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Online health information-seeking experiences during the COVID-19 lockdown among social media users in four countries

Most countries imposed lockdown restrictions on high-risk cities due to the coronavirus (COVID-19) disease. Although individuals adopted social media use during the lockdown, it is unclear how online information-seeking experiences affected their health and quality of life. We conducted an online survey among people living in cities in Ghana, India, Indonesia, and Pakistan that were affected by lockdown restrictions. Using Colaizzi's method, we thematically analyzed 166 participants' (males = 93, females = 73) online text responses. We observed that uncertainties about COVID-19 and the feeling of boredom predisposed participants to become victims of misinformation. Once they were misinformed, they felt anxious about COVID-19. Consequently, some overused social media to obtain additional information while others decreased or avoided its usage entirely. Our study provides insight into a recent global phenomenon. There is a need for adequate psychological support services through social media to lessen the use of unhealthy coping mechanisms.

Key words: COVID-19; experiences; lockdown cities; misinformation; pandemic; social media

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The novel coronavirus disease (COVID-19), as of the first week of July 2020, has affected over 12 million people, with over 543,000 deaths globally (Worldometers, 2020). Notwithstanding the health, economic, and psychosocial implications of COVID-19, there is widespread information flow through various social media platforms and other traditional media platforms, especially during city lockdowns or restrictions on movement (Fountoulakis et al., 2021; Gualano et al., 2020). After COVID-19 was discovered and its transmission observed outside mainland China, people turned to social media as their source of information due to the exponential spreading of the disease and uncertainties surrounding the pandemic (Gualano et al., 2020). Evidence suggests that just in a day, there were 19 million mentions of COVID-19 across many social media platforms and websites globally (Molla, 2020).

Although it is well known that most people spend a lot of time on social media (Molla, 2020), it has been estimated that by 2021, social media users could increase to more than 3 billion people globally (Metev, 2020). Since the outbreak of the COVID-19 pandemic and the associated city lockdowns, there have been reports of an upsurge in the use of social media. For example, social media users in India were reported to have increased by 87%, spending an average of four hours on Facebook during their first week of lockdown (Business Today, 2020). Similarly, female Americans were more likely to report increased social media use during the pandemic for COVID-19-related information and social connection (Ritter, 2020). Alongside the potential benefits of using social media during the pandemic, social media usage has been associated with considerable misinformation and resulting adverse effects like fear and panic, with other negative psychological consequences (Ahmad & Murad, 2020).

Notwithstanding the notion that social media platforms are used to share facts about the pandemic, it is notable that they were also used to publish fake news, myths, misinformation, and inaccurate information about the cause, management, and complications of COVID-19 (Ahmad & Murad, 2020). Growing evidence suggests that excessive social media use during the COVID-19 pandemic has been linked to misinformation overload (Gao et al., 2020). Thus, the uncontrolled health information-seeking behavior and release of information on the internet during the COVID-19 pandemic led the world to experience “a tsunami of misinformation, hate, scapegoating and scare-mongering”, as tweeted by the United Nations Secretary-General, Antonio Guterres (Twitter.com, 2020). Also, misinformation about COVID-19 has been associated with mental health problems such as anxiety and depression and problematic coping behaviors (Ahmad & Murad, 2020; Gao et al., 2020; Ogueji et al., 2021). Although these issues raise public health concerns, little is known about the experiential factors, mechanisms, and outcomes of social media users’ health information-seeking behaviors. For example, a cross-sectional survey among Chinese citizens between January and February 2020 indicated that more than 80% of them recounted repeated social media use daily. Accordingly, these participants reported a

prevalence of 48.3% depression, 22.6% anxiety, and a 19.4% combination of depression and anxiety during the COVID-19 outbreak in Wuhan, China (Gao et al., 2020). The vulnerability to being predisposed to unscientific information and likely consequences can be partly linked to the exploratory nature of search by online health information seekers. Research has shown that most people become exploratory in their online health search when confronted with unfamiliar health-related challenges instead of standard keyword searches (Lorence & Greenberg, 2006; Pang et al., 2014). Since many search engines may not adequately support exploratory search, online health information seekers are more likely to go for other alternative online platforms like social media (Pang et al., 2014). Thus, social media sites became a channel for many unguided and unscientific materials during the pandemic (Gao et al., 2020).

