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The COVID-19 Rumor Management Response in Ministry of Health Offices: A Qualitative Study

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An abstract submitted to the Faculty of the
Hubert Department of Global Health
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Abstract

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Background: COVID-19 challenged the world by bringing both a pandemic and an infodemic. Ministry of Health offices were faced with rising cases, limited resources, and the excess sharing and spread of misinformation in their localized communities, both digitally across social media and through in-person conversations. The public health emergency brought attention to the needs of Ministry of Health offices in their risk communication and rumor management capacity. This qualitative research study assessed the rumor management efforts of Ministry of Health offices in low- and middle-income countries. The project aimed to provide the country offices with a fact sheet summarizing the findings and recommendations for improving their emergency response in rumor management.

Methods: Data for this study were collected in collaboration with the Emergency Response Capacity Team at the Centers for Disease Control and Prevention. The data consisted of four in-depth qualitative interviews on Zoom (n=4). All interviews were de-identified and transcribed on Microsoft Word, then coded and analyzed on MAXQDA.

Results: Country officials reported localized rumors that varied in topic and severity. This was followed by reports of varying active and passive methods of tracking and addressing rumors. The interviewees emphasized the need for a "formal system" for rumor management, such as a designated team, software, and approach for the issue. Often due to their limitations in resources and guidance, the country offices also reported the need for collaboration from larger platforms, organizations, and governments during this time.

Discussion: Rumor management and risk communication are crucial components of public health. During a crisis or emergency, the spread of misinformation related to a disease, vaccine, or public health guidelines can impair decision making, and in severe cases – cause harm to lives. Providing guidance and feasible strategies to Ministry of Health offices can reduce the burden on them during this time and contribute to their outcomes which in return, protects their communities.

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Acknowledgements

"My dear, you are my legacy in this world."
– My Grandma, Masooma H.
(06/19/2021)

A week after I began this research project, in June 2021, my lovely Grandma unexpectedly passed away. My second year of graduate school was impacted by the grief I carried and the depth of love I still have for her. In the end, it was her years of life, stories, prayers, and smiles that motivated me to continue my educational goals and what I wish to do in this world.
The completion of my MPH degree and this thesis is in honor of her, my lovely Grandma.

Thank you to my support system for their presence through this journey:

First I would like to thank my family. To my parents: Everything I do, including this degree, is a product of your years of hard work and efforts combined. To my mom: Thank you for all the energy you pour into my life and for always supporting every journey I take – I would not be where I am without you. To my dad: Thank you for all your sacrifices, past and present, all for our opportunities and education – I would not be who I am without you. To my siblings, thank you for believing in me since the beginning and being my biggest supporter, always.

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Acronyms

CDC	U.S. Centers for Disease Control and Prevention
ERCT	Emergency Response Capacity Team
IFRC	International Federation of Red Cross and Red Crescent Society
LMIC	Low- and Middle-Income Country
MOH	Ministry of Health
POC	Point of Contact
RCCE	Risk Communication and Community Engagement
SOP	Standard Operating Procedure
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Definitions

Epidemic: A sudden increase of cases of a specific disease (CDC, 2020).

Pandemic: A large number of cases of a disease occur across multiple countries (CDC, 2020).

Infodemic: An "overabundance of information" consisting of both accurate and inaccurate information during crucial times (WHO, 2020a).

Rumor: Incorrect information that is often spread from person to person in the form of ideas or beliefs, without "secure standards of evidence" (Zhang, Chen, Jiang, & Zhao, 2020).

Misinformation: Incorrect information consisting of what seems like factual information without the evidence to support it (Lwin, Lee, Panchapakesan, & Tandoc, 2021).

Disinformation: Incorrect information that was purposefully created and has an attached intention to cause harm (Lwin et al., 2021).

Note: The difference between misinformation and disinformation is that the disinformation entails the "deliberate" intention behind spreading the false information versus misinformation that is spread with or without a direct intention affiliated (Savolainen, 2021). For this study, the three terms rumors, misinformation, and disinformation will be used interchangeably and indicates *false, incorrect information* unless otherwise noted.

CHAPTER 1: LITERATURE REVIEW

Section A: Rumors and Misinformation

During the past few years, rumors and misinformation have brought on "numerous challenges in areas such as healthcare, election coverage, and political journalism." (Horowitz, Cushion, Dragomir, Gutiérrez Manjón, & Pantti, 2021). The spread of incorrect information comes with a large impact and potentially harmful consequences, even on evidence-based content such as science (Paynter et al., 2019). However, in any field of work, it is important to manage rumors and reduce its impact on individuals and the general community.

"Philosophers and psychologists have long theorized that humans are inclined to trust and accept information they are presented with" (Tseng, 2018). This theory suggests that when directly reading, hearing, or being given information, even if it is false information, an individual is likely to believe it which impacts their decision making.

In general, the spread of rumors and misinformation has become a large area of research, often related to information sciences (Takaoka, 2021). In many studies, misinformation is evaluated in context with digital literacy involving social media, the internet, and technology. Meanwhile, social media agencies and websites have struggled to address the "weaponization of their platforms" which can be described as their usage by society in spreading false information (Bossetta, 2018). The combination of accessibility of the internet, greater usage of social media, as well as expansion of technology have all perpetuated a high number of rumors despite the lack of credibility to the misinformation it contains. This influx of rumors may be due to the "digitization of society" which has cost us by allowing news to be spread "quickly and easily, even when it is false" (Nygren, Wiksten Folkeryd, Liberg, & Guath, 2020).

Meanwhile, the impact surrounding media-based misinformation has gained attention brought by public health crises such as significant opposing views to scientific advances and vaccines (Tseng, 2018). This intersection of media and health-related misinformation is harmful for the public community, but more specifically can be dangerous at the individual level depending on an individual's health literacy. Health literacy can be defined as "the degree to which individuals can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (Berkman, Davis, & McCormack, 2010). A recent study on health literacy reported that individuals with low health literacy are more likely to trust news media and social media-based health information (Chen et al., 2018). Again, in general, these platforms often contain low quality, unreliable, or incorrect science and health information which puts these individuals at risk of not making informed health decisions.

Section B: Misinformation and the Start of an Infodemic

During a public health crisis or emergency, it is reported that potentially due to extreme fear and tension, "people seek out more information than usual" (Salehinejad, Jangipour Afshar, & Borhaninejad, 2021). As the need for information dominates conversations and activities during such large level crises, there is often an "explosion of publicly shared, decentralized information" in the technological world and social media (Gallotti, Valle, Castaldo, Sacco, & De Domenico, 2020). This explosion of information relates to the term "infodemic" which was coined by the World Health Organization (WHO). An infodemic is known as an "overabundance of information" consisting of both accurate and inaccurate information, often coinciding with public health crises and outbreaks (WHO, 2020a).

Recent studies have focused on assessing the risks associated with the spread of information during infodemics. One of the studies specifically indicated that an infodemic occurs due to the "simultaneous action of multiple human and nonhuman sources of unreliable or misleading news" (Gallotti et al., 2020). The sources of news and spread may include rumors being passed individually from person to person or misinformation being spread in large amounts across a social media page. Often studies have focused on the psychological, theoretical understanding of misinformation as well as the internet's role in the spread of misinformation, but there is still lack of knowledge on "when and how to intervene" to address the overall spread of misinformation (Walter, Brooks, Saucier, & Suresh, 2021).

Despite the recent advancements in understanding the spread of misinformation, gaps remain on how to "manage" the misinformation during an infodemic. Lack of effectively managing misinformation and providing accurate information to communities can potentially harm their health and decision making. At the individual level, an infodemic exposes people to an overabundance of information which causes exhaustion and dissociation from the topic, including the affiliated healthy behaviors and prevention measures (Tasnim, Hossain, & Mazumder, 2020). Meanwhile, at the global level, an infodemic can cause large scale economic and social impacts while perpetuating the affiliated epidemic or pandemic (Gallotti et al., 2020).

Section C: Infodemics and Outbreaks of Disease

In the situation of a new, sudden, or unknown disease, there are higher needs for accurate information and greater room for misinformation to be spread (Salehinejad et al., 2021). These two factors (i.e., higher needs for accurate information and greater room for misinformation to be

spread) can contribute to an infodemic occurring which is often, also due to a combination of the following causes:

1. Lack of accurate, up to date scientific information on the outbreak and disease as well as lack of access to this information by the public (Savolainen, 2021).
2. Easy, quick, and accessible opportunities to spread misinformation such as news and social media (Tasnim et al., 2020).
3. The human psychological process of reducing fear, anxiety, and concern by minimizing the issue through possible misinformation, denial, or blame (Gallotti et al., 2020).

In previous public health outbreaks such as Zika and Ebola, multiple studies reported that there was also a large spread of unreliable, misinformation which came with negative consequences on the crises at the time (Okware et al., 2002; Salehinejad et al., 2021; Towers et al., 2015; Venkatraman, Mukhika, Kumar, & Nagpal, 2017). In any community, the combination of an infodemic and epidemic would be extremely complex to manage. In their intersection, the large wave of false information and growing cases of a disease can perpetuate each other which in return cause more harm to the community and their health. This "wave of unreliable information" during a public health emergency can jeopardize the evidence-based practices being implemented for reduction of the disease or crisis at the time (Gallotti et al., 2020).

Section D: COVID-19, A Pandemic and Infodemic

"Public health crises like the ongoing COVID-19 pandemic appear to be the perfect breeding ground for misinformation" (Lwin et al., 2021). This is primarily due to the virus being relatively new since it was discovered in 2019, which left society at risk of spreading false information without the long-term scientific knowledge to combat it (Savolainen, 2021).

In December 2019, COVID-19 was reported as an infectious illness that stems from severe acute respiratory syndrome coronavirus 2, also known as SARS-CoV-2 (Tasnim et al., 2020). In the first few months, "news about this unknown virus was suppressed and human-human transmission was denied" (Zou & Tang, 2021). Soon after, scientists reported that COVID-19 could be spread from person-to-person and even if an individual was "non-symptomatic" (Liu, Zhang, & Huang, 2020). The non-symptomatic, unseen capability of the disease along with risk of exposure from person-to-person caused extreme anxiety and concern in the public community (Liu et al., 2020). By March 2020, COVID-19 was declared a global pandemic by the WHO with a report that there were over "118,000 cases in 114 countries" at that time (WHO, 2020d). Despite public health agencies such as the WHO and Centers for Disease Control and Prevention (CDC) promoting reliable updated information and prevention measures to reduce the spread of the virus, the number of cases continued increasing.

