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From Ebola to COVID-19:
The Impacts of and Community Responses to COVID-19
within the CHAMPS Network Communities in Sierra Leone

By

Sarah Bair
Master of Public Health

Hubert Department of Global Health

John Blevins, ThD
Committee Chair

Monique Hennink, PhD
Committee Member

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Sarah Bair

Bachelor of Arts in Human Health & International Studies
Emory University
2019

Committee Chair: John Blevins, ThD
Committee Member: Monique Hennink, PhD

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ABSTRACT

From Ebola to COVID-19:
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COVID-19 continues to cause devastating impacts in Sierra Leone alongside low vaccination rates throughout the country. The goal of this qualitative secondary research thesis is to explore the cultural contexts of community perceptions of COVID-19 to improve future research and inform the pandemic response in Sierra Leone. The findings of this qualitative analysis can provide stakeholders with recommendations to implement more effective COVID-19 mitigation and education programs throughout the country.

Fourteen qualitative key-informant interviews were conducted by CHAMPS Sierra Leone Social and Behavioral Science Team to understand the perceptions of COVID-19 throughout the CHAMPS network communities in the Bombali region of Sierra Leone. These informants were recruited as essential leaders in their communities with knowledgeable viewpoints of their community's perceptions of the pandemic.

Results show communities experienced extensive pandemic impacts on their daily lives, particularly on their economic and emotional well-being. These impacts were believed to be sparked by the government-mandated nationwide lockdowns and travel restrictions. Past experiences with the Ebola epidemic in these communities led to the success of community leaders, NGOs, and citizens mobilizing to aid their community's resiliency during the pandemic. The most significant influence on perceptions of COVID-19 was proximity to the virus, whereby participants disclosed converse responses between perceived risk and the extent of economic, daily life, and emotional impacts.

Due to the variations in perceptions of the COVID-19 pandemic, an increase in health education is needed with differential messages targeted towards those with proximity and those without proximity to COVID-19. Stratified health education based on proximity to COVID-19 efforts will have the most significant impact if accounting for these differences in perceptions and help to overcome any misconceptions caused by a lack of adjacency to the virus. While government-mandated lockdowns and travel restrictions delay the spread of viral outbreaks, they fail to prevent spread over time and instead cause immense societal challenges for rural and urban Sierra Leoneans. Face masks, handwashing stations, and hand sanitizer should be readily provided to prevent future outbreaks. The government-mandated responses caused economic impacts far too vast to implement again without financial support for citizens around the country.

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CHAPTER 1: INTRODUCTION

COVID-19 Pandemic

In March 2020, the SARS-CoV-2 virus or COVID-19 was declared a pandemic by the World Health Organization (WHO). Despite warning from WHO public health experts who foresaw the likelihood of another pandemic around 2020, the lack of worldwide preparedness and reaction to the first COVID-19 outbreaks led to mass death and hysteria. The WHO estimates that the deaths due to COVID-19 exceeded three million globally in 2020 alone (WHO, 2021). This global excess mortality is much higher than the original predictions, and it is estimated that African countries reported approximately 10% of their overall COVID-19 deaths. Despite the development of and increases in vaccinations, vaccination rates remain low in African countries primarily due to a lack of access to vaccines. In addition to the global death toll, the two-year existence of COVID-19 has led to significant economic and societal repercussions, permanently altering the state of the world (Ciotti et al., 2020).

As a viral respiratory illness, COVID-19 is primarily spread via droplets of airborne transmission. Risk factors for transmission of COVID include close contact with infected individuals, within 6 feet, and being sneezed or coughed on by an infected person. Data show that the risk of contracting the virus from droplets remaining on surfaces is low. Symptoms of the virus include flu-like symptoms and loss of taste and smell, although symptoms vary significantly between individuals and COVID-19 variants. Asymptomatic cases also exist, leading to the potential failure to diagnose positive cases (Mayo Clinic Staff, 2021).

Furthermore, symptoms develop roughly two to fourteen days after contracting the virus, often after an individual's viral load is already high enough to infect others. The virus's contagious nature and subsequent delay in symptoms or asymptomatic cases lead to an increased

prevalence. Unfortunately, there is currently a lack of data regarding the long-term adverse effects of a previous COVID-19 illness (Mayo Clinic Staff, 2021).

