of the world's technological order (Castells, 2013), authority's and citizens' responsive engagement can help achieve effective crisis communication. Also, the internet helps citizens use social media for crisis information seeking and sharing (CISS) during pandemics or epidemics (Lee & Jin, 2019).

Previous studies have revealed that the publics' likelihoods of seeking information via social media has increased rather than using traditional media due to the timely nature of communication messages and users' posts (Brummette & Fussell, 2015; Utz et al., 2013). Due to the timeliness and easy accessibility of users' comments, the publics have become vital participants that seek to be involved, usually in a period of emergency, as well as a platform for citizens to challenge authorities' decisions (Palttala & Vos,

2011). Previous scholars asserted that social media advances organizations and authorities' informational scope to inform and educate the publics during crises. Hence, authorities should frequently monitor social media to support crisis communication during the crisis (Lin et al., 2016). The basic aim of public institutions is service to humanity or the publics (Bowden et al., 2016), which is also the primary objective of crisis communication. Scholars Stewart and Wilson (2015), through the STREMII model, encouraged authorities to "take into consideration the need for organizations to monitor and respond to contemporary communication processes and to develop a social media strategy and crisis management plan for when a crisis arises" (p. 639).

Therefore, it is prudent for authorities to be responsive in their engagement with the public when discharging their crisis communication duties. Crisis communication also involves a discourse on the dangers and recuperating and taking lessons from the catastrophe (Palttala & Vos, 2011). It is important to identify the citizens as stakeholders in crisis communication, who are not similar but entails diverse minor groups with various needs, which will lead to a better understanding of crisis messages.

Social Media, Crisis Communication, and Citizen Interactive Instrument

The numerous outbreaks of epidemics and pandemics in the past years (SARS outbreak in 2003, Ebola outbreak from 2013–2016, MERS outbreak in 2012, and H1N1 outbreak in 2009) corresponded with the influx of social media as a source of real-time global health information (Biswas, 2013). A concrete rapport amongst citizens and authorities is a forerunner to comprehending the public's desires, prospects, and anticipations (Bowden et al., 2016), facilitating successful communication on social media during a crisis. Audiences offer their opinions on interactive social media platforms (Diehl et al., 2016).

Moreover, it is prudent for authorities to monitor citizens' comments on social media to be aware of their institution's image in this public's space (Coombs & Holladay, 2014). The scholars further added that citizens also provide information, in either

criticism or support. In a study about citizens' attitudes on Facebook during various crises in New Zealand and Australia in 2011, Taylor et al. (2012) discovered that citizens used social media for diverse reasons. The findings showed that some of the publics' comments described events, asked and answered questions, offered information, and assisted other people in finding more facts. In agreement, Mollema et al. (2015) identified in a study about measles outbreaks in The Netherlands on different social media platforms that some of the main topics included information about the epidemic, supposed risk of getting infected or death, trust, and role of organizations.

Aside from Facebook, Twitter has proven to be one of the most used social media platforms as a crisis setting for online communication during disasters. A previous study examined the usage of Twitter during the early days of the landfall of Hurricane Sandy in October 2012. The results showed that Twitter was a source of crisis information (Lachlan et al., 2014). Research seems to agree that during a crisis, the publics use Twitter to describe events by retweeting official information and sharing their thoughts. Bruns et al. (2012) further explored the use of Twitter during the 2011 South East Queensland floods as the publics retweeted information with the hashtag #qldfloods, which enhanced the scope of the crisis messages. Therefore, there is strong convergent evidence for the publics using social media during the crisis to discuss the course of events (Austin et al., 2012).

Furthermore, some citizens might act negatively toward authorities, others more positively. Other scholars assert that sometimes online users may frame an issue as either positive or negative (Miller & Kendall, 2018); hence, there is a balance in the audience's sentiments or tone of comments. Furthermore, in a cross-national study, Kang et al. (2019) examined tweets about the Samsung Galaxy Note 7 eruption disaster in Australia, South Korea, and the United States of America. The findings revealed that the negative tone was prevailing in the tweets about the crisis (Kang et al., 2019). In support of Kang et al., Atlani-Duault et al. (2015) explored the publics' discussions in the comment section on websites and television outlets in France and discovered accusations by the people. The publics criticized the actions of

authorities, pharmaceutical firms, and other elites for European epidemic outbreaks. In a similar study about the online discussion of H1N1, Finnish citizens did not believe the government and their actions in eradicating the epidemic. Therefore, the Finnish government's mediation approach to prevent fake news about the crisis in discussion forums was very late, and the resources were small (Tirkkonen & Luoma-aho, 2011). According to an Afrobarometer survey (Sanny & Selormey, 2020), most Ghanaians use social media as their source of information and view its impact as both positive and negative. The survey further revealed that more Ghanaians approve of unlimited access to the internet and social media than regulation by the government. However, most citizens expect authorities to curb the spread of fake news and other biased information. For this reason, the survey concludes that most Ghanaians are likely to believe false information on social media.