During this time, many questions remained unanswered regarding the disease and the accuracy of COVID-19 information provided to communities. This left room for the public to develop a sense of "distrust" towards public health agencies and professionals (Ning et al., 2021). As the public began seeking more information to reduce their anxiety and answer their questions, they often went to mainstream news channels and social media for COVID-19 related information (Nielsen, 2020). Individuals were then faced with a large share of information of "questionable quality" across these platforms (Gallotti et al., 2020). For example, one cable news channel in the U.S. known as Fox News consistently "downplayed the lethality of the pandemic" while referring to it as a "hoax" before later labeling it a "crisis" (Zhao, Wu, Crimmins, & Ailshire, 2020). Meanwhile, in terms of social media and misinformation, a recent research study specifically assessed social media during the early phase of the COVID-19 pandemic and found

that over 100 million COVID-19 related messages were shared via Twitter globally (Gallotti et al., 2020). These are only two examples of the scale of information spread and accessed during the start of the pandemic. Soon enough, communities struggled to navigate between the correct and incorrect information being published, which impacted their decision making and compliance with CDC guidelines such as wearing a mask, hand washing, and social distancing (Tasnim et al., 2020).

This combination of correct and reliable information tied with incorrect and unreliable information left countries to face both the pandemic and an infodemic – one perpetuating another, as described in Section C of this literature review. Within an infodemic, a large number of rumors being spread and unaddressed may cause individuals and communities to actually believe the false information which comes with harmful health consequences.

In 2020, the Director-General of WHO urged for countries and companies to collaborate in addressing the COVID-19 "infodemic" due to its potential, dangerous impacts on health and lives (WHO, 2020a). "An infodemic proliferates when credible information sources fail to capture the attention and trust of some parts of the public" (Gallotti et al., 2020). For example, individuals strongly against vaccines, also known as "anti-vaxxers", did not trust the COVID-19 vaccine and frequently utilized social media to share rumors regarding the potential impacts of the new vaccine (Savolainen, 2021). Due to the strong oppositions and rumors spread, vaccine hesitancy was one of the primary issues surrounding the COVID-19 infodemic and continues to be an area of research. However, managing COVID-19 misinformation in general as well as evaluating country efforts to address the COVID-19 infodemic still remains under-researched (Ning et al., 2021).

Section E: MOH Offices and COVID-19 Rumor Management

The COVID-19 pandemic and infodemic put localized Ministry of Health (MOH) country offices in an emergency situation as they had to manage the spread of a new disease and the large spread of misinformation. As these offices awaited public health guidelines, they began promoting public health measures to reduce further harm. It was realized that many countries were faced with "a lack of capacity, lack of resources, and lack of resolve" to meet the needs of their communities during this public health emergency (WHO, 2020d). Despite the WHO's announcement that the COVID-19 pandemic also cost society with an infodemic, there have not been well-researched historical examples of "an infodemic" for countries and governments to follow as they worked to address the information overload in their communities. The term infodemic "was largely unused and forgotten until the era of COVID-19" (Zielinski, 2021). Today, this supply and sharing of accurate and inaccurate COVID-19 information in extraordinary amounts is primarily due to the "digitization of society" which was not the case during prior pandemics (Nygren et al., 2020). Despite many recent studies assessing the roles that various platforms play in the spread of misinformation, there is a gap on how countries and offices should move forward in using these platforms to manage the issue during a crisis (Gallotti et al., 2020; Lwin et al., 2021; Nielsen, 2020).

Expanding on crisis and misinformation management research could provide country offices with support and scientific, evidence-based guidance to follow alongside the COVID-19 pandemic. This guidance would be useful and applicable for future possible public health crises and localized outbreaks as well. That being said, "crisis misinformation has not been previously studied in association with formal organization evaluation metrics, making this an important area to support" (Mehta, Liu, Tyquin, & Tam, 2021). One recent study that assessed the risks of

infodemics with the COVID-19 crisis determined that the "evolution" of an infodemic is entirely "country dependent" (Gallotti et al., 2020). This study indicates that localized factors contribute to the community's spread of information and should be considered within the country's efforts and response as well (Gallotti et al., 2020).

Section F: Effective Rumor Management Guidance for MOH Offices

Due to the COVID-19 infodemic and the health risks associated with COVID misinformation, rumor management efforts became a priority within MOH offices. As COVID-19 rumors and cases rose, the WHO urged country leaders to begin and prioritize risk communication and community engagement (RCCE) efforts (WHO, 2020b). Country offices were tasked with developing plans of action to address rumors, minimize impact, and communicate up to date information to their localized communities. In a guidance document, the WHO concluded that rumors and risk communication were "poorly managed" throughout almost all public health emergencies and outbreaks of the 21st century (Ning et al., 2021; WHO, 2020b). This supports other reports of the lack of prior experiences and scientific research on rumor management for country offices to follow.

In order to provide the MOH offices and country officials with guidance on rumor management, public health agencies such as the WHO and CDC provided rumor management information and guidance in a variety of formats (CDC, 2021; WHO, 2020a, 2020c). These include but are not limited to, webinars, technical briefs, and infographics. However, various barriers may play a role in the effectiveness of these tools for MOH offices. For example, webinars are often impacted by technological connectivity issues, audio/voice related issues, as well as their duration can limits attendees (Mishra et al., 2021). Meanwhile, technical briefs

consist of “detailed” research-based information on a “specific topic” and are often electronically published but limited in distribution methods (National Library of Medicine, 2012).

On the other hand, infographics and fact sheets became a common form of providing COVID-19 educational material. Fact sheets summarize information in a “simple, clear, and concise” manner and are often very short in length (Valente, 2005). This form of material can be electronically distributed as well as printed for local offices and teams to utilize and maintain, which allows flexibility and longevity in usage. The CDC has published over 105 COVID-19 related visual and educational fact sheets on their communication resources site, which have also been translated to a variety of languages for accessibility (CDC, 2022a).

As indicated, fact sheets allow the author to tailor the content, language, readability, and access towards reaching a specific population. In terms of results and usage, a recent study focused on the acceptability and impact of fact sheets on a targeted population of interest and concluded the following: 91% of the participants reported the amount of information provided on the fact sheet was appropriate and 83% reported they reviewed the fact sheet more than once (Bryce, Cooke, Yuen, & Allott, 2021). When tailored towards a specific population, fact sheets may be a useful and effective tool in providing information such as in the case of providing rumor management strategies and guidance to a localized MOH office.

Section G: Significance, Need & Goal

Localized MOH offices in low- and middle-income countries face a difficult situation in managing the COVID-19 pandemic and infodemic due to the lack of resources, finances, and infrastructure impacting their communities (Pasquale et al., 2021). Some examples of the challenges faced during COVID-19 in these environments are as followed (Bong et al., 2020):

1. Hand washing protocol may be impacted by lack of proper water and sanitation systems as well as lack of sanitizer distribution and access
2. Social distancing may be difficult for communities in which large households reside in one environment.
3. Limited hospital supplies and space for COVID-19 patients as cases rise.
4. Vaccine distribution may be jeopardized due to temperature and storage requirements.

As these localized challenges possibly contributed to the rising cases of COVID, the local rumors and misinformation are also perpetuated with the increased usage and access of social media in low and middle countries (Hagg, Dahinten, & Currie, 2018). As explained across multiple sections of this literature review, the influx of rumors across social media and news channels can be harmful to any individual or community. However, in the situation of low- and middle-income countries, it is even more important to reduce misinformation as much as possible because of the limitations and challenges faced by these communities which possibly heighten risk of exposure and cases. Due to this, there is a need to improve rumor management capacity and efforts of MOH offices in low- and middle-income countries.

The goal of this research project is to assess the ongoing rumor management efforts of MOH offices and provide areas, strategies, and opportunities for improvement in the form of a fact sheet. Due to the urgency of COVID-19, previous forms of guidance were often broad and in the form of webinars, technical briefs, or published on webpages for countries and offices to review. This project aims to specifically provide strategies and options versus guidance information, which will be developed based on the countries ongoing efforts in order to increase feasibility and accessibility. The project will lead to an improved understanding of rumor management components and strategies for MOH offices.

CHAPTER 2: METHODS

Section A: Qualitative Data Methods

Overall Approach:

The goal of this project was to assess, understand, as well as bring insight to various country's efforts and issues on rumor management, detection, and protocol.

The data for this project was collected by a health communications specialist within the CDC Emergency Response Capacity Team (ERCT). Data consisted of four in-depth interviews with a CDC Point-of-Contact (POC) working with the MOH office in the four selected countries. All interviews were conducted through Zoom, then maintained in a secure system within CDC.

The author was granted permission by the project investigator and CDC ERCT to use the data for this project. The author's main role consisted of de-identifying, transcribing, coding, and analyzing the data then summarizing the findings to give back to the offices. Since this project did not involve human subjects, it was exempt from Emory IRB review.

Study Participants:

The sample for this study consisted of four low- and middle- income countries from different WHO regions. This sample was found through convenience sampling done by the CDC ERCT. To begin the advertising and screening process, the CDC ERCT reached out by email to the POC for the localized CDC offices in various countries. If a country did not have a CDC office, the POC for RCCE work in that country was contacted which was often located within MOH. Of the countries that the research study was advertised to, nine responded with acceptance to participate, and then four were available to be interviewed. This process indicates that the final sample was selected by convenience sampling, through contact, access, and availability.

Consent:

All final interviewees selected and available to be interviewed were told:

- Interviews would be recorded through Zoom for transcription and analysis purposes.
- Interviews would be de-identified, which consisted of removing country name, country office, and interviewee's name and role in office.
- Interviews would be transcribed and maintained in CDC secure system.

Participants consented to these conditions and were interviewed during May and June 2021.

Data Collection:

Qualitative research consists of a variety of methods for data collection ranging from focus groups to observation to interviewing, among other options. The method selected is often dependent on the sample, size, and research goal.

Due to the small sample size and to ensure researchers gather detailed information per country, they decided to use in-depth interviews as their method of data collection. In-depth interviews can have a formal, structured, or informal, semi-structured method of gathering data. The methods used for this study involved informal, semi-structured interviewing. "Semi-structured interviews are based on a semi-structured interview guide, which is a schematic presentation of questions or topics and need to be explored by the interviewer" (Jamshed, 2014). This ensures the interviewer has a question guide to follow, yet also allows for them to probe and adjust questions depending on the discussion at the. Probing also provides space and opportunity for the interviewee to speak on other contextual factors related to rumor management.

For the in-depth interviews, a question guide was developed by the CDC ERCT and International Task Force on the COVID-19 outbreak response. This question guide can be found

in **Appendix 1**. The example questions listed below are a mixture of questions from the guide as well as from the interviewer probing for information during the interview.

1. *"So in your country's COVID-19 response, how do you or other staff detect and monitor rumors and misinformation?*
2. *"To backtrack a bit, when you were discussing on finding rumors in social media or print or radio, can you walk me through what that process is like?"*
3. *"How do you or other staff measure the effectiveness of rumor management methods?"*
4. *"So messaging for the public has been designed to address rumors, misconceptions, misinformation… [but] I'm curious how rumors are communicated to response staff or if that happens at all?"*
5. *"Are there formal plans and procedures with steps to address rumors or is it done in more so of an a hoc way?"*

The four in-depth interviews following the semi-structured, informal interview style were conducted on Zoom and each lasted over an hour. These interviews were recorded to ensure accurate and verbatim transcript of the interview afterwards.

Transcription:

In qualitative research, transcription is known as the process of transcribing or dictating all verbal and non-verbal components of data into word format for future analysis. This process involves reviewing the data and transferring from video to text in detail by using a key guide to provide readers and the author indication of non-verbal aspects of the interview as well.