Standard prevention measures for COVID-19 include wearing a face mask, social distancing, and washing hands. Quarantining while sick or recently exposed to the virus is also an essential method of limiting the spread of COVID-19. Developing multiple vaccines in 2020 and 2021 has created an additional risk mitigation effort (Mayo Clinic Staff, 2021). While vaccination rates steadily increased in 2021 in many affluent countries, many of the world's nations still lack the ability to vaccinate their general populations. Worldwide vaccination rates rapidly increased, improving the chances of diminishing the effects of severe illness and death. However, when vaccination rates are disaggregated by country or continent, only a small fraction of developing countries, mainly in Africa, have access to enough vaccines to inoculate their populations. Thus, risk mitigation knowledge and efforts are essential to continuing to protect vulnerable people from COVID-19 infection and impacts (World Bank Group, 2021).

Brief History of Sierra Leone

Sierra Leone is particularly vulnerable to devastating health outcomes of a pandemic. In the late 1900s through the early 2000s, a horrific civil war ravaged the country, leading to thousands of civilian deaths, rampant sexual violence, recruitment of child soldiers from both sides, and increased poverty rates. Both the rebel groups and the government forces caused brutality leading to the displacement of one-fourth of the country's population. The aftermath of the over century-long combat still affects the infrastructure and resiliency of the country (Human Rights Watch, 2012).

These events had a tremendous impact on the economy, health systems, and community resilience. In 2014 the Ebola outbreak in West Africa spiraled Sierra Leone into another state of

emergency. By the end of the Ebola outbreak in the country, the WHO recorded 3,589 total deaths, many of whom were healthcare workers. Despite the declaration of the end of the Ebola epidemic in Sierra Leone, the strength of the economy, healthcare system, and community resilience continue to be tested. The country now exists in a state of alert from Ebola, attempting to overcome any new flare-ups and working to disseminate a vaccine throughout rural and urban communities (Nordstrom, 2015).

Five years later, the Ebola epidemic placed Sierra Leone in a unique setting to combat the COVID-19 pandemic. The community responses to eliminate the Ebola virus from the country were leveraged for the current pandemic, despite Ebola simultaneously having exhausted the country's healthcare system. For example, while healthcare workers were able to use lessons learned from one epidemic and apply them to the other, the capacity of community health workers was still exhausted. As a result, community health education in response to COVID-19 benefited from the learned experiences of Ebola, but a lack of healthcare infrastructure and preparedness leads to the continued transmission of COVID-19 (Richards, 2020). Additionally, Sierra Leone ranks among the highest vulnerable countries globally per the 2021 World Risk Report stating that Sierra Leone is particularly susceptible to the long-term effects of a disaster or crisis (Aleksandrova et al., 2021).

COVID-19 in Sierra Leone

In Sierra Leone, COVID-19 has caused distress throughout rural and urban communities. Like the Ebola epidemic, the success of risk mitigation for the COVID-19 pandemic hinges upon community members' knowledge and risk perceptions of the virus. There have been over 6,000 confirmed positive cases of COVID-19 and over 100 confirmed deaths in Sierra Leone. However, these numbers could be higher due to the difficulties in measuring cases throughout

the country. Despite the vulnerability of Sierra Leone to overcome this significant disease, Sierra Leone has reported significantly lower rates of COVID-19 cases compared to similar West African countries (Reuters, 2021).

Since the beginning of the pandemic, the government of Sierra Leone has taken multiple steps to prevent the mass spread of COVID-19 in its communities. Healthcare workers were challenged to utilize their skills from the Ebola response to bolster their control of the virus. The government enacted border checkpoints, quarantined individuals quickly, imported testing kits, and obtained external funding. These efforts led to Sierra Leone being one of the last countries to receive a first positive case (Erikson, 2020). Once the first case was confirmed in the country, the government-mandated a strict lockdown, and created testing laboratories and isolation centers. The government-mandated travel restrictions in 2020 included multiple three-day stay-at-home orders, inter-district travel bans, and a curfew (Haider et al., 2020).