A public opinion study about novel vaccines on social media showed that most comments were positive and negative (Salathé & Khandelwa, 2011). Positive comments were likely to lead to people taking the vaccines, whilst negative comments likely led to less vaccine uptake and therefore many unprotected people, resulting in a potential increase in pandemic or epidemic outbreaks. Usually, the emotions shared by audiences on social media affect how the publics see an issue (Kim et al., 2016). Therefore, social media grants a platform for the publics to post positive or negative comments in support (Coombs & Holladay, 2014) or disagreement of the organization's actions during a crisis (Pang et al., 2014). Bowden et al. (2016) posit that citizen participation in discussion forums is positive and sometimes negative; hence, government institutions should persistently monitor and partake in discussion with the public.

One problem with government institutions and health authorities' social media usage as a crisis tool is their dominant preference for one-way communication. Biswas (2013) emphasized that Facebook enabled more interaction because of its participatory characteristics. However, the WHO and the CDC concentrated on one-way communication during the 2009 H1N1 pandemic (Biswas, 2013). Ding & Zhang (2010) support Biswas's findings of the same pandemic that Chinese and U.S. government officials

used social media for one-way communication and limited two-way communication approaches to disseminate crisis information to the public during H1N1. Therefore, research seems to agree that all publics' participation occurs after health specialists and government officials have finalized their resolutions about crisis communication plans (Grabill & Simmons, 1998).

The internet, and social media platforms precisely, have helped in the "faster and easier distribution of movement information, and [have] enabled individuals to stay in touch with more people, communities, and diverse causes" (Theocharis et al., 2015, p. 204). It has changed how users share crisis communication information on social media platforms (Miller & Kendall, 2018). Hence, social media is an important mechanism for emergency communication during various crises (Taylor et al., 2012). Authorities use social media to disseminate information and enhance publics' involvement in crisis communication development. Based on the literature, the research questions below explore the issue at hand:

RQ1: Which issues did Ghanaian citizens address on Facebook concerning COVID-19?

RQ2: What was the nature of Ghanaian citizens' comments during the COVID-19 discussion?

RQ3: What kind of tone did the citizens' comments on Facebook concerning COVID-19 portray?

H1: Ghanaian authorities are less likely to actively participate in discussions with citizens on their Facebook platform during the pandemic.

Dilemmas of Authority-Citizen Crisis Communication

Four problems from the previous study by Tirkkonen & Luoma-aho (2011) operationalized to analyze the authority–citizen crisis communication relationship during the COVID-19 outbreak in Ghana. These four problems portray difficulties concerning authorized communication by the Ministry of Information and Ghanaian citizens' unauthorized communication on Facebook (see Table 1).

The first problem, inflexibility of action, shows that systematic and bureaucratic authority institutions cannot perform and respond as people interact and share messages and links on Facebook. The public sector institutions characterize the bureaucracy period with administrative obligations and tasks. The citizens focused on the post-bureaucratic way with a quick exchange, leveled, and easy-flowing interaction (Castells, 2004). Also, authorities have problems clarifying posts shared on Facebook. They are unaware of their dialogue allies and whether they are rightfully or wrongfully involved. Identifying Facebook users is difficult since people have diverse views and thoughts (Kavanaugh et al., 2011), usually using aliases. Authorities do not have the resources to filter the enormous volume of posts shared on Facebook (Kavanaugh et al., 2011).

The second problem is the diverse nature of information authorities and citizens have. Horizontal dissemination of information is more truthful and current (Bowden et al., 2016) than authorized information from the public sector. Results from a study about the Flint, Michigan, water crisis revealed an increase in public distrust of authorities and public institutions (Morckel & Terzano, 2018). When such situations happen, meaningful information about preventive actions is disregarded, misconstrued, or probed (Wachinger et al., 2013). Sometimes, the public could also be the source of false or fake news. In 2010, false information began to spread on Twitter, which brought about a needless evacuation of "the Grand Central Station" in the U.S. (Branicki & Agyei, 2014).