Therefore, the current study sought to explore the existing process of online information-seeking experiences among social media users during the COVID-19-related city lockdowns. Using a qualitative approach, we further investigated how the lives of social media users in the selected countries in Africa and Asia were affected by the pandemic. The focus of this study was justified, as there exists sparse multicultural data regarding the experiences and qualitative mechanisms that involve social media users during this pandemic, especially among African and other non-Western populations. Also, some recent studies regarding this subject failed to explore the qualitative experiences (Ahmad & Murad, 2020) or multicountry responses within the scope of COVID-19 information-seeking behaviors (Ahmad & Murad, 2020; Gao et al., 2020; Geldsetzer, 2020). The findings of this study will propose a framework to explain online health information-seeking behaviors and the nature of COVID-19 misinformation during the lockdown periods in four countries (Ghana, India, Indonesia, and Pakistan) during the first wave of COVID-19.

Research Questions

1. What were the characteristics of participants' information-seeking behaviors on social media about COVID-19 during the lockdown?
2. How were participants affected by the online information they received about COVID-19 during the lockdown?
3. What coping mechanisms did participants employ while they sought COVID-19 information on social media?

Method

Study Design

We adopted a cross-sectional design to conduct a qualitative online survey using Google Forms. Researchers have used this approach during the pandemic

due to its methodological appropriateness and the movement restriction orders that prevented face-to-face data collection (Gao et al., 2020; Geldsetzer, 2020).

Study Settings

The study was conducted in four countries (Ghana, India, Indonesia, and Pakistan), with participants residing in cities under lockdown. These countries were exclusively selected based on COVID-19 restrictions like the lockdown during the data collection period.

At the time of data collection, Ghana recorded its first two COVID-19 cases on 12 March 2020, with a partial lockdown lasting 14 days from 30 March 2020 (Bamfo et al., 2020). Given the severity and uncertainty of the pandemic, India also experienced an initial 21-day countrywide lockdown from 25 March 2020 to 14 April 2020 (Ray et al., 2020). Similarly, by 13 April 2020, the Indonesian government declared COVID-19 a national catastrophe by Presidential Decree No. 12 of 2020 with an extensive lockdown lasting for 56 days, between 10 April and 4 June 2020 (Abdullah, 2020). Like the other three countries, Pakistan established a total lockdown on 24 March 2020 (Shahid et al., 2020). There were 2,818 confirmed coronavirus cases as of 5 April 2020, with Punjab having the highest number of infections (1,114). The government prolonged the nationwide lockdown until 14 April 2020 and the closure of all educational institutions until 31 May 2020. During the data collection period, restrictions on movement across cities ranged from seven days to 54 days in the various countries (see Table 1).

Sample Size and Sampling

One hundred and seventy-seven participants, comprising 76 (42.9%) males and 101 (57.1%) females, were recruited for the study. We used convenience and purposive sampling techniques to share our online Google Form Survey link with participants across these four countries. The purposive sampling allowed only those who spoke English, were 18 years old and lived in the cities that experienced lockdowns to participate in the study (Sarfo et al., 2022). Additionally, we applied the convenience sampling technique to allow available participants to participate voluntarily online (Sarfo et al., 2022). At data saturation, where there was a repetition of responses (Sarfo et al., 2021), we collected the following number of text responses; 27 (15.3%) in Ghana, 37 (20.9%) in India, 43 (24.3%) in Indonesia, and 59 (33.3%) in Pakistan. At the time of data collection, these participants had spent between 7 and 54 days either under partial or complete lockdown in their respective countries (See Table 1 for participants' details).