Influenced by risk perceptions from the Ebola epidemic, communities throughout Sierra Leone mobilized to prevent the spread of the virus. Local COVID-19 Response Teams were created to promote continued efforts to reduce transmission, coordinated through a national office in the Ministry of Health. Sierra Leone has undertaken sufficient efforts in containing COVID-19 cases and ensuring that deaths remain relatively low. Notwithstanding, the country has faced significant economic and social consequences due to the pandemic in return (Bayoh et al., 2021).

Economic Consequences

The immediate response of the government of Sierra Leone to control a COVID-19 outbreak and the effects of illness and death countrywide have subsequently led to economic hardship. The swift lockdown in the early stages of the pandemic limited movement between

rural and urban areas and created obstacles for individuals who traveled for work to continue to achieve regular incomes; for example, individuals who relied on selling goods in rural markets saw a 51-100% decrease in their revenue. Although the length and early implementation of a lockdown decreased the spread of COVID-19, the government mandates led to significant economic turmoil (Bayoh et al., 2021). Simultaneously, the prices of food rose by 16%, and 87% of rural households skipped meals or drastically reduced meal sizes due to the juxtaposition of decreased income or loss of employment and increased cost of goods (Solis et al., 2020).

Social Consequences

COVID-19 has significantly impaired Sierra Leone citizens' mental health and social support. Anxiety and mental health of individuals increased across communities and can be attributed to a fear of COVID-19 illness and worry of resulting economic distress (Buonsenso et al., 2020). While the country's history of Ebola led to better preparation of healthcare workers and communities to mobilize and prevent COVID-19 spread, still, the Ebola epidemic has had adverse effects on individuals' mental health. The COVID-19 pandemic has sparked PTSD-like symptoms and residual trauma for Ebola survivors. The stigma and blame related to COVID-19 mirror the Ebola epidemic, causing individuals to be socially isolated and neglected out of fear of transmission. The social implications of the pandemic further underscore the indirect effects of the virus throughout Sierra Leone (Partners in Health, 2020).

Cultural Implications

The cultural makeup of Sierra Leone is quite diverse. The Mende and Temne ethnic groups represent 60% of the Sierra Leone population (Jackson et al., 2005). These heterogeneous cultural differences are essential in understanding the variety of ways individuals communicate, the political structure of communities, and the relationships between ethnic groups. For example,

during the Ebola epidemic, cultural differences among ethnic groups directly impacted the local community's response to outbreaks. This link was connected to the local political landscape of ethnic groups and whether they strengthened community response (Soumahoro, 2020).

Religion greatly intertwines with the culture of Sierra Leone. The majority of the country is Muslim, but about one-third identify as Christian. Animism is the third most common religion, and many religious practices, even if based on Islam or Christianity, are influenced by local animistic traditions (United States Department of State, 2017). The coexistence of religions paired with strong spiritual structures in society creates a key role for places of worship to respond to epidemics. Faith-based organizations (FBO) spearheaded efforts during the Ebola epidemic to decrease transmission, mainly through modified burial protocols. Religious leaders have the ability to contribute to health education dissemination and equally the ability to spread misinformation, thus is necessary to include them in conversations about risk perceptions. Local healers must also be engaged in mitigation efforts as they can provide an entryway into community dialogue (Blevins et al., 2019)

Traditional healers also held an integral role in affecting the Ebola epidemic in Sierra Leone. Evidence asserts that intervention methods must be implemented in coordination with cultural norms and practices to be adequately adopted by the community. Understanding these cultural implications can assist in the improvement of risk mitigation and modern medical procedures, as traditional medicine can conflict with COVID-19 mitigation efforts. When leveraged, traditional healers can work parallel to frontline workers to reduce disease incidences throughout rural, hard-to-reach communities. Understanding the nuances of healthcare facilities and traditional healers can better influence communities' trust to mobilize for COVID-19 response (Manguvo and Mafuvadze, 2015).