The third problem is knowledge disparity, which identifies authorities as specialists in a specific area. During catastrophes, authorities or specialists and citizens or laypeople usually have different views. The people's views do not essentially associate with the crisis but can affect how the publics see an issue (Kim et al., 2016). On the other hand, experts make decisions based on their ideas and understanding of composite matters, in which people either trust or condemn information delivered by experts. Distrust lessens the usefulness of communication (Morckel & Terzano, 2018). Therefore, when citizens lose trust in authorities'

information, it emphasizes disbelief affecting how individuals view situations in their society.

The fourth problem exists in the crisis memory, which includes stigmatization. Stigmatization is a problem that brings about anger and violence based on a preconceived past (Lundgren & McMakin, 2013). Stigma is stored in a person's memory and social media creates an avenue for storing information; hence, stigmatization can be facilitated. For instance, people with negative thoughts might create and share misinformation to sway others (Bowden et al., 2016). It brings another burden on authorities in crisis communication since they would treat the existing disaster and previous ones intensified by unpatriotic people.

RQ4: How did the four dilemmas characterize the Ministry of Information and active citizens' relationship online?

TABLE 1   Dilemmas of Authority–Citizen Crisis Communication

Problems	Citizens	Authorities
Inflexibility of action	Post-bureaucracy	Bureaucracy
Quality of information	Speculation, biased	Official, confirmed
Knowledge disparity	Lay individuals	Experts
Crisis memory-stigma	Group of events	Single event

Source: Tirkkonen & Luoma-aho (2011)

Overview of Ghana's Media Landscape

Ghana's 1992 constitution stipulates that the country practices a democratic multiparty system of government. There are separation and balance of powers through the Executive, Legislative, and Judiciary as the three arms of government. The President is the Head of the Executive, while the Speaker of Parliament and the Chief Justice are the Legislature and Judiciary leaders, respectively.

Ghana has a vibrant mass media that actively participate in developmental issues, political dialogue, national discourse, and performs the *Fourth Estate* in the democratic dispensation. Notwithstanding a turbulent political past and numerous military

coup d'états after gaining independence in 1957, Ghana was touted as one of Africa's most established democratic nations. The freedom and independence of the media in Ghana are assured in Chapter 12 of the nation's 1992 Constitution (Asante, 2020). Ghana's 1992 Constitution further guarantees that all people enjoy the freedom of speech and expression. Therefore, the liberty to express a person's viewpoint without restriction is a basic right assured by the Constitution of Ghana and further guaranteed by the Universal Declaration of Human Rights (Adams, 2010).

This constitutional requirement reflects the reality in Ghana, even though there have been some hitches in the past. Ghana has a vibrant, diverse, liberal media setting, regulated by an independent constitutional organization, known as the National Media Commission. The Ghanaian media landscape has state-owned and private-owned media. According to the Media Ownership Monitor Ghana (n.d.), numerous media sectors have a high audience focus. Radio is ranked as the most prevalent media in Ghana, followed by television, online, and newspapers. Radio has the highest audience scope of about two-thirds of the population. Regarding media ownership, state-owned newspapers are dominant in the printed press. The top four state newspapers (*Graphic Communications Group Limited, Business and Financial Times Limited, New Times Corporation, Western Publications Limited*) have 95.5% audience shares.

In another aspect, private organizations are dominant in the broadcasting scope. The television industry has a mixture of local and English languages, with the top four media conglomerate owners (Multimedia Group, Despite Group of Companies, Media General Ghana Limited, and state-owned Ghana Broadcasting Corporation) market share of 77.4%. The radio sector is more varied in audience share as the owners differ from its location. Despite Group of Companies and Multimedia Group of Companies dominate the radio market in Ghana. Since January 2020, the internet penetration rate in Ghana has stretched to 48%, from the 35% in the previous year. It signifies that a fair share of Ghana's total population often uses the internet (Sasu, 2020).