Table 1. *Sociodemographic characteristics.*

		Nation (N = 177)			
		n/(%) / M ± SD / Range			
		Ghana (n = 27)	India (n = 37)	Indonesia (n = 43)	Pakistan (n = 59)
Sex	Female	19 (70.4)	19 (51.4)	24 (55.8)	31 (52.5)
	Male	8 (29.6)	18 (48.6)	19 (44.2)	28 (47.5)
Age (M ± SD)		32 ± 8.6	25 ± 5.7	40 ± 9.2	22 ± 4.6
Education	Postgraduate	12 (44.4)	26 (70.3)	21 (48.9)	29 (49.2)
	Undergraduate	14 (51.9)	6 (16.2)	13 (30.2)	24 (40.7)
	Senior high	1 (3.7)	5 (13.5)	9 (20.9)	6 (10.1)
Available essential resources at home	Adequate	0 (0)	0 (0)	1 (2.3)	1 (1.7)
	Inadequate	27 (100.0)	37 (100.0)	42 (97.7)	58 (98.3)
Employment	Employed	22 (81.5)	12 (32.4)	27 (62.8)	38 (64.4)
	Student	4 (14.8)	24 (64.9)	11 (25.6)	17 (28.8)
	Unemployed	1 (3.7)	1 (2.7)	5 (11.6)	4 (6.8)
Days spent under lockdown (Range)		7 - 21	15 - 40	30 - 54	10 - 30

Measures and Data Collection

The Principal Investigators (created and pretested a semi-structured survey guide from existing studies (Gao et al., 2020) to solicit the participants' social media use experiences. Collaborators were permitted to add a few questions to the survey, but these items were reviewed and approved by the PIs. The link to this online survey was created using Google Forms and circulated by collaborators via emails and social media platforms such as WhatsApp and Facebook between 21 April 2020 and 20 June 2020. The survey was constructed, prepared, and administered in English in all the collaborating countries; thus, no translation was needed. This also means that participants could sit at their convenience and fill out the survey without the researchers' influence. Additionally, other researchers have used this same method, which was deemed appropriate for the COVID-19 period (Ansah et al., 2020; Gao et al., 2020; Ornell et al., 2020).

Moreover, to ensure some level of validity, the instrument was submitted to experts for scrutiny: a professor in clinical psychology, a consultant physician working on COVID-19 in Ghana, and a senior lecturer in health promotion who is also a qualitative methodology specialist. At the end of the data collection period, we officially ended the data collection and brought the online survey offline. The introductory part of the survey explained the purpose of the study, voluntary participation, anonymity and confidentiality of the participants' information, and any risk associated with participation in the study. We further sought consent from the participants and stated clearly that only individuals who lived in cities undergoing lockdown and were of 18 years and older could answer the survey. The note accompanying the survey also stated clearly that no participant would

receive a tangible reward for taking part in the study. To avoid multiple entries, we also stated clearly that no participant should complete the survey more than once, though they may receive it numerous times. However, the PIs allowed and encouraged collaborators to reward their respective participants, as the terms and conditions in their ethical clearance may allow.

The instrument was composed of two parts; Part A (demographic details) and Part B (COVID-19 lockdown experiences and effects). Part A collected participants' demographic information such as gender, age (numeric), educational level, type of employment (primary paid job), and the number of days spent under lockdown. Part B consisted of four open-ended items (See Appendix)

Subjective Viewpoint of the Researchers

At the time of data collection, analysis and discussion of the results, all authors except for the PIs were residents in a country undergoing lockdown and experienced the effects of the pandemic. Nonetheless, the authors bracketed their personal experiences and viewpoints from influencing the findings or discussion of the results.

Data Analysis

At the end of data collection, the PIs received from each collaborator the collected data, which were then entered into Microsoft Excel. The collated text data were shared with all the team members to verify and clarify statements that were culturally specific to their respective local contexts. Afterwards, the PIs and a collaborator entered the collated text data into the Textalyser (SEOScout.com, 2020), a text analysing software, to evaluate the frequencies of words and phrases and the lexical density of the text. Further, we inputted the transcript of each research site into the software to receive the keyword density of words that repeated themselves. This approach gave us initial percentages for word count, character length, letters, sentences, syllables, average words/sentence, average syllables/word, lexical density, and lexical diversity. It provided an essential evaluation of the sentiment and readability of participants' sentences. Following Colaizzi's descriptive phenomenological approach, meaningful statements and themes were extracted from the transcripts with guidance from Textalyser outputs (Edward & Welch, 2011).

Three other researchers independently reviewed the open-ended text responses against the extracted themes to validate the proposed themes and supporting statements. These reviews were done systematically following the seven steps of Colaizzi's descriptive phenomenological approach to ensure that the data analysis portrayed participants' lived experiences.