To begin the transcription process, the recording video of each country's interview was re-watched by the author. This was followed by transcribing each video into a Microsoft Word

document per country. The author opted to use Microsoft Word for this phase of the project due to ease of access and usage for all individuals involved in the research team as well as to allow for collaboration and corrections between the interviewer and author.

During this phase, each country's final transcribed and de-identified document was stored in a CDC secure network. Throughout this process, all four transcribed documents followed one transcription key developed by the author. Transcription keys provide a better understanding of the interview and interviewee while reading the document, and often are meant to ensure accuracy of the exact tone, volume, reactions during the interview as well as account for de-identified or inaudible sections. The transcription key in **Table 1** (displayed below) was created by the author and remained consistently used for all four interview transcriptions to ensure accuracy. All transcriptions also involved de-identifying the interviewee's name, role, agency, and country as well as any other statements that could indicate their identity. This was done to foster trust and transparency between the country interviewee and CDC interviewer, as well as allow space for discussion of sensitive workplace discussions during interview such as issues and critique of COVID-19 efforts in-country.

Table 1: Transcription Key

Key	**Main Idea**	**Definition**
CAPS	Emphasized	The interviewer or interviewee emphasized a word or statement in tone or volume, which was transcribed and written in all caps.
….	Paused	The interviewer or interviewee paused while speaking, which was transcribed with three periods to indicate pauses or hesitation in speaking.

( )	Removed Information	The author/transcriber needed to remove identifiable information, so it was indicated by parentheses such as (name) or (country).
Highlight	Unsure or Inaudible	The author/transcriber could not interpret or hear the statement in full, so it was highlighted to indicate this statement was inaudible.
comment	Comment	The author/transcriber needed to comment within the transcription document, such as *interrupted* to indicate gaps in statements.

Section B: Coding and Data Analysis

Overall Approach:

After the transcription phase was completed for the four in-depth interviews, the next step was coding to begin the data analysis process. For validity and assessment, the author completed two rounds of coding on all four data sets. The first round of coding was completed on the final transcribed documents using manually assigned colors per code within Microsoft Word while the second round of coding was done through using a more in-depth system of codes, subcodes, and comments in MAXQDA software.

Initial Coding:

For this phase, the author used generic inductive analysis as the main methodology in selecting the codes initially. “Inductive analysis refers to approaches that primarily use detailed readings of raw data to derive concepts, themes, or a model through interpretations made from the raw data by an evaluator or researcher” (Thomas, 2006). After reading through the four transcribed documents, the author noted down the patterned ideas and concepts that showed up

and related back to the overall research need: *There is a need to assess COVID-19 rumor management efforts of MOH offices in low- and middle-income countries.*

These patterned concepts were converted into short keywords known as codes for the analysis process. The codes, which are displayed in **Table 2** were: "Rumor Examples", "Tracking Rumors", "Addressing Rumors", "Recommendations", "Collaborating Partners", "Key Notes", and "COVID-19 Related Factors". A Microsoft Word highlight color was assigned to each of these codes along with a set definition in a codebook. This codebook, displayed in **Table 2** was used for each interview's transcribed document to ensure consistency and accuracy. As the author read the transcribed document, any statement that aligned to a specific code was highlighted with the assigned color. The final documents were reviewed twice after this to review and go further into developing thematic concepts from the initial round of coding.

Table 2: Codebook

Key	**Definition**
Rumor Examples	Any statement specifying an example of a rumor in the country
Tracking Rumors	Any comment regarding the systems, methods, and platforms used to track rumors or the needs and issues involving tracking rumors.
Addressing Rumors	Any comment regarding the process and methods used to address rumors in country as well as any issues faced in addressing rumors.
Recommendation	Any recommendations made by the interviewee regarding their country's rumor management efforts.
Collaborating/Partners	Any statement indicating the use of partners and collaboration in rumor management efforts.
Key Note	Any statements the author thought were unique to the country's efforts, issues, and needs in terms of rumor management
COVID-19 Related	Any statements related to COVID-19 vaccines, hesitancy, death, rates.

Codebook Adjustments:

After reviewing the final documents, the author used inductive methodology to review coded sections of each document and determine the themes, which indicate concepts repeated throughout the data sets. The initial codes primarily remained consistent, though due to repetition of specific concepts, topics, and statements, a set of subcodes were created within the initial codes. During this phase, some of the initial codes were also adjusted in definition or title due to a more in-depth understanding of what the interviewee's were indicating. Only one of the initial codes was removed due to lack of frequency and not necessarily leading into a theme in findings. This led to a new codebook, a portion of which is shown below in **Table 3** (the full table can be found in **Appendix 2: Methods Tables**). This table consisted of Main Codes and Subcodes within them (if applicable). The changes made were as followed:

1. "Rumor Examples":
    - Remained a Main Code to be used in secondary coding
    - No Subcodes
2. "Tracking Rumors":
    - Remained a Main Code to be used in secondary coding
    - Subcodes added: "Tracking Rumors", "Media", "Websites", "Hotline", "Social Media"
3. "Addressing Rumors":
    - Remained a Main Code
    - Subcodes added: "Addressing Rumors", "Communications", "Timely"
4. "Recommendation":
    - Adjusted titled to "Formal System" due to further understanding that the recommendations were primarily involving the need for a formal system.

- No subcodes

5. “Collaborating/Partners”:
    - Adjusted title to “Collaboration” due to further understanding that it was not only partnering organizations, but also involved people, professionals, and actors.
    - Subcodes added: “Collaboration”, “Professionals”, “Organizations”, “Governmental”
6. “COVID-19 Related Factors”:
    - Removed this code due to lack of codes and to prevent misunderstanding since COVID-19 was being looked at across the entire study and is indicated across all codes generally.

In the new codebook, the following process was used: the Main Code, such as “Tracking Rumors”, was labeled with a broad definition. If the Main Code had key ideas, platforms, or topics mentioned in repeat throughout the interviews, a set of Subcodes was created within this Main Code. An example of this would be using “Media”, “Websites”, “Hotline”, and “Social Media” as Subcodes under the Main Code, “Tracking Rumors”. Another rule in this code system involved using the Main Code title as a Subcode as well, which occurred in two situations:

- If a Main Code did not have Subcodes, statements that applied to it were coded under the Main Code title; An example where this rule applies is for the code, “Rumor Examples”.
- If a statement did not apply to any of the Subcodes but related to the Main Code and its potential theme, then the statement would be coded under the Main Code title. For example, finding and tracking rumors through conversations does not apply to the Subcodes “Media”, “Websites”, “Hotline”, or “Social Media”, so it would be coded as “Tracking Rumors” which is the Main Code above these.

Table 3: Codebook

Main Code	Subcodes	Keywords	Definition	Example
Rumor Examples	Rumor Examples	Example	Specific examples of related rumors and misinformation in the community or heard by offices	*"It's actually on BBC news as well and it's this rumor that people who had the COVID-19 vaccine can stick a magnet to their arm."* - Country D
Tracking Rumors	Tracking Rumors	Track rumors Collecting Finding Spread Sources	Any comment about tracking, finding, monitoring, and managing rumors and misinformation Any comment related to the methods and systems used to track or share rumors or the lack of methods and systems	*"There are some initial questions to conduct the TRIAGE. If the rumor can provide more information of the contacts or identify the... identify data to follow. If the rumor was related to, in a DIFFERENT source of information."* - Country C
	Media	Media News Newspaper Television	Any comment about tracking, finding, or sharing rumors through media sources specifically	*"If something's in PRINT MEDIA, you're going to have to.... It's a bit hard, you know you're going to have to like write something from SCRATCH to get into print media."* - Country D
	Websites	Websites Internet Online	Any comment about tracking, finding, or sharing rumors through websites specifically	*"We do CHECK the news. I mean, social networks and websites associated with it."* - Country B
	Hotline	Hotline Call line Phone	Any comment about the hotline/call center used in rumor management efforts	*"Through our hotline and through the frequent specials we are ABLE TO devise it in terms of which are the rumors, which are the misinformation, or which ones need to be addressed."* - Country A
	Social Media	Social Media Facebook WhatsApp	Any comment involving tracking, finding, or sharing rumors on social media specifically	*"We define the KEYWORDS to monitor the social media and the direct line. We use the keywords: Rumors in (*Province Name*) - that's the name of the province."* - Country C

MAXQDA, Secondary Coding:

In terms of coding and analysis, the first round of coding through Microsoft Word was completed to determine potential themes and subcodes. After developing the new Codebook, MAXQDA was used for secondary coding, which is one of the qualitative research software accessible and free for students through Emory University. Some of the main benefits of using MAXQDA, which the author wanted for analysis purposes, is that the program has tools that can quantify, categorize, and visualize the qualitative data based on codes. These tools can provide the author with a more in-depth understanding of the data.

To begin, the four transcribed documents were imported into MAXQDA and were then coded using the new Codebook through MAXQDA's comment and coding system. If a statement in the document applied to any of the categories, it was coded and commented by the author as to why it was coded under the specific Main Code and Subcode, to reference and understand the reasoning if needed later. The total number of statements (from all four interviews) per Main Code and Subcodes are shown in **Table 4**.

Table 4: Code Frequency Table

CODE AND SUBCODES	FREQUENCY
TOTAL: RUMOR EXAMPLES	**5**
1. Rumor Examples	5
TOTAL: TRACKING RUMORS	**44**
2. Tracking Rumors	19
2.1 Media	4
2.2 Websites	5
2.3 Hotline	4
2.4 Social media	12
TOTAL: ADDRESSING RUMORS	**56**
3. Addressing Rumors	26

3.1 Communications	21
3.2 Timely	9
TOTAL: FORMAL SYSTEM	**33**
4, Formal System	33
TOTAL: COLLABORATION	**35**
5. Collaboration	8
5.1 Professionals	6
5.2 Organizations	9
5.3 Governmental	12

Data Analysis:

The final stage of the methods portion of this research study was the analysis phase, in which the author used an inductive approach. “The primary purpose of the inductive approach is to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data” (Thomas, 2006). To do so, the MAXQDA Smart Coding Tool and Microsoft Excel were the two primary software used.

After coding all four transcribed documents, the Smart Coding Tool within the MAXQDA software was used to begin the analysis phase and determine findings. This tool allows users to view a table for any specified code name which consisting of all of its coded segments per document. The tables provided for each code by MAXQDA through this tool were then exported into Microsoft Excel. This resulted in a total of 5 Microsoft Excel documents for review: “Rumor Examples”, “Tracking Rumors”, “Addressing Rumors”, “Formal Systems”, and “Collaboration”. If Subcodes were present within a Main Code, then the assigned Microsoft Excel document would also contain divided sheets which provided all coded segments per Subcode. These Microsoft Excel documents were used to review each overall code category, all coded segments, and all comments noted down by the author during coding. This began the

inductive analysis approach to reviewing the segments per theme consisting of Main Code and Subcodes to determine the findings.