Method

This study examined the crisis communication relationship between the Ghanaian government and citizens during the COVID-19 outbreak on social media, Facebook to be precise. The official Facebook page of Ghana's Ministry of Information (MOI) was selected for the study's data collection. The MOI is the official mouthpiece of the government of Ghana. According to Statcounter (2020), Facebook has a leading market share of 49.2% of Ghana's social media space. The MOI has 762,200 followers on Facebook, the highest on any social media platform. Therefore, this study selected MOI's official Facebook page to analyze the online discussion of Ghanaian authorities and citizens during the COVID-19 outbreak.

The study employed the quantitative content analysis to explore the authority–citizen relationship during the COVID-19 outbreak in Ghana. Facebook posts and comments for the first 6 months since Ghana had a COVID-19 case on March 12, 2020 (Zurek, 2020) to August 12, 2020, were analyzed. The first 6 months since Ghana had its first COVID-19 case were selected as the time frame of this study because it was the most critical period of the West African country's battle against the pandemic. The Facebook posts included the President's frequent COVID-19 address to the nation, Ministerial Press briefings, COVID-19 case-count updates by the government, and directives from various government sectors.

Statistical package for the social sciences (SPSS) was used to perform the *z-score*s to determine the nature of the association between the commenters and their comments on the MOI Facebook page. We analyzed 729 COVID-19 Facebook comments by Ghanaian citizens with SPSS to produce descriptive statistics for the dataset. Furthermore, this produced a new column of indicators that showed the *z-score* for each variable in the dataset. Based on the new column of the variables, the *z-scores* revealed how many standard deviations away a variable was from the mean. For instance, the results showed that with a positive *z-score* of *0.73, Answering/Giving advice* was greater than the mean. To give another example: with a negative *z-score –1.23, Provide information*

was less than the mean. Based on these *z-score results*, it was concluded that Ghanaians are more likely to *answer/give advice* than provide information.

Sampling

Overall, 729 Facebook comments about the COVID-19 outbreak posted by citizens were used as the sample size of this study. Randomizer generated 2 constructed weeks for this paper due to the large quantity of the data (see Table 2). Moreover, at least 2 constructed weeks are necessary to precisely signify the content of online stories collected simultaneously (Hester & Dougall, 2007). Randomizer uses the "Maths.random" application for scientific study (Urbaniak & Plous, 2013). Specifically, the "most relevant" filter tool selected the important Facebook comments for this study. The Facebook comments by citizens and authorities were the unit of analysis.

TABLE 2   Two Constructed Weeks

1st week	Mar 14	Mar 16	Apr 10	Apr 30	Jun 9	Jul 12	Jul 29
2nd week	Mar 9	Mar 25	Apr 4	May 3	May 14	Jun 23	Jul 24

Coding Scheme

This study was operationalized based on Tirkkonen & Luoma-aho's (2011) work to analyze the authority–citizen relationship during the COVID-19 outbreak in Ghana. The study relied on previous work about online authority crisis communication during the swine flu influenza pandemic of 2009–2010 in the framework's operationalization (Tirkkonen & Luoma-aho, 2011). The previous study analyzed online discussions between citizens and authorities during a pandemic, which suits this study's aim. Social media is creating new ways for authority–citizen communication during a global health crisis.

Also, comments were coded according to the emotions conveyed toward authorities' posts: positive, negative, and neutral. All indicators were equally specific, signifying that only one choice could be selected to determine the comment examined. After

coding the comments, the data were statistically analyzed with SPSS. *Z-scores* statistics identified the relationship between the differences in the comments.

TABLE 3   Coding Book

Day	Date when the comment was posted
Commentor	1=Ministry of Info, 2=citizen
Name	Name of the commentator
Nature of the comment	1=providing information, 2= answering or giving advice, 3=asking question(s), 4= expressing strong opinion
Key issues addressed	1=describing course of events, 2=recovery efforts in Ghana, 3=infected cases & death, 4=Ghanaian authorities & their actions.
Content of comment	Written down for qualitative analysis.
Tone toward the authorities	1=positive, 2=negative, 3=neutral, 4=not clear

Inter-Coder Reliability

Two graduate students were trained to code 72 Facebook comments separately. They coded 10% of the total sample used for inter-coder reliability purposes. Cohen Kappa's SPSS method was employed to calculate the reliability. The absolute reliability of the coefficient for "topics of comment" was 0.88 value, while that of the "nature of Citizen's comment" had a 0.91 value. Also, inter-coder reliability for the tone of comments was 0.90, indicating a strong agreement level.