Subsequently, the content of the themes was shared and discussed (via Zoom and emails) among all the authors to resolve conflicting views and clarify culturally

or country-specific reports. Other researchers have effectively used Colaizzi's descriptive phenomenological approach to explore participants' experiences in other health and psychosocial contexts (Edward & Welch, 2011; Finlayson et al., 2019; Joung, 2019). Notably, the approach has been recommended and successfully used to scientifically guarantee the legitimacy of the lived experiences of COVID-19 caregivers (Sun et al., 2020).

Results

Thematic Results

We explored participants' lived social media use experiences during the COVID-19 lockdown using phenomenological methods. We observed six major themes: COVID-19 lockdown-induced boredom, COVID-19-induced uncertainty, COVID-19 misinformation, COVID-19-specific anxiety, COVID-19-induced social media overuse, and COVID-19-induced social media aversion. The themes are summarized with their subthemes and example quotes in Table 2.

Theme 1: COVID-19 Lockdown Induced Boredom

All study participants across the five locations (Ghana, India, Indonesia, and Pakistan) experienced profound boredom while staying home during the COVID-19-induced lockdown. Since these African and Asian countries shared some degree of collectivist cultures, their boredom originated from the monotony of staying in one place with less in-person social interaction and activities. Also, social and physical isolation during these periods caused emotional discomfort for communal cultures as they enjoyed life by having unrestricted movement, contact, and communication.

Also, it was observed that the level of boredom reportedly increased with the number of days spent at home among all participants. As a result of this COVID-19 lockdown-induced boredom, social media became an outlet for all the participants to fill their need for social connection and to break their daily monotony. Though not a deliberate process for most participants, they realized they were passively obsessed with social media platforms. They reported that they gradually engaged in daily social connections and sought entertainment, information, or even effective content related to religious, educational, and work purposes.

Theme 2: COVID-19-Induced Uncertainty

As with any new infectious disease, all the participants expressed different levels of uncertainty due to their perceived lack of COVID-19 information, confusion, distortion, or inadequate information about the pandemic. This

uncertainty seemed to heighten when state authorities had to lock down COVID-19 high-risk cities. All participants expressed uncertainty about the impact of the pandemic and city lockdowns as they could not perceive the future of the pandemic. Participants resorted to social media to obtain information during the lockdown period and to cope with the accompanying uncertainties. As a result, the urgency to be updated about the virus led them to increase their level of social media exposure as state officials, organizations, health specialists, and the general public circulated all forms of information (legitimate and false) about the pandemic, which further raised participants' uncertainties.

Theme 3: COVID-19 Misinformation

All participants mentioned high levels of exposure to COVID-19 misinformation via social media. This occurred in the form of fake COVID-19 news, conspiracy theories, and false COVID-19 management protocols, among others. Notably, the propagation of fake news and conspiracy theories was reported among all participants from the study locations. As participants searched for more information about the pandemic, as a result of boredom and uncertainty, they received, and sometimes shared, fake and false messages they had also received. Though participants (in all countries) reported being exposed to false management or prevention protocols, most were exposed to various unscientific home remedies to fight or prevent COVID-19 infection. Some unscientific treatments ranged from herbal preparations to homemade remedies like onions, garlic, leaves from trees and herbs, or steam inhalation.

Theme 4: COVID-19-Specific Anxiety

Participants from all the study locations experienced both direct and indirect COVID-19 anxiety. These negative emotions resulted from exposure to unfavorable social media content about the COVID-19 pandemic. In an immediate sense, participants reported that their anxieties were due to the misinformation from the various social media platforms. This led to anxieties about being infected, running out of essential commodities like food, inability to see a loved one, and unemployment. Indirectly, they were anxious about the world's future if the pandemic continued, affecting their physical and mental health.

Theme 5: COVID-19-Induced Social Media Overuse

Most participants reported an increase in the use of social media during the lockdown for information, entertainment, and other productive activities. The participants' habit of overuse was exhibited with increased time spent on several social media platforms and unproductive internet data use. Others described their experience as a form of obsession as their entire life revolved around social

media use at the time. Furthermore, participants linked their attitudes toward searching for more information as part of the reasons for social media overuse. They were generally concerned about discovering more about COVID-19 amidst their anxiety and boredom.