Section C: Fact Sheet

Overall Approach:

After the data analysis and determination of findings, the goal was to provide the findings back to the interviewed countries and help them learn of various strategies to improve their rumor management capacity. The overall findings and recommendations were summarized in a concise and organized way in the form of a fact sheet, which was developed using Canva (Canva, 2022), an online graphic design website. In developing health communication materials, whether print or digital, it is important to keep the audience in mind, as well as their needs, values, literacy, and numeracy skills (CDC, 2022b). The fact sheet was created with the intended audience in mind as well as their intended usage of the fact sheet.

Software:

The decision was made to use Canva due to its various features and tools specifically for developing visual and educational documents. The website is free, accessible, and provides a large number of example templates to use. The business and report section related best to providing formal information, in a concise and appealing way. The author used this section of Canva as a guide in developing the layout of the fact sheet.

Style:

Decisions on the size, font, and color scheme were made with the intention to allow for the intended audience to be able to easily read, scan, and summarize the fact sheet. The fact sheet

was formatted with the basic health communication etiquette for handouts in mind such as bulleting key messages, separating sections with white space, and using charts to showcase data (Massachusetts General Hospital, 2022).

Size:

- The title was in size 30 to draw attention to the title and overall topic.
- All quoted statements were in size 14 so that both in digital format and print format, the quotes are easily viewable and readable due to them being in italicized form.
- The written content such as paragraphs, sentences, and bullets were written in size 13 to provide expansion on the standard size of 12 for viewing accessibility in print and digital forms. This was done based on the CDC guideline for creating promotional materials which recommends using size 12-14 for text (CDC, 2009).

Font:

- Arialle: This font provided writing in a basic English format, not cursive style. It was used for any quoted statements, due to it being easily read in italicized format.
- Montserrat Classic: Headlines used this font because it is a simple English format and the classic selection of this font automatically boldens the written portion.
- Montserrat Light: Content such as paragraphs and bullet style sentences were all written in this font due to it being a simple English format. The light selection of this font allows the reader to easily read the content behind the different colored backgrounds as well.

Color:

- The four primary colors used across the fact sheet were light gray, light blue, white, and black. Colors were used in order to make the fact sheet visually appealing and engaging as well as to draw attention to certain components of it.

- Each page began with a quoted statement from the interviews to highlight a specific topic and to provide the reader a first-hand glimpse into the data. These statements were in a bright blue and at the top of the content pages for visual emphasis. The rest of the content and writing were consistently provided in black color.
- For the overall background of the pages, white was used due to possible printing of the fact sheet. This would be cheapest and easiest on print for various readers or offices.
- For the content, colored boxes were used behind written portions to separate it from the other aspects of the page. These boxes were either in a light gray or light blue, which was primarily done to provide ease of reading the content against black writing.

Readability:

The recipients of the fact sheet will most likely be the interviewees and their team, localized MOH or CDC offices, as well as similar individuals of other countries. The language and tone of the content was written with the assumption that the audience has a college level understanding of health terms, rumor management, and COVID-19.

- The specific readability tool used to check the written portion of the fact sheet was the Flesch-Kincaid Grade Level, which is also "the most commonly used tool, widely available, and extensively validated" (Badarudeen & Sabharwal, 2010).
- Readibility.com was the website used to assess the grade level of the fact sheet. All aspects of the content, including title, paragraphs, and bullet statements, were copied, and pasted into this site for a review of the readability level. The FKGL score was 12.4 initially.

Due to wanting the document to be accessible to localized offices in other countries and being aware of educational differences, the goal was to reach a grade level 10-12. The content

and wording were adjusted and simplified after the initial readability score, which resulted in a 10.5 FKGL score afterwards. This allows the fact sheet to be utilized not only by the interviewees of the MOH and CDC offices interviewed, but also their colleagues and localized organizations which may not have the same level of health literacy.

Content:

The content of the fact sheet came from the core themes based on the data analysis: "Tracking Rumors", "Addressing Rumors", "Formal System", and "Collaboration". Each of the findings were summarized individually in short paragraph style, numbered, or bulleted statements inside the fact sheet. Within the content, images were added to visualize some of the information, a small graph to quantify the background data, and quoted statements from the interviews to highlight notable statements that were relevant to the topics. Lastly, the fact sheet ended with resources and recommendations.

Organization:

The fact sheet was organized into four pages total:

Page 1: Consisted of a title and statement on the fact sheet along with an image of COVID-19

- The title was broad to give an idea of the topic and adjusted based on feedback to be written in basic and accurate terms.
- The statement was created to give an overview of the data and content of the fact sheet
- The image came from the CDC Online Newsroom due to it being publicly accessible and free for use without copyrights.

Page 2: Consisted of a quoted statement per country

- The decision was made to begin the content with statements to provide a glimpse into the content, while also drawing attention to the key issues, needs, and ongoing strategies used by countries regarding rumor management.

Page 3: Consisted of a background section and two of the findings

- Background: This section began with the background of the research study to explain where the data came from, followed by the need and goal statements to provide an overview. A small graph was included to quantify the data.
- Tracking Rumors: This section included a statement explaining the finding followed by bulleted style examples of the methods used to track rumors.
- Addressing Rumors: This section included a highlighted statement as well, followed by bullets explaining key topics.

Page 4: Consisted of two of the findings and a section on resources

- Formal System: This section used numbered statements to explain the finding.
- Collaboration: This section had bulleted style examples of example partners and organizations to work with, all of which came from the Smart Coding tool.
- Resources: This section consisted of two links to online sources with valuable information for further guidance on COVID-19 rumor management capacity building. The decision was made to end with further resources for the countries and readers. These resources were found by a google search done by the author, with the keywords “COVID-19 rumor management”. After a review of the sites that came up, the two selected resources were chosen because of:
  - their relation to this project’s goal and they reiterated similar findings to the fact sheet
  - their affiliated authors are reputable public health agencies or institutions, which consisted of WHO, USAID, UNICEF, IFRC, and Johns Hopkins University.

CHAPTER 3: RESULTS

Section A: Findings

Overall Approach:

The goal of this research study was to summarize the findings based on the MOH country interviews and develop an educational fact sheet on COVID-19 rumor management for them. Due to COVID-19 being a global pandemic and infodemic, the fact sheet may be applicable to other MOH offices interested in improving their rumor management efforts as well. This fact sheet was developed with the intention to provide findings in a categorized, concise, and transferable manner and to serve both the interviewed countries and other neighboring countries.

Main Results:

There were five main themes noticed during the data analysis phase of the study. These themes were “Rumor Examples”, “Tracking Rumors”, “Addressing Rumors”, Formal Systems”, and “Collaboration”. As explained in the Methods section, the Smart Coding Tool quantified the data as seen in **Table 5** below. The codes “Tracking Rumors”, “Addressing Rumors”, “Formal Systems”, and “Collaboration” were noted often and across all four interviewed countries.

Table 5: Code Frequency Table

MAIN CODE	FREQUENCY
RUMOR EXAMPLES	5
TRACKING RUMORS	44
ADDRESSING RUMORS	56
FORMAL SYSTEM	33
COLLABORATION	35

Rumor Examples:

"There was a rumor that whenever somebody dies of COVID-19, the health workers were pocketing money. So this was raising a lot of [distrust] towards health workers."

- Country A

The preceding quote was one of five rumor examples disclosed during the interviews. Compared to the frequency of other codes, the code of "Rumor Examples" occurred least. Due to this, it was not reported enough to be used as content in the fact sheet. However, the few rumors that were specified by interviewees are shown in **Table 6**. This information was applicable to dominant themes, such as "Tracking Rumors" and "Addressing Rumors".

Table 6: Rumor Examples Disclosed During Interviews

Country	Rumor
A	"One of them… is that… there was a rumor that whenever somebody dies of COVID-19, the health workers were pocketing money. So this was also… uh… raising a lot of [distrust] towards health workers."
A	"People were afraid to go into restoration centers especially when we have this second wave, where a lot of people are dying on DAILY BASIS. So people were speculating that when you go into a restoration center, that means you are going to die."
C	"There was a message about some TREATMENT that was being promoted, you know, without being certified by the WHO or any other health authority of reference."
D	"It's actually on BBC news as well, and it's just this rumor that people who had the COVID-19 vaccine can stick a magnet to their arm… and it's been circulating… for ABOUT over a week."

Tracking Rumors:

"We really need to… have a system whereby we can RECAPTURE all the rumors, have analysis to see how grave are these rumors."

- Country A

The COVID-19 pandemic has also brought on an infodemic, an event in which both reliable and unreliable information has spread fast among communities leading to overwhelmed populations during a health crisis (Gallotti et al., 2020). Countries emphasized that during such this time, there was a need for rumor management. The countries interviewed in this study adopted a variety of methods to track and store rumors.

Countries reported formal and active methods of capturing rumors and misinformation, as well as informal and passive approaches. Some examples were as followed:

- An active approach could involve a set sequence of steps to finding rumors, such as using a specific list of keywords on the Facebook search box to search for posts share rumors and then storing the rumors in an assigned Google Form within an RCCE team.
- A passive approach could be scrolling through a local neighborhood WhatsApp group chat to see if a rumor shows up generally.

Although both methods involve searching for rumors, the chance of finding rumors would be higher for the active approach due to using the set structure and keywords. **Table 7** shown below provides specific examples of methods used to track rumors by each interviewed country, as well as any notable suggestions or critiques by the interviewee.

Table 7: Methods of Tracking Rumors by Country		
Example method of tracking rumors (finding, searching, and storing)	**Formal or Informal**	**Comments**
Country A		
Collected rumors informally through social media platforms	Informal	Suggested wanting to use flow chart to keep track of rumors and their severity Emphasized need for software or system to store rumors and follow up on
Engaged with partners for any possible reports of rumors	Formal	
Developed frequently asked questions from hotline calls	Formal	
Found rumors through interactions with people	Informal	
Used local health promotion officers and WhatsApp group chat for each district	Formal	
Country B		
Collected rumors through reading COVID-19 news every morning	Informal	Emphasized that social media is one of the main methods used to share rumors
Bookmarked the rumors in weekly risk communication update	Formal	
Checked news and social media	Informal	
Country C		
Developed a rumor surveillance model, similar to the one used for the 2019 cyclone response	Formal	Uses a google form to store rumors Provided a guidebook on response which contributes to reducing misinformation while also collecting the
Used case definitions and questions when encountering a rumor	Formal	
Developed a guideline on paper for hotline workers to follow when answering calls and to take note of FAQs	Formal	

Used set keywords to search on social media for rumors	Formal	rumors
Stored rumors in a shared Google Drive form	Formal	
Conducted triage when a rumor came up, asked for the source, area, and info on rumor	Formal	
Used colored metric to indicate severity of rumor	Formal	
Found rumors on social media and media such as news	Informal	
Country D		
Has an RCCE team assigned to detect and address rumors	Formal	Specified they have a designated team within the office for risk communication and rumor management
RCCE team meets weekly and has WhatsApp group chat	Formal	
Passively searches for rumors in chats, social media, and print media	Informal	

Despite the differences in methods used, whether active or passive, formal or informal, all four interviewees emphasized the importance of tracking rumors during this time. In terms of results, the methods of tracking rumors were primarily of the following four categories:

1. Media: including television news, newspapers, videos, etc.
2. Websites: including online sites, fact checking sites, government sites
3. Hotline: a telephone number provided to the community to call with COVID-19 questions
4. Social Media: such as Facebook, WhatsApp, etc.