Long-term Consequences

Despite the country's early risk mitigation efforts in 2020, Sierra Leone has struggled to vaccinate their population against COVID-19 in 2021. Although vaccination rates have exponentially increased since the beginning of Fall 2021, less than 5% of the population is currently fully vaccinated for COVID-19. This low vaccination rate leaves Sierra Leone vulnerable to increased outbreaks if more contagious variants of SARS-CoV-2 develop before vaccinations rates increase across the country (Reuters, 2021). Additionally, the long-term impacts of a positive COVID-19 diagnosis are still being studied. Thus, continued risk mitigation to reduce the pressure on Sierra Leone's economy, health systems, and social networks are fundamental to avoiding further devastating long-term impacts of the pandemic.

The CHAMPS Network

The Child Health and Mortality Prevention Surveillance Network (CHAMPS), created by the Bill and Melinda Gates Foundation, works to reduce childhood mortality by identifying causes of death in children under five years old in sub-Saharan African and South Asian countries. Partnering with the Emory Global Health Institute, the Gates Foundation provided funding from 2015 to 2019 at $271 million to gather and analyze data to better understand the causes of death for children in low-income countries. CHAMPS leverages research institutes, universities, and ministries of health in countries where the network is active in Bangladesh, Ethiopia, Kenya, Mali, Mozambique, Sierra Leone, and South Africa (Emory, 2019). In addition, the social-behavioral science (SBS) researchers at the CHAMPS Program Office in Atlanta, GA, and in the network’s country sites, contribute to the capacity of the network to conduct qualitative research, including on community perceptions of COVID-19. The research included in the present thesis derives from a CHAMPS qualitative research study on COVID-19

community perceptions conducted across the CHAMPS network. For the present study, fourteen key informant interviews conducted by the CHAMPS researchers in Sierra Leone were analyzed to evaluate the community perceptions and impacts of the COVID-19 pandemic in the Bombali region of Sierra Leone.

Problem Statement

COVID-19 continues to cause devastating impacts in Sierra Leone coinciding with low vaccination rates throughout the country. An analysis of Sierra Leonean perceptions of COVID-19 could improve risk mitigation efforts to overcome viral spread challenges and reveal the drivers behind low COVID-19 vaccination uptake. In addition, an assessment of risk perceptions will help enhance the cultural applicability of educational programming to combat the virus. Thus, insufficient COVID-19 risk mitigation coupled with simultaneously low vaccination rates throughout the country will continue to negatively affect the economic, social, and health structures in Sierra Leone.

Purpose Statement

Exploring perceptions of COVID-19 within Sierra Leone will allow for a better understanding of the cultural contexts of perceived risk and impacts. This analysis of perceptions can lead to recommendations for more effective prevention and vaccine education programs throughout the country. In addition, holistic understandings of community perceptions of COVID-19 impacts can inform local stakeholders on overcoming obstacles to better address the pandemic's effects within the country through culturally specific insights.

Research Questions

*Research Question I***:** What are the impacts of COVID-19 among community members in the CHAMPS Sierra Leone catchment area?

*Research Question II***:** How does the risk perception of COVID-19 influence community mobilizing within the CHAMPS Sierra Leone catchment area?

Significance Statement

The findings of this qualitative analysis could influence the CHAMPS Sierra Leone Social and Behavioral Science Team and other community stakeholders in better implementing COVID-19 mitigation efforts. Additionally, understanding country-specific cultural and social influences on risk perceptions could inform community leaders on future risk mitigation and vaccination efforts to eradicate the virus.

CHAPTER 2: LITERATURE REVIEW

Introduction

An evaluation of current peer-reviewed research on the impacts of COVID-19 in Sierra Leone and its communities' responses to the virus will identify current gaps in knowledge, theory, and practice. Additionally, an analysis of research on community impacts may reveal that drivers of community responses for both the Ebola epidemic and COVID-19 pandemic align or diverge. The exploration of research and theories alongside one another can argue for the urgency of additional thematic analysis for the benefit of improved educational programming and vaccination rollout.

Ebola Epidemic to COVID-19 Pandemic

A review of peer-reviewed literature on how the 2014-2015 Ebola outbreak in Sierra Leone affected the public health response to COVID-19 revealed several effects: enhanced mitigation efforts to vulnerable communities, the importance of anticipating disruptions to general health care services, and the need to identify COVID-19 specific nuances that differentiate it from Ebola. The resources developed and lessons learned from the Ebola epidemic led to the advancement of COVID-19 pandemic responses based on the ability of countries such as Sierra Leone to implement these resources and lessons from the prior outbreak.