Theme 6: COVID-19-Induced Social Media Aversion

Aside from participants who reported regular use of social media, some of them essentially disliked the use of social media at a point. Their aversion to social media use during the lockdown was expressed as a product of their anxiety derived from social media misinformation. While some participants deliberately used escape mechanisms to terminate connections with misinforming contacts or platforms, others used avoidance mechanisms to express their aversion by partially or entirely refusing to go online.

Discussion

This study explored the experiences of social media users who lived in experiencing lockdowns during the first wave of COVID-19 in Ghana, India, Indonesia, and Pakistan. Using the phenomenological method, we found six themes: COVID-19 lockdown-induced boredom, COVID-19-induced uncertainty, COVID-19 misinformation, COVID-19 anxiety (fear and worry), COVID-19-induced social media overuse, and COVID-19-induced social media aversion. Our qualitative study makes reasonable causal relations based on participants' lived experiences. Although the assertion regarding qualitative studies making causal relationships and explanations is still debatable, several qualitative and quantitative researchers now support this perspective (Agar, 1991; Maxwell, 2004, 2012). In this discussion, our causal descriptions align with the generative, process, or realist approaches (Bhaskar, 1978), and causal relationships are based on the processes involved in participants' online health-seeking behaviors on social media platforms rather than correlations or regularities. In addition, our study's framework emphasized processes where participants' attitudes and actions occurred other than correlating variables and assessing input and output.

The findings indicated that most of the participants from all four countries indicated increased use of social media due in greater part to the experience of boredom and anxiety. The boredom made participants feel extreme psychological distress as they were cut off physically from their everyday social interactions and economic activities. This overwhelming psychological distress was mainly due to the monotony of daily activities and restricted physical and social contact/communication, as observed in similar COVID-19 studies in China (Li et al., 2020; Xiang, 2020). Furthermore, the participants' concerns about boredom were consistent with the boredom and dissatisfaction of the general public under quarantine (Brooks et al., 2020).

Table 2. Themes identified from the respondents' transcripts.

Themes	Subthemes	Sampled quotations			
		Ghana	India	Indonesia	Pakistan
COVID-19 Lockdown Induced Boredom	Monotony Restricted contact / communication	"It's horrible... I can't go anywhere" (male, 42)	"I am bored now, and I can't find my habit..." (female, 25)	"So many people open social media because they are bored at home. I regularly open Facebook within the day..." (female, 37)	"Honestly, it's very boring! Like you don't have anything to do ... and the only thing to do is to be on my mobile phone... but how long can one be on it" (female, 21)
COVID-19-induced uncertainty	Perceived inadequate / lack of COVID-19 information Confusing COVID-19 information	"...a bit traumatized due to uncertainty and lack of information" (female, 58)	"I don't know how long it [COVID-19] will be in the world" (female, 25)	"I'm worried about the uncertainty regarding when this situation will end" (female, 37)	"How long will we stay at home? ... Will this disease ever end?" (female, 22).
COVID-19 mis-information	Fake COVID-19 news COVID-19 conspiracy theories False COVID-19 prevention/ management protocols	"...spreading of fake news on some social media platforms is crazy" (female, 31)	"I received a lot of false messages and illogical home remedies to fight COVID" (male, 31)	"...it gives confusing news, which is making me scared of this pandemic" (female, 44)	"People are getting afraid because of the rumors spreading on social media about Coronavirus" (male, 18).
COVID-19-specific anxiety (fear and worry)	Direct COVID-19-specific anxiety Indirect COVID-19-specific anxiety	"... fear of running out of food, inability to see a loved one, and fear of catching the virus or having a family member infected despite all the precautions" (female, 24)	"...what would happen to my career? I am really worried about my job" (male, 28)	"Hmm, there are times I get stressed because of the news I receive from social media platforms..." (female, 34)	"I fear that the future of this world is at stake" (male, 22)
COVID-19-induced social media overuse	Increased time and other resources spent on social media Obsessive use of social media	"I spend more hours on social media to know the impact of this pandemic globally..." (female, 44)	"It's terrible... how can I spend 16 hours a day on social media to be productive?" (female, 18)	"I'm using social media more intense since information about COVID is more rampant there" (female, 39)	"I spend almost 15 hours on social media each day" (female, 20)
COVID-19-induced social media aversion	Escape from social media platforms or contacts Avoidance of social media platforms or contacts	"At one point, I deliberately blocked out contacts on my phone which constantly shared fear messages..." (male, 42)	"Overload of misinformation on the internet is affecting my mental health...I hate being online" (female, 24)	"During the lockdown, I rarely open social media because various news and information about the pandemic I received made me panic and restless" (male, 32)	"Frankly speaking, I used social media during the first few days ... Now I just hardly visit any." (male, 21)