Results

The crisis communication relationship between Ghanaian authorities and citizens was examined during the COVID-19 outbreak on social media. This study's content analyzed the key issues addressed on Facebook, the nature of Ghanaian citizens' comments, the tone of their comments about COVID-19, Ghanaian authorities–

citizens discussion on Facebook, and dilemmas of authority–citizen crisis communication.

Key Issues Addressed

Regarding the first research question, Ghanaian citizens expressed their opinion on some specific issues. In 53.1% of the sample size, the leading comments were about Ghanaian authorities and their actions (387). The second highest was about describing the course of events, 32.4% (236). The third key frame was about the infected cases and deaths which had 9.3% (68) of the comments; the least comments were about recovery efforts in Ghana, 5.2% (38). The comments that focused on critiques about Ghanaian authorities' management of COVID-19 were, "How are we going to do the voters' registration as proposed by Electoral Commission, looking at confirmed cases in Ghana?" While other people supported officials' actions with posts like "We the good citizens of this country know the Akuffo-Addo administration is working, so keep on, and the good Lord will bless Ghana." Some citizens described the course of events surrounding COVID-19 as being politicized with comments like, "We have been taking this far too unserious. Let us be focused. The politics is enough." At the same time, others focused on the global perspective of the pandemic that "Most schools abroad are improvising with online tuition." The citizens shared their anxiety about the nature of the earliest infected cases, such as "My worry is, these people were in the plane with
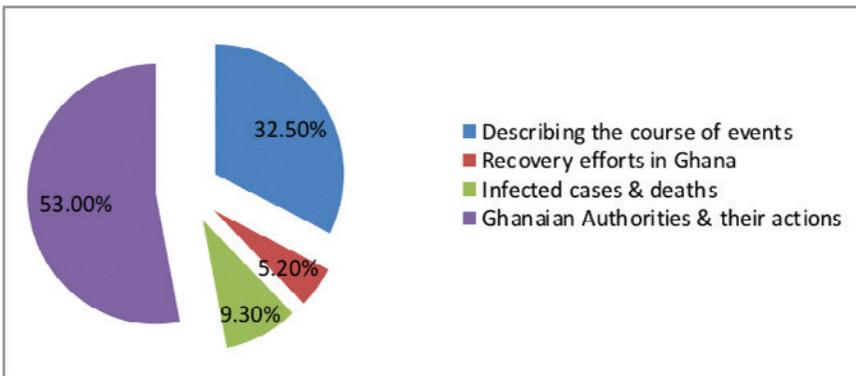

FIGURE 1   **Topic of the Comments**

other passengers who may likely be affected, so how do we track all these passengers?" There was calmness and support for how authorities have managed the situation to have more recoveries as a citizen posted that "We are still doing well as a country with the higher number of recoveries all glory be to God and God bless our President for his good leadership."

Nature of Comments

The second research question focused on the nature of comments made by Ghanaian citizens during COVID-19 discussions. The statements showed that they intended to provide information about different issues concerning COVID-19. After Ghana's borders (sea, air, land) were closed to prevent and contain the COVID-19 cases, some people were still using various means to enter the country, which made some citizens provide information about the incident such as "The border at Paga is only closed to prevent vehicle, but motorists from Burkina Faso are still gaining access into our country." Other citizens shared news links to show how some health workers have been denied their severance pay: "Tension as Ridge Hosp. excludes some nurses from 'front line' package https://starrfm.com.gh/2020/04/tension-as-ridge-hosp-excludes-some-nurses-from-front-line-package/." Subsequently, social media is a two-way form of communication; some of the citizens asked questions like "Any online market to buy commodities?" while a majority sought further understanding about government's free water and electricity policy during the outbreak with queries such as "Prepaid users how are we going to get our 50%?" Since the Ministry of Information did not answer any of the questions posed by the public, some of the citizens answered the questions such as about the free water and electricity policy with a response like "If you pay 50% of the units you usually purchase or want to purchase . . . i.e., if 100 ghc ($17) is 100 units pay 50 ghc ($50) for the 100 units . . . (half of it)." While those who were not convinced with the responses from their fellow citizens asserted that "This 50% slash in utility (electricity and water) bills are not well understood." On the other hand, certain citizens expressed their opinions in the strongest terms based on their dissatisfaction with the turn of events and their leaders' actions. Those who