Table 8 as shown below provides specific examples of each category:

Table 8: Examples of Each Categorized Method of Tracking Rumors		
Method	**Example**	**Country**
Media	"We would see, for example, TV COVERAGE and… people being interviewed, and we would watch them to REPEAT or disseminate a message that was not correct."	C
Websites	"Even the internet in general…"	A
Hotline	"They have a hotline for health… And these folks that work there… were also REGISTERING the type of questions that people were asking so these would also indicate some trends…."	C
Social Media	"Most of the misinformation I see comes from social media. From WhatsApp groups and so on."	B

Addressing Rumors:

"We need to establish work to mitigate those misconceptions that exist in each country. And we need to monitor them and address them effectively, because it's actually affecting our implementation in country."

- Country B

The second primary finding emphasized the need to address rumors. It was indicated by the countries that once rumors are found, tracked, and stored, then the next step would be to develop a plan of countering and addressing it. However, interviewees reported there were issues affecting this phase of the rumor management, such as rumors getting lost due to not being stored initially or the rumor being addressed late in terms of time. Within the theme of "Addressing Rumors", the interviewees highlighted two areas of improvement: communications and timeliness.

Communication efforts:

Countries incorporated different methods of communicating and correcting rumors. One of the main methods of addressing rumors through communication efforts was through the MOH office's websites or social media page. This method was used by all the interviewed countries, though in slightly different ways. As shown below, **Table 9**, provides context into each country's specific method of addressing rumors through providing information to the public. These varying methods included the MOH sending out a Google alert to the community when a rumor is noticed or the MOH posting fact checking content on the publicly available MOH website. Despite these methods showing success, the interviewees also indicated areas of improvement. The table below also indicates the methods, success, and area of improvement for each country:

Table 9: Communication Efforts to Address Rumors

Example method	**Comments**
Country A	
Hosted daily press statements which included COVID-19 data on the past 24 hours, rumors were included in these updates	The daily press briefs have stopped, if restarted it would be beneficial even if at the weekly level versus daily.
The Minister and senior health officials would address various issues through daily press briefs, this was used as a platform to address rumors as well	
Country B	
Sent out weekly COVID-19 update to local embassies and rumors were included in the updates if found	Only the "strong" rumors were included in updates if they were found on the local news (their primary way of tracking rumors) Suggested improving their work on
Developed website on MOH platform specifically for fact checking and correcting local rumors, this was accessible to the public	

	tracking and monitoring rumors in order to best address them as well
Country C	
MOH would host daily press briefings on Facebook live to provide COVID-19 updates and address rumors	Reported the noticeable success of using MOH social media page for live press meetings, increased trust and transparency between community and MOH Had a formalized system of tracking and addressing rumors The training curriculum was not updated, so the health workers were only educated on early rumors during the beginning of COVID-19
Developed a training curriculum for community health workers that were involved in response to ensure they can address rumors as well	
Would draft messages and visual content to post on MOH social media pages to address rumors	
Used a call number specifically for local rumors	
Established a Google alert and WhatsApp group within the community to notify if something is a rumor	
Reported the rumors at their daily meetings to their operations center	
Country D	
Posted fact checking content on both the MOH website and social media page	Reported that posts on MOH website involving fact checking has not been done in a long time
Would update RCCE team on any rumors found so that a plan of addressing it can be developed	
MOH would host press briefings on Facebook with a five page document including COVID-19 data and talking points on rumors were included in these	
Used to have a daily briefing including COVID-19 numbers which would also be featured on NBC and TV	

Timeliness:

"We really need to KEEP TRACK and also to ensure that we are always... on time in terms of responding to the rumors."

- Country A

"I would say for our country, the speed of the response, It's just been too slow. I think to be EFFECTIVE with rumor management, you need to be FAST."

- Country D

Countries reported one of the primary methods of spreading rumors locally is often through social media, which is done by a quick click and share of a post consisting of false information. To prevent further spread of rumors once misinformation has been shared and to reduce further consequences, countries emphasized that rumors need to be addressed quickly. Regarding the time in response, interviewees used the terms "speed", "immediately", "timely", "slow", "fast", and "instant". During the interviews, countries officials often recommended and urged that their offices improve their time in responding to rumors. However, the data indicated some offices attempt to "actively" responding to rumors in a "timely" manner.

"So the rumors are addressed as they emerge."

- Country A

"I do see rumors posted on a group, I will immediately give the response."

- Country D

Formal System:

The main findings of this section emphasized the need for a formal system of rumor management. This was indicated by all four countries across different responses during the interviews. Countries indicated that although rumors are being tracked and addressed, their efforts would be simplified and improved through development of a formal system. Interviewees disclosed this need for a formal system as feedback and suggestions for their country office.

"As far as I know, I know there isn't a SPECIFIC process like there isn't... isn't an established process on how this is managed."

- Country B

A formal system could be one aspect of rumor management work or a combination of them. Interviewees mentioned multiple examples of methods and components to developing a formal system, such as:

- A set sequence of events on how to track, find, and store rumors
- A set system on when and how to address the rumors
- A designated POC managing an assigned team within MOH to handle rumor management
- A specific approach to their local RCCE work that is feasible for them
- A method of monitoring and evaluating the rumor management efforts

Countries suggested these examples as potential ideas for improvement within their offices. The interviewees indicated these potential changes can improve their rumor management outcomes. Country A, in particular, emphasized the need for a formal system as well as tools such as a software to formally track and store rumors.

"But it would be better to have a FORMALIZED way because I know the WHO and other institutions are advancing much in terms of rumor management, so we really need to… be supported to come up with a formalized way of capturing and addressing the rumors."

- Country A

Meanwhile, Country C currently had a formal process of tracking and addressing rumors through methods that were feasible to them. For example, they did not use software for their work, instead they stored rumors in a Google form in their shared drive. The team would then send out a Google alert to the local community to identify the rumor and provide fact checking

information on it. This process was within their scope of work, as outlined in their Standard Operating Procedure (SOP), and provided them with useful, effective outcomes as reported during the interview.

"We have an SOP with all the procedures to investigate the rumors."

- Country C

Collaboration:

The last finding from the results indicated that the countries expressed needing assistance from external organizations and would benefit from collaborating with external partners. Interviewees reported not having the tools, software, designated team, or limited staff to handle the COVID-19 infodemic they were faced with. It was reported that collaboration would improve efforts and reduce the burden faced by the country during this time.

The data provided context on three methods of collaboration used by the countries so far: collaborating with organizations such as UNICEF, collaborating with the government such as MOH officials and teams, and collaborating with professionals such as doctors and actors. **Table 10**, shown below provides further examples specified by interviewees:

Table 10: Categories and Examples of Collaboration

Category	Individuals	Collaboration Example
Organizations	UNICEF	UNICEF would also share reports of rumors and misinformation with localized office
		UNICEF funded a media monitoring program
	Implementing partners	Country would reach out to implementing partners and ask for guidance on how to access particular groups, case

		detection, and limitations during lockdowns.
		Country mobilized funding to hire a company that produced the content for the MOH social media page
	Multiple organizations	*"We were part of a technical working group that incorporated… multilateral and bilateral partners such as UNICEF, WHO, and some NGOs. There was a point when these groups had approximately 100 and something people participating in it."*
Government	Officials	The Minister and senior officials would host daily press releases on social media to provide COVID-19 updates and address rumors.
	Ministry of Health	The Ministry of Health specifically had a website focused on fact checking COVID-19 related information for the public.
		"There's sort of a communication pillar set up with the Ministry that has various members from the ministry, from umm diplomatic agencies and diplomatic partners and development partners and civil society."
Professionals	Health promotion officers	Each district had their own health promotion officers, they were used as one of the platforms of gathering information on how spread rumors were at the localized level.
	Doctors addressing rumors	*"What I've been encouraging is just, you know, let's get our local doctor or Ministry Doctor to just do a quick and easy video…"*

Section B: Fact Sheet

Overall Approach:

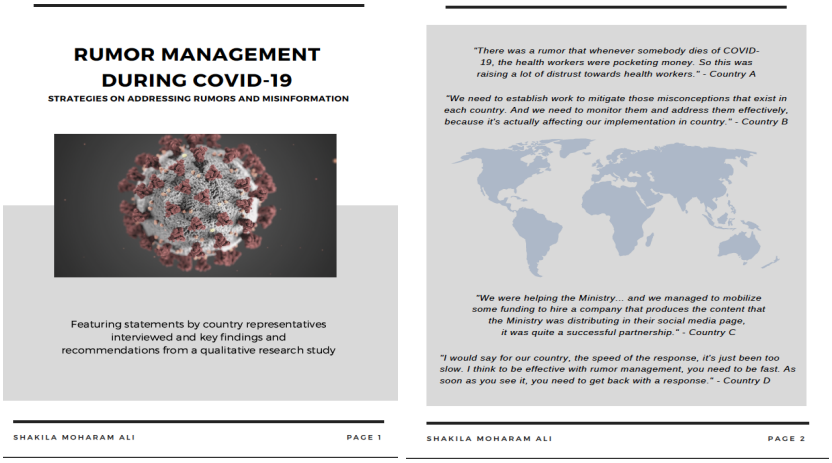
The fact sheet was written to reach the interviewees, their offices, as well as neighboring countries facing similar rumor management issues. After a review of the findings, the content for the fact sheet was developed and geared towards these recipient organizations and offices. In terms of readability, the intended audience already has the educational and professional

understanding of RCCE common terms, processes, and issues. Therefore, the information was provided with simplified bullet style examples per finding versus in-depth explanations.

Meanwhile, the fact sheet also shared direct quotes from the interviewees which brought attention to the country's issues and needs. To maintain their trust and to respect the country's ongoing needs and issues, the information was provided in a formal, but neutral tone. This was confirmed by a readability measurement website, Readable.com, which provides a grading on the readability, tone, and attitude of a document.

Pages:

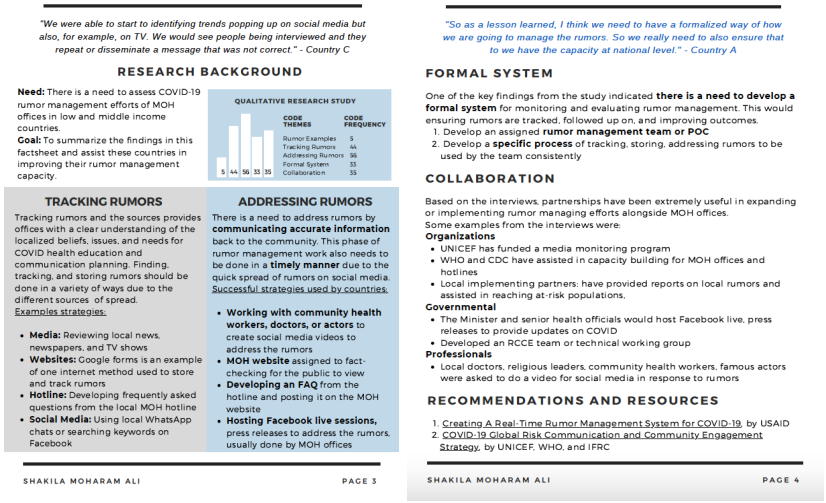
The fact sheet was four pages total. The first page began with a title, *Rumor Management During COVID-19: Strategies on Addressing Rumors and Misinformation*. This was followed by a statement indicating the fact sheet consists of findings, information, and direct quotes from the qualitative research study presented above. (See **Appendix 4** for fact sheet page 1 and page 2)



The second page consisted of four statements directly from the interviews, with one quote per country. Each quote was selected prior based on its relation to the findings that came from

the study. The author chose to begin with this page of quotes to provide readers with a glimpse of the interviews and draw attention to the primary themes.