One crucial motive that drove the participants' need for information amidst the unregulated flow of information was the experience of uncertainty. The participants experienced uncertainties during the lockdown period mainly due to inadequate or conflicting information about the disease. The same social media platforms flooded participants with both true and false information from experts and quacks (Molla, 2020). Consequently, participants resorted to social media to obtain more information during the lockdown period to cope with the pandemic. As a result, the urgency to be updated about the virus increased their social media exposure because state officials, organizations, health specialists, and the general public circulated all forms of information (Ritter, 2020). Though we observed that social media use was seen as a means of coping with boredom, the influx of misinformation alongside facts increased participants' uncertainty about when the disease would end and about infection-associated complications, creating a situation that may lead to a decline in psychological well-being. Consequently, the inability to predict the likely outcomes of the COVID-19 pandemic due to the infodemic of the first wave and the associated lockdowns created a situation where people became unsure of what actions to take to be safe (Krause et al., 2020).

As a likely vulnerability, the ambitious search for information due to cognitive uncertainties with accompanying boredom predisposed participants to accept the misinformation on social media as a potential remedy. We observed that most participants from Ghana and India received several forms of unscientific information on home remedies that were supposed to prevent COVID-19 infection. Also, some participants wanting to share information about the pandemic unwittingly shared the false information at some point. Moreover, relying upon unscientific information, such as the use of onions, garlic, various leaves from trees and herbs, or steam inhalation to fight the infection, could have been detrimental to the patients as it may have prevented them from seeking appropriate medical treatment, thereby increasing infections and complications. Indeed, the misinfodemic surrounding the COVID-19 pandemic can be described as a multifaceted risk communication problem (Jayaseelan et al., 2020; Krause et al., 2020). A study among 1,700 American adults noted that people who received false COVID-19 information were likely to share it with others due to poor cognitive reflection and inadequate scientific knowledge (Pennycook et al., 2020), as may be evidenced in the current study.

We further observed that the sharing of misinformation, including fake news, conspiracy theories of COVID-19 (as a biological weapon, lab virus, etc.), and potentially harmful remedies predisposed the participants to psychologically distressing emotions (Bastani & Bahrami, 2020; Smith et al., 2020). Consistent with the current study's findings, COVID-19 anxiety has been associated with social media users in Iraqi Kurdistan (Ahmad & Murad, 2020). Similarly, a previous study has reported increased numbers of anxiety, post-traumatic stress disorder, and depression among nurses in Hong Kong after the severe acute respiratory syndrome outbreak (Thompson et al., 2004). Thus, exploring and managing the

emotional problems associated with COVID-19 misinformation is essential.

Furthermore, we observed that COVID-19-related negative emotions heightened two behavioral pathways (overuse and aversive) toward social media use among the participants. Our results showed extensive social media overuse during the lockdown period for information, entertainment, and other activities. This finding reflected that of Elhai et al. (2020), where COVID-19 anxiety was associated with an increase in problematic phone use and other mood symptoms like depression and anxiety among Chinese participants. The overuse of social media during the COVID-19 lockdown can be likened to the addictive nature of psychoactive substances and other reinforcing behaviors (e.g., gambling and watching pornography), which are defined as diversions to decrease stress and other negative emotions like anxiety and depression (Blasi et al., 2020; Király et al., 2020; Milkovich et al., 2020). This sharp rise in phone overuse is likely to have negative consequences even after the pandemic (Milkovich et al., 2020), which could result in complex behavioral responses like problematic phone use or addiction (Elhai et al., 2020).