criticized the lack of urgency in Africa whenever calamity occurs claimed that "In Africa when tragedy does not befall on us, we refuse to act yet we have been saying prevention is better than cure. The airport should have been closed." The politicization of the pandemic was replicated in Ghana; hence some citizens bemoaned such a problem "Why should this be about politics? Seriously we need to change . . . what has President Nana Addo ought to do with COV-19?" Overall, most of the nature of comments made by the publics expressed strong opinions to show their dissatisfaction during COVID-19 discussion between Ghanaian authorities and citizens. To identify the relationship between the differences in the comments, z-score performed a substantive conclusion. The results suggested that there were positive z-scores for "Answering/ Giving advice" (0.73) and "Express strong opinion" (0.89), while "Provide information" (–1.23) and "Asking Questions" (–0.39) had negative z-scores. Therefore, commenters are more likely to answer/give advice and express strong opinions rather than provide information or ask questions below the mean.

Since authorities did not respond to the citizens' questions, other people gave diverse responses to most of the questions. Although the diversity of ideas is good, the nature of the discussion in this situation gave a chance for conflicting opinions from the publics. Therefore, the citizens were more likely to give answers or advice than ask questions. For instance, when the government initiated a 50% reduction in electricity and water initiative during the COVID-19 outbreak, the publics did not understand the policy and asked questions about it. Such as, "50% of electricity bills absorbed by the Government, how about those of us using prepared meters, how is it going to work for us?" and "Any enlightenment for those using prepaid meters?" The citizens gave several responses to this issue like "If you pay 50% of the units you usually purchase or want to purchase . . . i.e. if 100 ghc ($17) is 100 units pay 50 ghc ($50) for the 100 units . . . (half of it)." Meanwhile, those who were not convinced with the responses from their fellow citizens asserted that "This 50% slash in utility (electricity and water) bills are not well understood."

The citizens were more likely to express strong opinions because they were dissatisfied with how their authorities managed
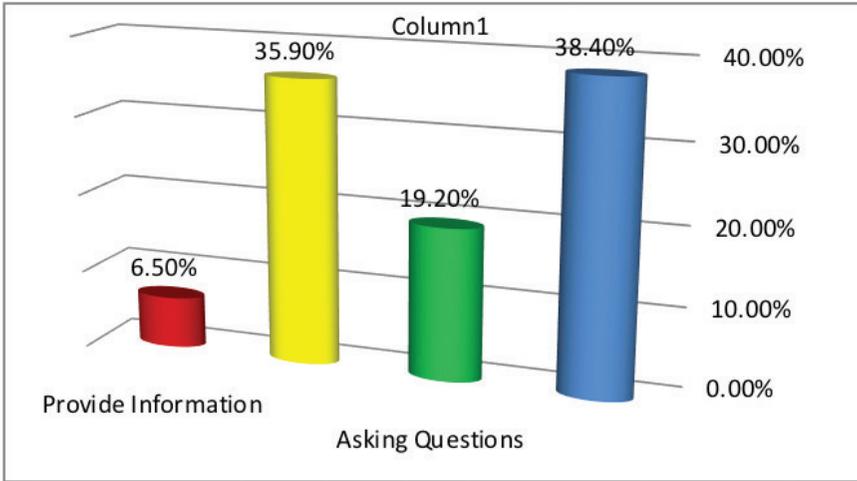
FIGURE 2   Nature of the Comment

the COVID-19 situation and politicization of the pandemic in Ghana than provide information about the global health crisis. For instance, some citizens expressed strong opinions like "What prevented the government at the time to close the borders? Was it so costly than the $100 million?" and "Close the borders to protect our lives."

TABLE 4   Descriptive Statistics

Nature of Comment	Percentage	Z-score
Provide information	6.50%	−1.23401
Answering/Giving advice	35.90%	0.72707
Asking Questions	19.20%	−0.38688
Express strong opinion	38.40%	0.89382

Mean = 25%, Standard Deviation = 14.992

Tonality

Ghanaians expressed varied attitudes on MOI's Facebook platform during their COVID-19 discussion to show their satisfaction or dissatisfaction with the government's efforts to combat

the pandemic. Most of the comments had a negative tone (36.8%) attached to them. It showed how dissatisfied the citizens were with the efforts of authorities in eradicating the global health crisis. Some of the negative comments are as follows: "Feel sad for this country. We always wait to take last-minute action. Oh Ghana," "We have lost the fight so far as community spread is concerned." The optimistic tone (30.7%) included satisfactory remarks or supportive comments for the government's efforts, such as: "The good citizens of this country know Akuffo-Addo-led administration is working. The good Lord will bless Ghana," "We are still doing well as a country even with the high number of recovery cases. All glory belongs to God. God bless our President for his good leadership." The neutral comments (32.5%) did not contain any positive or negative remarks toward the government or officials. For instance: "The only thing we have to do is to observe the necessary protocols," "The only thing we have to do is to obey all the protocols that are all. Through that, we can fight for COVID-19."