Diverse research was conducted during and after the Ebola epidemic to analyze the virus's effect on the impacted African countries to address potential gaps in mitigation efforts. Ansumana et al. (2014) presented various improvements to the community, government, and international Ebola mitigation practices and policies. These Sierra Leonean researchers discussed the need for improved access to diagnostic techniques, infectious disease surveillance systems, clinical care providers, and communication strategies. Government restrictions on movement

throughout the country led to the disruption of daily life, an increase in misinformation, and country-wide hysteria. However, these researchers propose utilizing community-led responses to prepare for and mitigate viral spread, including Ebola and future outbreaks (Anusumana et al., 2014).

Coltart et al. (2017) further underscore the need for community-led responses to public health crises in their evaluation of the impact of the Ebola epidemic in West Africa. Although the outbreak is "quantitatively many times larger than previous outbreaks, [the outbreak] was not qualitatively different" (Coltart et al., 2017). In this study, the authors continuously reaffirm that new viral outbreaks must reinforce former viral control and response learnings. Community perspectives in epidemic or pandemic mitigation attempts are crucial in diminishing the potential impacts of community-wide outbreaks. Community organizations are the key to controlling outbreaks, and government and global public health leaders must lean on these community networks for adequate risk mitigation (Coltart et al., 2017). While these critiques of Ebola outbreak measures do not draw direct comparisons between the two viruses, the utilization of Sierra Leonean-driven improvements can help direct current and future COVID-19 impacts and control measures.

Saalim et al. (2021) conducted a media content analysis to evaluate the consequences of the COVID-19 pandemic on vulnerable populations in six West African countries. The results were stratified by countries that responded to and mitigated Ebola and those that did not report Ebola cases. While commonalities were discovered between the six West African countries, it was determined that the countries with prior experience with Ebola focused more media attention on vulnerable communities. Thus, the researchers concluded the importance of narrowing COVID-19 mitigation efforts toward these vulnerable communities. These researchers also discussed the importance of additional research to evaluate potential community nuances,

contextual factors, and country-specific effects of the COVID-19 pandemic in West African countries, particularly in their vulnerable communities.

Ngo et al. (2021) extrapolated data from the Ebola epidemic in Sierra Leone to project potential implications for maternal and child health services utilization during the COVID-19 pandemic. They discussed the far more significant indirect effects of Ebola on child mortality than the Ebola virus itself and forecasted the same effect for the current pandemic. Refocusing health resources and energy on the pandemic alone without considering the parallel health impacts on decreased health care access and worsened diarrheal diseases and malnutrition can lead to similar child mortality consequences. While this study provides Sierra Leone-specific analyses on healthcare during the Ebola epidemic and can provide helpful inferences for current prevention efforts, more targeted research on the impact of the response to COVID-19 is necessary to adequately understand the pandemic's effects on maternal and child health. In addition, pandemic mitigation and primary healthcare in the current pandemic climate must be evaluated in Sierra Leone to provide recommendations for bettering health services utilization throughout the country (Ngo et al., 2021).

In an assessment of the influence of Ebola on risk perceptions, Kamara et al. (2020) compared the viral risk comprehension of two Sierra Leonean communities: one where Ebola was quite rampant and one where no cases were reported. The researchers concluded that all participants held a solid foundation of risk mitigation knowledge regardless of location. It was recommended that more community-led mitigation efforts occur to provide rural communities with the agency as their risk mitigation understanding is already quite significant. In the research, the villagers compared both viruses by their characteristics: a lower infection rate with a high death rate and a higher infection rate with a lower death rate (Karama et al., 2020). Notwithstanding, Karama et al. (2020) conducted their assessment in 2020, and additional

COVID-19 variants have mutated since. Thus, a more current analysis of risk perceptions and community response that is current and pandemic-specific is necessary to assert a thorough and culturally appropriate understanding of risk mitigation.