On the contrary, we realized that many participants detested using social media during some periods of the lockdown during the first wave of the infection. As a behavioral response, this COVID-19-induced social media aversion was mainly due to participants' dislike for social media due to COVID-19-specific anxiety. This anxiety was primarily an emotional side-effect of the large volume of misinformation on social media and uncertainty about the infection. Consistent with escape and avoidance learning principles of operant conditioning studies (Millner et al., 2018; Sege et al., 2018), some people with COVID-19-specific anxiety could not manage the perceived incoming information overload, fear messages, and fake news from their respective social media platforms. Thus, they responded voluntarily by reducing or reflexively avoiding the use of social media entirely (Sege et al., 2018). In contrast, reports of a gross avoidance of social media as a means of communication or information sharing may unhealthily disconnect people psychosocially from each other during or after the lockdown period (Metev, 2020; Molla, 2020). Moreover, the aversion could lead others to missing accurate and timely information about the disease on social media.

Limitations

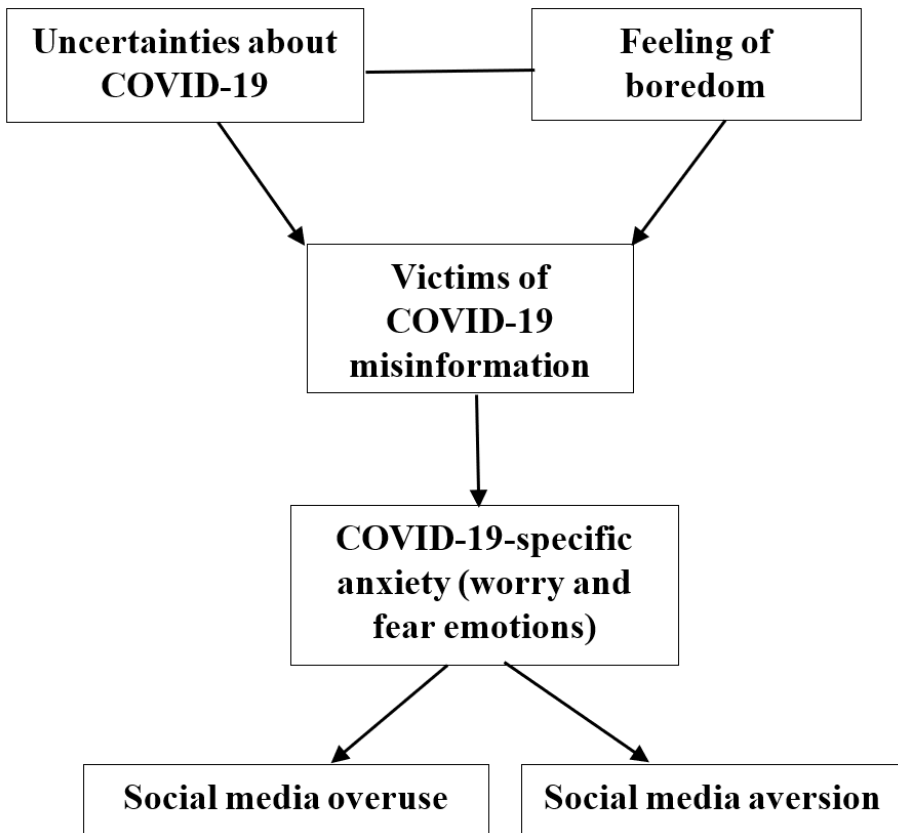
Though this study provides very useful evidence, it has some limitations. Using data from four countries with different durations and types of lockdowns could potentially affect the unique experiences of study participants. Furthermore, the ages of our participants ranged from 18 to 55, but most were under 30. Older populations might have shared different perspectives if they had participated.

Owing to the nature of the qualitative design adopted in our study, the sample size, though limited to people who had access to internet services, were justified for phenomenological analyses (Creswell, 2013). Nonetheless, we can only interpret

our results with caution as we theoretically reached data saturation at different points for each setting. Also, we could not conduct face-to-face interviews due to the nature of the pandemic and restrictions on movement. Hence, our study is limited to online self-reporting, while in-person interviews would have allowed us to collect much more data.