TABLE 5   Tone of Comments

Tone	Frequency	Percentage
Positive	224	30.7%
Negative	268	36.8%
Neutral	237	32.5%
Total	729	100%

Authorities' Participation in Discussion

Regarding the hypothesis, Ghanaian authorities did not post any comments under their Facebook posts by answering a citizen's question, giving clarifications, or getting involved in a discussion. Therefore, there was no active participation between authorities and the citizens during the pandemic outbreak on Facebook, but it was just a limited two-way communication. Some of the public responded to their fellow citizens' questions and frequently participated in the discussion. Hence, the hypothesis is supported.

The Four Dilemmas

Moreover, among the four operationalized problems in this paper, only crisis memory was not noticeable during the Facebook discussion. The inflexibility of action was evident when MOI, a public institution, could not reply to any citizens' questions or concerns. The MOI followed the same technique in their posts by posting information but not partaking in discussions with citizens. Their inability to participate in discussions led to the second problem, the quality of information.

Furthermore, the third problem, disparity of knowledge amongst government and the people were evident. This difference was evident in the citizens' comments like the government's initial 50% absorption of electricity, the late closure of the country's borders, the undertaking of contact tracing, the duration the total lockdown was going to last as the pandemic affected human survival. Last, the fourth problem, the crisis-memory stigma, was not that obvious in the Facebook interaction because it was the first time Ghana had experienced a pandemic. The closest Ghana came to such a global crisis was during the 2014 Ebola outbreak, but the country does not have any case to date.

Discussion and Conclusions

The current study advances the existing crisis communication-related studies within the context of the authority-citizen relationship. This study addressed several key topics about COVID-19 outbreak discussion between Ghanaian authorities and citizens; hence, the next stage is to explore the public's opinion about authorities' crisis communication efforts during different pandemics. The study further revealed that Facebook posts by the MOI impacted the nature of comments (Kang et al., 2019). It could also be employed to create attention for other health information connected to that specific issue (e.g., mitigation plans and taking precautionary actions). Hence, the use of these Facebook messages may have significant practicality in national and global public health. The results of this study suggest that practically it is important to develop a scientific system that automatically

programs comments concerning authorities–citizen communication messages about pandemics or other health-related issues. This automated system would help authorities analyze and respond to the high volume of messages because, in some situations, authorities do not have the resources to filter the enormous volume of comments posted on Facebook (Kavanaugh et al., 2011). In addition, the automated system would help discover the dissimilarities in opinions, feelings, and issues the publics focus on or comment on social media and will offer understanding into citizens' characteristics. Therefore, this study posits that the main feature of Facebook within the context of crisis communication is the exchange of timely messages and the advancement of association, which acts as a vehicle of information first aid during the early stages of a pandemic.

The discussion on MOI's Facebook platform was a good indication of people who understood the function of social media during the pandemic (Lee & Jin, 2019) and were active in crisis communication (Kang et al., 2019) by not only looking for information but also discussing it among themselves (Diehl et al., 2016). Due to the uncertainty and threats COVID-19 caused, the public sought information about happenings by asking questions. Therefore, some citizens emerged as *information brokers* (Palen, 2008, p. 78) or information hubs for COVID-19 on MOI's Facebook page. Some of the public contributed to these hubs by answering and giving advice, expressing strong opinions, and providing information by posting Facebook comments. The crisis communication discussion system practically helped the public get COVID-19 updates from a variety of publics in diverse places and enhanced the presence of user-generated information. It also led to an increase in unofficial messages from unknown people and raised concerns about the precision of the information and rumors about the number of COVID-19 infected and recovery cases in Ghana provide by some citizens (Taylor et al., 2012). The MOI's Facebook platform offered some of the publics a chance to express strong opinions about their dissatisfaction about how authorities were managing the COVID-19 pandemic. Therefore, since Facebook provides two-way communication, this study suggests that

future studies should facilitate competent crisis communication between authorities and citizens during disasters.