In qualitative research, quotations are often used "to bring the text to life" (Eldh, Årestedt, & Berterö, 2020). This is why page three and four both began with a quote, different from the ones highlighted in page two. The aim was to draw attention to the importance of a specific topic or issue, while providing a key statement that contributed to the finding. (See **Appendix 4** for fact sheet page 3 and page 4)



"We were able to start to identifying trends popping up on social media but also, for example, on TV. We would see people being interviewed and they repeat or disseminate a message that was not correct." - Country C

RESEARCH BACKGROUND

Need: There is a need to assess COVID-19 rumor management efforts of MOH offices in low and middle income countries.
Goal: To summarize the findings in this factsheet and assist these countries in improving their rumor management capacity.

QUALITATIVE RESEARCH STUDY

CODE THEMES	CODE FREQUENCY
Rumor Examples	5
Tracking Rumors	44
Addressing Rumors	56
Formal System	33
Collaboration	35

TRACKING RUMORS

Tracking rumors and the sources provides offices with a clear understanding of the localized beliefs, issues, and needs for COVID health education and communication planning. Finding, tracking, and storing rumors should be done in a variety of ways due to the different sources of spread.
Examples strategies:

- **Media:** Reviewing local news, newspapers, and TV shows
- **Websites:** Google forms is an example of one internet method used to store and track rumors
- **Hotline:** Developing frequently asked questions from the local MOH hotline
- **Social Media:** Using local WhatsApp chats or searching keywords on Facebook

ADDRESSING RUMORS

There is a need to address rumors by **communicating accurate information** back to the community. This phase of rumor management work also needs to be done in a **timely manner** due to the quick spread of rumors on social media.
Successful strategies used by countries:

- **Working with community health workers, doctors, or actors** to create social media videos to address the rumors
- **MOH website** assigned to fact-checking for the public to view
- **Developing an FAQ** from the hotline and posting it on the MOH website
- **Hosting Facebook live sessions,** press releases to address the rumors, usually done by MOH offices

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"So as a lesson learned, I think we need to have a formalized way of how we are going to manage the rumors. So we really need to also ensure that to we have the capacity at national level." - Country A

FORMAL SYSTEM

One of the key findings from the study indicated **there is a need to develop a formal system** for monitoring and evaluating rumor management. This would ensuring rumors are tracked, followed up on, and improving outcomes.

1. Develop an assigned **rumor management team or POC**
2. Develop a **specific process** of tracking, storing, addressing rumors to be used by the team consistently

COLLABORATION

Based on the interviews, partnerships have been extremely useful in expanding or implementing rumor managing efforts alongside MOH offices.
Some examples from the interviews were:

Organizations
- UNICEF has funded a media monitoring program
- WHO and CDC have assisted in capacity building for MOH offices and hotlines
- Local implementing partners: have provided reports on local rumors and assisted in reaching at-risk populations,

Governmental
- The Minister and senior health officials would host Facebook live, press releases to provide updates on COVID
- Developed an RCCE team or technical working group

Professionals
- Local doctors, religious leaders, community health workers, famous actors were asked to do a video for social media in response to rumors

RECOMMENDATIONS AND RESOURCES

1. Creating A Real-Time Rumor Management System for COVID-19, by USAID
2. COVID-19 Global Risk Communication and Community Engagement Strategy, by UNICEF, WHO, and IFRC

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Page three provided context into the background data and codes used to determine the findings. This was followed by a small graph which quantified the codes from the qualitative data analysis phase of the study. This provided a frequency per code for readers to see how often a statement from the interviews applied to that code or topic.

Afterwards, the rest of page three and page four provided a short paragraph explanation on each main finding: "Tracking Rumors", "Addressing Rumors", "Formal System", and "Collaboration". Within each section, a list of bulleted or numbered examples were provided for the MOH and CDC offices as well as other readers to learn of specific strategies and ideas. For

example, under “Tracking Rumors”, the bullets were made based on the subcodes: “Media”, “Websites”, “Hotline”, and “Social Media” along with an example on how to use each method to track rumors. Next to this section, under “Addressing Rumors”, there was a set of bullet examples on how to address a rumor through each of these channels. This led into page four where the fact sheet provided context on the need to develop a formal system and the importance of collaborating with external organizations, individuals, and governmental offices.

All four findings were explained in a condensed manner since the primary goal was to give specific examples and strategies of improving rumor management efforts in country offices. The fact sheet ended with two resources that provided information applicable to these four findings, for readers that would like further guidance:

1. The first resource is a technical brief published by Breakthrough Action and USAID, titled “Creating A Real-Time Rumor Management System for COVID-19.” This 8-page resource provided a sequential explanation on developing a formal system with many related examples and solutions.
2. The second resource is a document published by WHO, UNICEF, IFRC, and GOARN. The 47-page document titled, “COVID-19 Global Risk Communication and Community Engagement Strategy” provided a more comprehensive and in-depth overview of improving RCCE efforts from multiple reputable sources.

CHAPTER 4: DISCUSSION & IMPLICATIONS

Section A: Discussion

As indicated across this study, rumors and misinformation can impact an individual's decision making regarding crucial aspects of health, which is even more urgent during a crisis or outbreak. This research study assessed the rumor management efforts of MOH offices in low- and middle- income countries during COVID-19. The study resulted in a fact sheet to provide MOH offices with potential strategies and specific examples on how to improve their rumor management work in their localized communities. Based on the coded themes and reported data, some of the author's key recommendations were:

1. There is a need to effectively track and store rumors due to variance in spread and sources.
2. There is a need to address rumors through communicating the correct information back to the community and in a timely manner.
3. Countries should develop a formal system of monitoring rumors, addressing rumors, and evaluating rumor management efforts.
4. Countries should collaborate with professionals and organizations in implementing rumor management projects which can reduce the burden of the crisis for localized offices and teams.

Many of these areas of rumor management overlap with each other as well. For example, finding and tracking rumors should be followed by addressing the rumors to ensure the rumors do not spread further and impact decision making in the community. However, to effectively track and address rumors, multiple interviewees indicated a need for a formal system. Country offices and international organizations should develop and implement formalized guidelines for monitoring and addressing misinformation during this time (Ning et al., 2021). As indicated by

the interviewees, without a formal system, it is difficult to truly monitor and evaluate the ongoing efforts and ensure the needs are being met. A formal system could also involve other organizations and collaborators such as UNICEF or WHO providing the finances or software required. This sequence of events goes from tracking and addressing rumors, to using a formal system in doing so, to collaborating with other agencies. The overlap draws attention to the importance of each step involved in rumor management and highlights the need for a comprehensive approach.

In the end, the aim of the fact sheet was to provide feasible, strategies under each component of rumor management work. The fact sheet allows each country office to choose which strategies to implement or which resources to use depending on their needs for improvement. Similarly, the fact sheet may also be sent out to other country offices that did not participate in this study but would like information on potential strategies for improvement.

Section B: Strengths

There were multiple key aspects of the data collection process and analysis methods phases of the study that are considered strengths. The first is that this project was done in collaboration with the CDC Emergency Response Capacity Team. The data collection phase was handled by a health communication specialist from the ERCT, which consisted of recruiting the countries, developing the question guide, and facilitating the in-depth interviews. This provides much credibility for the data used in this study.

A second strength is that the data analysis phase was repeated to ensure reliability and accuracy. All the interviews were recorded and reviewed, then went through a transcription process twice. This was done to ensure a “verbatim transcript” of the interview which is a crucial

component of qualitative research (Jamshed, 2014). This allowed the author to ensure verbal, non-verbal, or social cues were also noted in the transcription. Afterwards, the coding phase was also done twice to ensure a thorough review of all statements and potential codes. The first round of coding was done manually on Microsoft Word, while the second was done formally in MAXQDA. Repetition of transcription and analysis provides further credibility to the findings.

Section C: Limitations

One of the main limitations is that the sample size consisted of only four countries, which is small. This provided a total of four interviews to use for the research study. To address this limitation, the interviews were completed as in-depth interviews and lasted over an hour to get as much information from each interview as possible.

The second limitation is that the interviews were completed in Summer 2021 during the height of the pandemic. This limited the availability of country participants in the interview phase due to the timing of the project. The interviewees were often in-country MOH or CDC officials with limited availability due to active response work during summer 2021.

Another limitation is that the interviews were done virtually through Zoom, which also could have been a barrier to participating. Additionally, virtual interviews also impact some aspects of qualitative research due to the formatting of the interview. During an interview, it is important to note non-verbal cues, body language, and the tone of the respondent. Due to the interviews being done virtually, it was difficult to witness and track these aspects of the interviewee's response. To reduce the impact of this as much as possible, all interviews were recorded then transcribed in detail. The transcription key had indicators for emphasis in tone, pauses and hesitance, and as well as comments by the author regarding the interview.

Section D: Implications

The COVID-19 pandemic continued to grow alongside, an "infodemic" (WHO, 2020a). Rumor management became crucial during this time due to the excess false information being spread and the impact it could have on health and lives (Gallotti et al., 2020). WHO reported that managing misinformation and risk communication is a crucial component in the success and outcome of public health emergency response including in reducing the impact of COVID-19 (WHO, 2020b).

However, gaps existed on misinformation management in prior scientific and public health research. This research study aimed to close this gap by assessing the rumor management effort of MOH offices and providing recommendations back to the country offices for capacity improvement. In the end, this study contributes to the field of public health in the following ways:

- MOH offices: The fact sheet provides country offices with strategies that are feasible as well as opportunities for expansion of their capacity such as developing a formal system or collaborating with larger organizations.
- CDC ERCT: The data and results provide the research team with information on the rumor management needs and issues of MOH offices.
- Larger organizations such as WHO: The literature review, results, and recommendations provide information on the current efforts of localized offices as well as their needs for capacity building, guidance, and collaboration.
- Social media companies such as Facebook and Twitter: The literature review, content, and recommendations provide social media channels with information on the role they play in rumor management and public health, for future emergency and crises response.

In the end, the data and results contribute to the field of public health by providing MOH offices with rumor management guidance which will benefit their outcomes, and their localized communities. This project also leaves room for organizations and platforms to learn about various country efforts, needs, and issues during an infodemic, which can be used for future program planning.