Additionally, having the survey in English might ignore the experiences of participants who could not speak English. Notwithstanding these limitations, our results critically examine social media users' experiences during the COVID-19 lockdown period and provide a basis for future studies on the nature and impact of the COVID-19 pandemic on misinformation and reactions of individuals. Lastly, the study framework and the restrictions lead to a variety of hypotheses that might aid future studies.

Figure 1. *Social media usage and COVID-19 health information-seeking behavior framework.*



Conclusions and Recommendations

Using a phenomenological approach, the current study provided an in-depth understanding of the experiences of social media users in cities under COVID-19-induced lockdowns in four countries. We found that some people who lived in these cities during the COVID-19 lockdown were exposed to some degree of misinformation. These individuals became vulnerable to the epidemic of misinformation as they cognitively became uncertain about the pandemic and emotionally felt bored at home. As a means to cope with the anxiety derived from this epidemic of misinformation, participants responded with two behavioral actions: either overuse or aversion toward social media use. The current study explored essential evidence for research, policy, social media monitoring, and further COVID-19 health promotion interventions. Therefore, we propose that during an infectious disease emergency like an epidemic or pandemic, with attendant increases in misinformation, people will increasingly seek information about the infection using social media platforms. As people come across more misinformation as a result of the emergency, they become uncertain, increasing their levels of fear and worry, which in turn creates two pathways: social media overuse and social media aversion. Each path has health consequences (see Figure 1). Public health officials can deliver accurate information about the COVID-19 pandemic via social media (but not limited to) platforms.

Moreover, there is a need for psychological health interventions for people who experienced COVID-19 lockdowns during the first wave and subsequent ones. Beyond these, public health services must build anti-fear, anxiety, and depression health education and information into existing COVID-19 public health prevention measures. Finally, since this would be a valuable direction for future research on the role of social media use and health information-seeking behaviors in coping with the COVID-19 pandemic, our current study can be replicated in other developing nations.

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Conflict of Interest Disclosure

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Research Ethics Statement

Ethical clearance for the current study was granted by the Institutional Review Board of the University of Cape Coast, Ghana (Ref UCCIRB/EXT/2020/10). Also, we conducted the present study following the principles of the Declaration of Helsinki for human research (6th revision, 2008).

Authorship Details

Jacob Owusu Sarfo: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Edward Wilson Ansah: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Josephine Cudjoe Sarfo: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article. Farzana Ashraf: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Anna Suraya: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Sadia Malik: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Uzma Azam: research concept and design, collection and/or assembly of data, data analysis and interpretation, writing the article, critical revision of the article, final approval of the article. Najma Iqbal Malik: research concept and design, collection and/or assembly of data, data analysis and interpretation,

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Appendix

Questionnaire.

Dear Participant,

The study aims to explore your experiences as a social media user during the lockdown period to seek information about COVID-19 and your health. This survey is collected in study sites in Ghana, India, Indonesia, and Pakistan. Note that participation is voluntary, and you can stop responding to this online questionnaire anytime. This survey is guided by ethics approval by the University of Cape Coast, Ghana and your anonymity and confidentiality are assured. Also, only individuals who live in lockdown cities and are 18 years and above could answer the survey. Kindly understand that your participation is free, and you shall not receive any tangible reward for participating in the study. Our study is low-risk research and has no known associated risk. Also, note that you must answer this survey only once, though they may receive it multiple times.

Please, do not hesitate to contact the primary Principal investigator, Dr Jacob Owusu Sarfo (jacob.sarfo@ucc.edu.gh), if you are negatively affected by the recall of your experiences for an immediate referral for psychological support.

Thank you for being so supportive.

Background questions

1. What is your sex?
2. How old are you?
3. What is your last level of education?
4. Could you share of essential supplies you have to survive an extended lockdown?
5. What is your employment status?

Main Questions

1. Share your experiences with the nature and frequency of information on social media about COVID-19 during the lockdown. Discuss extensively.

2. How are your feelings, attitudes and actions affected by the information you have received about COVID-19 during the lockdown? Discuss extensively.

3. What coping mechanisms do you employ amid this COVID-19 pandemic? Discuss extensively.

4. Are there any other experiences concerning social media use during the lockdown period? If yes, discuss extensively.