The framework of crisis communication and citizen interactivity on social media used in this study has numerous implications for practice and research. From a practical standpoint, this study demonstrates the important ways that authorities could use Facebook to inform, discuss with citizens, and enhance crisis communication activities during pandemics. Moreover, as explained in this study, the differences like citizens' comments provide a chance for additional technical development of crisis communication practice and improved two-way communication during a crisis. Although an actual effort is needed to fully incorporate effective crisis communication into Facebook and other social media platforms, the potential opportunities to the public validate the venture.

Another point of comparison for this study is the tone of the citizens' comments. In this regard, the results showed that positive and neutral sentiments were evident, but the negative tone was most significant. The positive comments showed the Ghanaian authorities' management approach to the COVID-19 outbreak because some individuals supported how Ghanaian authorities managed the pandemic. The negative comments showed the failure of Ghanaian authorities' crisis communication approach as individuals reacted negatively online (Coombs & Holladay, 2014). The neutral reactions did not contain positive or negative sentiments but mostly advised people to adhere to the COVID-19 protocols. The diversity in the tone of comments shows that Ghanaian authorities need to consider the different kinds of audience attitudes in their crisis communication efforts to enhance public engagement during pandemic outbreaks. To enhance the MOI's crisis communication practically, authorities need to monitor the various tones of citizens' comments, assess how individuals react to COVID-19 Facebook posts, and familiarize their crisis response to those reactions. This study has discovered that Facebook can ascertain the differences in citizens' attitudes, the usefulness of coding positive, negative, and neutral comments for comparative reasons, and the importance of the understandings acquired from comparing

comments within different tones. The findings posit that positive, negative, and neutral comments are important to the crisis communication efforts of Ghana authorities. Therefore, more studies are necessary to develop the exploratory and practical significance of audience attitude or tone to two-way crisis communication.

Regarding the hypothesis, the results showed Ghanaian authorities did not actively participate in discussions with citizens on their Facebook platform during the pandemic outbreak; hence, they frequently used limited one-way communication. Therefore, the citizens' comments and questions were not regarded as signs of public engagement or potential partners in decision-making about managing pandemics (Grabill & Simmons, 1998). Ghanaian authorities' crisis communication method during the COVID-19 outbreak is categorized as limited two-way communication, as done by the U.S. health authorities during the H1N1 pandemic (Biswas, 2013; Ding & Zhang, 2010). The limited two-way communication did not help make the authority–citizen discussion successful, but eliminated the publics from playing an essential role in the crisis communication process. Therefore, it is prudent for future studies to conceptualize one-way, limited, and unlimited two-way communication within the crisis communication theory. It will help researchers and crisis communicators to understand the depth of the issue and develop effective theoretical and practical unlimited two-way communication strategies for authority–citizen communication on Facebook.

Authorities' inability to participate in the Facebook discussion with Ghanaian citizens showed the inflexibility of their actions. Therefore, they were missing from discussions but only posted information on their Facebook platform. The lack of authorities' participation led to increased rumors, fake news, and questionable quality of information perpetuated by some people on Facebook. Ghanaian authorities underrated the resources necessary for successful online discussion or were incapable of identifying the key issue arenas (Luoma-aho et al., 2013), where there were ongoing discussions on the matter. Some outcomes of the failed authority communications and proof of the increase in public's negative comments during the COVID-19 outbreak were profound speculations, the recommendation of native drugs, and fabricated case

updates (Arthur, 2020) brought about misunderstanding and weakened civic education activities.

For authorities to reduce the knowledge disparity gap and enhance the quality of information, they should use Facebook or other social media functions, because social media have improved two-way communication capability (Tirkkonen & Luoma-aho, 2011). Ghanaian authorities must be proactive and create strong relationships with the citizens before outbreaks, but not during it. Earning citizens' trust in crisis communication involves being available online, particularly in disaster happenings, when the desire for messages, updates, and responses is strong.

This research has two limitations, which will lead to future studies. First, this study focused on a single case study. Hence, future studies should involve two case studies to validate the results comparatively. Although the 6-month period enabled the researcher to obtain great insights into the authority–citizen relationship during a crisis, an extended time frame would explain such a relationship in the long-term.

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