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Appendix 1: Question Guide

Country	Date (dd/mm/yy)	GHSA Country *(Phase One, Phase Two or N/A)*

To be completed by the interviewer(s)

1. Introduction

Good morning / afternoon / evening

Interviewer 1: Hello, this is (name of interviewer 1). I am a (Insert Job Title) with the Emergency Response Capacity Team (also known by its acronym ERCT) of CDC's International Task Force. Thank you for taking the time to meet with us today. (Name of interviewer 2) is also here with me and I will let (Interviewer 2) introduce himself / herself.

Interviewer 2: Introduces self

Interviewer 1: ERCT is conducting a series of case studies/testimonials to learn more about your experience with COVID-19, specifically relating to risk communication and community engagement capacity.

Our goal is to better understand how COVID-19 rumors and misinformation have been addressed in the country's emergency management entity (e.g. PHEOC) and in the field. We are defining the term "rumor" as "a currently circulating story or report of uncertain or doubtful truth" for this project. We are also defining "misinformation" as "false or inaccurate information, especially that which is deliberately intended to deceive".

At the conclusion of the case studies we aim to identify and prioritize technical assistance and lessons learned to best provide support in the future. To achieve this goal, we are conducting interviews with countries to learn more about their experiences, successes, and challenges with rumors and misinformation during COVID-19. We want to explore the strengths and challenges of rumor and misinformation management, as well as identify the strategies that are most effective. The interview will last approximately 1 hour.

Interviewer 1: Before we start, is it okay if we record this interview? It will be transcribed to ensure the information that we document is accurate. Your information will be kept private and any data used for analysis will not include any information that can identify you. At any time during our conversation, please feel free to let me know if you have any questions or if you would rather not answer any specific question. Please remember there are no right or wrong answers. Are there any questions? May we begin the interview?

Survey Tool

1. Country_____
2. Regular position_____
3. Response position (if different)_____
4. Organization_____

Interview questions

1. In the context of your country's COVID-19 response, how do you or other staff detect and monitor rumors and misinformation?
2. Describe how rumors and misinformation are managed in the response.
3. Are there formal plans and procedures with steps to address rumors?
    a. If yes:
        i. Who is responsible for being alerted to the rumor?
        ii. How are rumors triaged?
        iii. How is messaging developed to address the rumor?
        iv. How is the appropriate channel of messaging (e.g. posters, newspapers, radio) chosen?
        v. Is there a budget and dedicated HR to address rumors?
        vi. How are rumors communicated to response staff to ensure consistency of messaging among responders?
    b. If no:
        i. Do you have plans to develop formal plans and procedures?
4. How do you or other staff address rumors and misinformation?
5. How do you or other staff measure the effectiveness of:
    a. Rumor management methods?
    b. Messages used to address rumors or to correct misinformation?
6. Which of the following is regularly shared with stakeholders (such as partners or community leaders):
    a. Information on rumors and misinformation?
    b. Strategies to address rumors and misinformation?
    c. Who is this info shared with? (No names will be used; is it a partner? A community leader? What type of relationship do they have to the response? To the community?)
    d. How is this information shared (e.g. In a sitrep/situation report)?

Appendix: Informed Consent

Rumor management

Hello, my name is _____, I am with the Centers for Disease Control and Prevention. In an effort to improve public health emergency trainings, we are piloting a newly developed virtual reality training scenario. Your performance will be recorded via the virtual technology in addition to a pre and post-training survey. All the information you share with us and data recorded during the virtual reality session will be kept completely private. All personal identifying information will be removed.

Your contribution will improve the way CDC designs public health emergency trainings. This pilot training allows you to experience new technology that you may not otherwise have the opportunity to try. Please make sure you understand virtual reality health and safety warnings. These are described in the *Virtual Reality Safety and Regulations (adapted from Oculus Health and Safety Warnings)*.

By signing this, you are affirming that you have read and understand the risks of virtual reality simulation. You are free to choose whether or not to participate in this investigation. You can withdraw from any part of this training at any time. Your participation or refusal will not affect your relationship to the Global Rapid Response Team or Centers for Disease Control and Prevention.

Thank you so much for your time and consideration.

I, _____, consent to be part of the investigation and have read and understand the risk presented in the *Virtual Reality Safety and Regulations*.

Date:

Signature:

Appendix 2: Methods Tables

Table 1: Transcription Key		
Key	**Main Idea**	**Definition**
CAPS	Emphasized	The interviewer or interviewee emphasized a word or statement in tone or volume, which was transcribed and written in all caps.
….	Paused	The interviewer or interviewee paused while speaking, which was transcribed with three periods to indicate pauses or hesitation in speaking.
( )	Removed Information	The author/transcriber needed to remove identifiable information, so it was indicated by parentheses such as (name) or (country).
Highlight	Unsure or Inaudible	The author/transcriber could not interpret or hear the statement in full, so it was highlighted to indicate this statement was inaudible.
comment	Comment	The author/transcriber needed to comment within the transcription document, such as *interrupted* to indicate gaps in statements.

Table 2: Codebook	
Key	**Definition**
Rumor Examples	Any statement specifying an example of a rumor in the country
Tracking Rumors	Any comment regarding the systems, methods, and platforms used to track rumors or the needs and issues involving tracking rumors.
Addressing Rumors	Any comment regarding the process and methods used to address rumors in country as well as any issues faced in addressing rumors.
Recommendation	Any recommendations made by the interviewee regarding their country's rumor management efforts.
Collaborating/Partners	Any statement indicating the use of partners and collaboration in rumor management efforts.
Key Note	Any statements the author thought were unique to the country's efforts, issues, and needs in terms of rumor management
COVID-19 Related	Any statements related to COVID-19 vaccines, hesitancy, death, rates.

Table 3: Codebook

Main Code	Subcodes	Keywords	Definition	Example
Rumor Examples	Rumor Examples	Example	Specific examples of related rumors and misinformation in the community or heard by offices	*"It's actually on BBC news as well and it's this rumor that people who had the COVID-19 vaccine can stick a magnet to their arm."* - Country D
Tracking Rumors	Tracking Rumors	Track rumors Collecting Finding Spread Sources	Any comment about tracking, finding, monitoring, and managing rumors and misinformation Any comment related to the methods and systems used to track or share rumors or the lack of methods and systems	*"There are some initial questions to conduct the TRIAGE. If the rumor can provide more information of the contacts or identify the... identify data to follow. If the rumor was related to, in a DIFFERENT source of information."* - Country C
	Media	Media News Newspaper Television	Any comment about tracking, finding, or sharing rumors through media sources specifically	*"If something's in PRINT MEDIA, you're going to have to.... It's a bit hard, you know you're going to have to like write something from SCRATCH to get into print media."* - Country D
	Websites	Websites Internet Online	Any comment about tracking, finding, or sharing rumors through websites specifically	*"We do CHECK the news. I mean, social networks and websites associated with it."* - Country B
	Hotline	Hotline Call line Phone	Any comment about the hotline/call center used in rumor management efforts	*"Through our hotline and through the frequent specials we are ABLE TO devise it in terms of which are the rumors, which are*

				the misinformation, or which ones need to be addressed." - Country A
	Social Media	Social Media Facebook WhatsApp	Any comment involving tracking, finding, or sharing rumors on social media specifically	*"We define the KEYWORDS to monitor the social media and the direct line. We use the keywords: Rumors in (*Province Name*) - that's the name of the province."* - Country C
Addressing Rumors	Addressing Rumors	Address rumors System Response	Any comment related to methods and systems used or not used to address, discuss, reduce, or spread rumors and misinformation Any comment about the offices needs and issues with addressing rumors and misinformation	*"So as a rumor management, I think we really need to ADDRESS the rumors at the source WHERE they rumors are emerging."* - Country A
	Communications	Communicate Discuss Press Briefings	Any comment on communication efforts to address rumors Any comment related to direct or indirect communication of addressing rumors and related info to the public or to health staff or ministry of health	*"From the government perspectives, I think, as I mentioned, they have websites available where they put the topics on the fakes and fact checking as well. So where the public has the ACCESS to that information.."* - Country B
	Timely	Time Speed Immediate Response	Any comment about the time involved in addressing rumors or the speed of response to rumors	*"We really need to KEEP TRACK and also to ensure that we are.... always.... on time in terms of*

				responding to the rumors." - Country A
Formal System	Formal System	Formal system Staff Team Point of Contact Methods Software Records	Any comment about the need for a formal system or lack of formal systems and methods of tracking and addressing rumors Any comment about the use of or lack of a formally organized staff for rumor management, involving a point of contact	*"The WHO and other institutions are advancing much in terms of rumor management, so we really need to maybe be supported to come up with a formalized way in terms of capturing and addressing the rumors."* - Country A
Collaboration	Collaboration	Partnered Funded Government Organizations Officials Stakeholders	Any comment regarding COVID-19 or rumor related efforts done by health professionals or governments, organizations, or officials	*"We organized a series of calls with embassy staff and our CDC's laboratory staff and clinicians, they did sort of... a little seminar with... with embassy staff, locals, both locally employed and the Americans. JUST to explain how vaccines work…"* - Country B
	Professionals	Individuals Actors Doctors Professionals Health officials	Any comment involving work with, or work done by other professionals, such as doctors or actors involving COVID-19	*"They did this, these clips with these doctors who were doing entries… So if you have a reputable GOOD speaker, I think that's what you need."* - Country D
	Organizations	UNICEF WHO USAID NGOs	Any comment about work with or work done by other organizations such as UNICEF or	*"We were part of a technical working group that incorporated... that had the participation of other.... uh multilateral partners and bilateral*

			WHO involving COVID-19	*partners such as the UNICEF, WHO and there were some NGOs."* - Country C
	Governmental	Minister Ministry of Health Government	Any comment about work with or work done by the local government or Ministry of Health involving COVID-19	*"Now I think it has STOPPED... the daily press BRIEF on COVID-19 uh.... we have the minister and also some senior officials from the Ministry over the press secretary task force…"* - Country A

Table 4: Code Frequency Table

CODE AND SUBCODES	FREQUENCY
TOTAL: RUMOR EXAMPLES	**5**
1. Rumor Examples	5
TOTAL: TRACKING RUMORS	**44**
2. Tracking Rumors	19
2.1 Media	4
2.2 Websites	5
2.3 Hotline	4
2.4 Social media	12
TOTAL: ADDRESSING RUMORS	**56**
3. Addressing Rumors	26
3.1 Communications	21
3.2 Timely	9
TOTAL: FORMAL SYSTEM	**33**
4, Formal System	33
TOTAL: COLLABORATION	**35**
5. Collaboration	8
5.1 Professionals	6
5.2 Organizations	9
5.3 Governmental	12

Appendix 3: Results Tables

Table 5: Code Frequency Table

MAIN CODE	FREQUENCY
RUMOR EXAMPLES	5
TRACKING RUMORS	44
ADDRESSING RUMORS	56
FORMAL SYSTEM	33
COLLABORATION	35

Table 6: Rumor Examples Disclosed During Interviews

Country	Rumor
A	"One of them… is that… there was a rumor that whenever somebody dies of COVID-19, the health workers were pocketing money. So this was also… uh… raising a lot of [distrust] towards health workers."
A	"People were afraid to go into restoration centers especially when we have this second wave, where a lot of people are dying on DAILY BASIS. So people were speculating that when you go into a restoration center, that means you are going to die."
C	"There was a message about some TREATMENT that was being promoted, you know, without being certified by the WHO or any other health authority of reference."
D	"It's actually on BBC news as well, and it's just this rumor that people who had the COVID-19 vaccine can stick a magnet to their arm… and it's been circulating… for ABOUT over a week."