COVID-19 Impacts

Regardless of the relatively low number of positive COVID-19 cases within Sierra Leone neighborhoods, its communities have faced vast social, economic, and daily life impacts due to the pandemic. In addition, the strict implementation of the government-mandated lockdowns in Sierra Leone, the pandemic led to immense economic ramifications throughout the country. An evaluation of current research underscores the direct impact the pandemic, despite low transmission rates, had on income, food insecurity, and economic stability, particularly linked to the government mandates restricting movement throughout Sierra Leone.

Jones (2022) highlighted the experiences of individuals' responses to health emergencies in an ethnographic examination and discovered a plethora of diverse individual experiences and opinions of the mandated COVID-19 responses. Jones (2022) asserted the necessity of acknowledging cultural and community-level differences in responses to the pandemic and mitigation mandates. They also discussed the need to analyze diverse perspectives of COVID-19 in Sierra Leone and worldwide. In addition, the researcher addressed the influence of state mandates on individual responses and how these responses vary based on education status and access to information (Jones, 2022). However, there is a need for more depth in the discussions of community perceptions during the pandemic and how these perceptions affect risk mitigation and community impacts through cultural contexts.

COVID-19 and the subsequent government mandates continue to affect the social networks, economic stability, and health care systems in Sierra Leone. Participants in a survey

conducted throughout Sierra Leonean towns acknowledged a 51-80% decrease in weekly income compared to their standard earnings before the government lockdown mandate (Buonsenso et al., 2020). Individuals further elaborated on how this economic instability has led to food insecurity and a significant increase in anxiety. Especially for certain Sierra Leoneans who rely on fishing and tourism markets, the survey revealed that the government lockdown mandates and the overall impact of COVID-19 on daily life led to economic and social barriers. While addressing the immediate health concerns of the COVID-19 pandemic is important, contextualizing the effects of these mitigation responses on Sierra Leonean daily life is necessary to gain a holistic understanding of the impacts of the pandemic throughout the country.

Government mandates, such as inter-district travel restrictions and nationwide lockdowns, inhibit citizens' transportation indirectly impacting children's well-being and ability to attend school. During the school closures necessitated by the Ebola epidemic, communities faced "increased dropouts, child labor, violence against children, teen pregnancies, and persisting socioeconomic and gender disparities" (Armitage and Nellums, 2020). While many schools in higher-resourced communities worldwide shifted to virtual learning during the COVID-19 pandemic, disparities in access to the technology necessary to participate in distance learning further contribute to inequities that exist during school lockdowns (Armitage and Nellums, 2020). While the government mandates were enacted to protect vulnerable populations such as children, the impacts of these mandates need to be assessed to weigh whether lockdowns are worth the disruption to daily life for children and families in Sierra Leone.

Due to swift government mandates and restrictions, multiple African countries saw a delayed increase in confirmed COVID-19 cases. However, with the development of COVID-19 vaccines, public health efforts have shifted towards vaccination programming despite the delay in access for many African people to be inoculated. Thus, Coleblunders et al. (2020) call for

further studies to determine disease burden and strategies to reduce such a burden in sub-Saharan Africa, such as enhanced vaccine accessibility. In addition, these authors evaluate the effectiveness of educational programming related to reducing disease burden versus disease transmission (Coleblunders et al., 2020). Finally, targeted research on country-specific COVID-19 impacts can also allow for an analysis of COVID-19 transmission perceptions and what communities are doing to mitigate viral outbreaks.