Table 7: Methods of Tracking Rumors by Country		
Example method of tracking rumors (finding, searching, and storing)	**Formal or Informal**	**Comments**
Country A		
Collected rumors informally through social media platforms	Informal	Suggested wanting to use flow chart to keep track of rumors and their severity Emphasized need for software or system to store rumors and follow up on
Engaged with partners for any possible reports of rumors	Formal	
Developed frequently asked questions from hotline calls	Formal	
Found rumors through interactions with people	Informal	
Used local health promotion officers and WhatsApp group chat for each district	Formal	
Country B		
Collected rumors through reading COVID-19 news every morning	Informal	Emphasized that social media is one of the main methods used to share rumors
Bookmarked the rumors in weekly risk communication update	Formal	
Checked news and social media	Informal	
Country C		
Developed a rumor surveillance model, similar to the one used for the 2019 cyclone response	Formal	Uses a google form to store rumors Provided a guidebook
Used case definitions and questions when encountering a rumor	Formal	

Developed a guideline on paper for hotline workers to follow when answering calls and to take note of FAQs	Formal	on response which contributes to reducing misinformation while also collecting the rumors
Used set keywords to search on social media for rumors	Formal	
Stored rumors in a shared Google Drive form	Formal	
Conducted triage when a rumor came up, asked for the source, area, and info on rumor	Formal	
Used colored metric to indicate severity of rumor	Formal	
Found rumors on social media and media such as news	Informal	
Country D		
Has an RCCE team assigned to detect and address rumors	Formal	Specified they have a designated team within the office for risk communication and rumor management
RCCE team meets weekly and has WhatsApp group chat	Formal	
Passively searches for rumors in chats, social media, and print media	Informal	

Table 8: Examples of Each Categorized Method of Tracking Rumors

Method	Example	Country
Media	"We would see, for example, TV COVERAGE and… people being interviewed, and we would watch them to REPEAT or disseminate a message that was not correct."	C
Websites	"Even the internet in general…"	A
Hotline	"They have a hotline for health… And these folks that work there… were also REGISTERING the type of questions that people were asking so these would also indicate some trends…."	C

Social Media	"Most of the misinformation I see comes from social media. From WhatsApp groups and so on."	B

Table 9: Communication Efforts to Address Rumors

Example method	Comments
Country A	
Hosted daily press statements which included COVID-19 data on the past 24 hours, rumors were included in these updates	The daily press briefs have stopped, if restarted it would be beneficial even if at the weekly level versus daily.
The Minister and senior health officials would address various issues through daily press briefs, this was used as a platform to address rumors as well	
Country B	
Sent out weekly COVID-19 update to local embassies and rumors were included in the updates if found	Only the "strong" rumors were included in updates if they were found on the local news (their primary way of tracking rumors) Suggested improving their work on tracking and monitoring rumors in order to best address them as well
Developed website on MOH platform specifically for fact checking and correcting local rumors, this was accessible to the public	
Country C	
MOH would host daily press briefings on Facebook live to provide COVID-19 updates and address rumors	Reported the noticeable success of using MOH social media page for live press meetings, increased trust and transparency between community and MOH Had a formalized system of tracking and addressing rumors The training curriculum was not updated, so the health workers were only educated on early rumors during the beginning of COVID-19
Developed a training curriculum for community health workers that were involved in response to ensure they can address rumors as well	
Would draft messages and visual content to post on MOH social media pages to address rumors	
Used a call number specifically for local rumors	
Established a Google alert and WhatsApp group within	

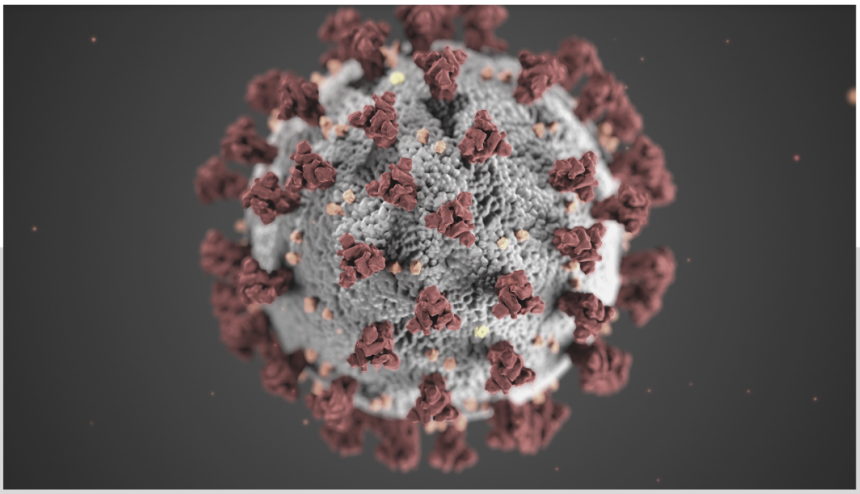
the community to notify if something is a rumor	
Reported the rumors at their daily meetings to their operations center	
Country D	
Posted fact checking content on both the MOH website and social media page	Reported that posts on MOH website involving fact checking has not been done in a long time
Would update RCCE team on any rumors found so that a plan of addressing it can be developed	
MOH would host press briefings on Facebook with a five page document including COVID-19 data and talking points on rumors were included in these	
Used to have a daily briefing including COVID-19 numbers which would also be featured on NBC and TV	

Table 10: Categories and Examples of Collaboration		
Category	**Individuals**	**Collaboration Example**
Organizations	UNICEF	UNICEF would also share reports of rumors and misinformation with localized office
		UNICEF funded a media monitoring program
	Implementing partners	Country would reach out to implementing partners and ask for guidance on how to access particular groups, case detection, and limitations during lockdowns.
		Country mobilized funding to hire a company that produced the content for the MOH social media page
	Multiple organizations	*"We were part of a technical working group that incorporated… multilateral and bilateral partners such as UNICEF, WHO, and some NGOs. There was a point when these groups had approximately 100 and something people participating in it."*
Government	Officials	The Minister and senior officials would host daily press releases on social media to provide COVID-19 updates and address rumors.
	Ministry of Health	The Ministry of Health specifically had a website focused on fact checking COVID-19 related information for the public.
		"There's sort of a communication pillar set up with the Ministry that has various members from the ministry, from umm diplomatic agencies and diplomatic partners and development partners and civil society."
Professionals	Health promotion officers	Each district had their own health promotion officers, they were used as one of the platforms of gathering information on how spread rumors were at the localized level.
	Doctors addressing rumors	*"What I've been encouraging is just, you know, let's get our local doctor or Ministry Doctor to just do a quick and easy video…"*

Appendix 4: Fact Sheet Pages

RUMOR MANAGEMENT DURING COVID-19

STRATEGIES ON ADDRESSING RUMORS AND MISINFORMATION



Featuring statements by country representatives interviewed and key findings and recommendations from a qualitative research study

"There was a rumor that whenever somebody dies of COVID-19, the health workers were pocketing money. So this was raising a lot of distrust towards health workers." - Country A

"We need to establish work to mitigate those misconceptions that exist in each country. And we need to monitor them and address them effectively, because it's actually affecting our implementation in country." - Country B

"We were helping the Ministry... and we managed to mobilize some funding to hire a company that produces the content that the Ministry was distributing in their social media page, it was quite a successful partnership." - Country C

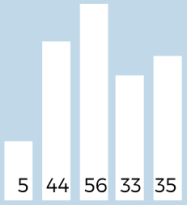
"I would say for our country, the speed of the response, it's just been too slow. I think to be effective with rumor management, you need to be fast. As soon as you see it, you need to get back with a response." - Country D

"We were able to start to identifying trends popping up on social media but also, for example, on TV. We would see people being interviewed and they repeat or disseminate a message that was not correct." - Country C

RESEARCH BACKGROUND

Need: There is a need to assess COVID-19 rumor management efforts of MOH offices in low and middle income countries.
Goal: To summarize the findings in this factsheet and assist these countries in improving their rumor management capacity.

QUALITATIVE RESEARCH STUDY



CODE THEMES	CODE FREQUENCY
Rumor Examples	5
Tracking Rumors	44
Addressing Rumors	56
Formal System	33
Collaboration	35

TRACKING RUMORS

Tracking rumors and the sources provides offices with a clear understanding of the localized beliefs, issues, and needs for COVID health education and communication planning. Finding, tracking, and storing rumors should be done in a variety of ways due to the different sources of spread.
Examples strategies:

- **Media:** Reviewing local news, newspapers, and TV shows
- **Websites:** Google forms is an example of one internet method used to store and track rumors
- **Hotline:** Developing frequently asked questions from the local MOH hotline
- **Social Media:** Using local WhatsApp chats or searching keywords on Facebook

ADDRESSING RUMORS

There is a need to address rumors by **communicating accurate information** back to the community. This phase of rumor management work also needs to be done in a **timely manner** due to the quick spread of rumors on social media.
Successful strategies used by countries:

- **Working with community health workers, doctors, or actors** to create social media videos to address the rumors
- **MOH website** assigned to fact-checking for the public to view
- **Developing an FAQ** from the hotline and posting it on the MOH website
- **Hosting Facebook live sessions,** press releases to address the rumors, usually done by MOH offices

"So as a lesson learned, I think we need to have a formalized way of how we are going to manage the rumors. So we really need to also ensure that to we have the capacity at national level." - Country A

FORMAL SYSTEM

One of the key findings from the study indicated **there is a need to develop a formal system** for monitoring and evaluating rumor management. This would ensure rumors are tracked, followed up on, and improving outcomes.

1. Develop an assigned **rumor management team or POC**
2. Develop a **specific process** of tracking, storing, addressing rumors to be used by the team consistently

COLLABORATION

Based on the interviews, partnerships have been extremely useful in expanding or implementing rumor managing efforts alongside MOH offices.
Some examples from the interviews were:

Organizations

- UNICEF has funded a media monitoring program
- WHO and CDC have assisted in capacity building for MOH offices and hotlines
- Local implementing partners: have provided reports on local rumors and assisted in reaching at-risk populations

Governmental

- The Minister and senior health officials would host Facebook live, press releases to provide updates on COVID
- Developed an RCCE team or technical working group

Professionals

- Local doctors, religious leaders, community health workers, famous actors were asked to do a video for social media in response to rumors

RECOMMENDATIONS AND RESOURCES

1. Creating A Real-Time Rumor Management System for COVID-19, by USAID
2. COVID-19 Global Risk Communication and Community Engagement Strategy, by UNICEF, WHO, and IFRC