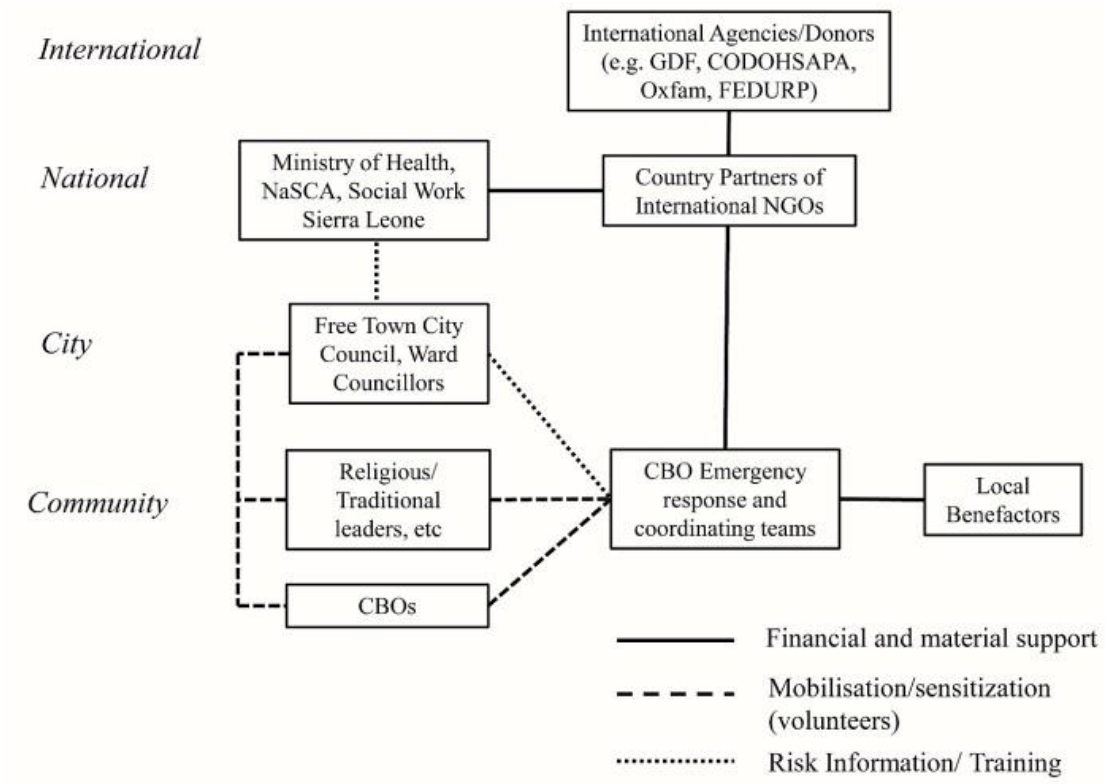
Community Mobilizing Against COVID-19

Community-based responses proved effective during the Ebola epidemic and must be utilized for mobilization against COVID-19. Osuteye et al. (2020) articulate the relationships that community-based organizations must balance while having the ability to implement feasible and sustainable crisis response practices. Regardless of external resources and financial support, community organizations can spearhead collective action to overcome public health challenges. Grassroots initiatives are at the core of community mobilizing and should continue to be spotlighted as a potential link to local action and COVID-19 mitigation strategies (Osuteye et al., 2020).

Frimpong et al. (2021) studied the Sierra Leonean community-level responses to the pandemic through an actor-network analysis of how community-based organizations (CBOs) affect local health responses. The study findings of this research evaluated the imperative role CBOs play as linchpins to community organizing and mobilizing in response to health disasters. These CBOs hold a unique perspective in being well integrated into communities and thus better able to navigate cultural influences on adapting to health emergencies. Finally, Sierra Leonean CBOs' connection to other stakeholders can be visualized in an actor-network analysis to exemplify linkages of financial and material support, risk communication and training, and

mobilization for COVID-19 risk mitigation (Figure 1). This network analysis is vital to contextualize local influences on risk perceptions, risk mitigation practices, and health education programming during a pandemic. The researchers detailed in the network analysis the different tiers of CBO actors such as international, national, city, and community. The connections between CBO actors at each tier are designated based on relationship: financial and material support, mobilization and sensibilization volunteers, and risk information and training (Frimpong et al., 2021).

Figure 1: CBO Actor-network flows in Covid-19 response (Frimpong et al., 2021)



Relationships between grassroots level partners such as CBOs, religious clerics, and local leaders coupled with scholarly communication can effectively react to, lead, and mitigate health emergencies, including the COVID-19 pandemic. CBOs build the foundation for knowledge, practices, and perceptions of the pandemic for Sierra Leoneans, but should be coupled with an

understanding of detailed community-wide impacts to continue visualizing these community networks and communication pathways for future and improved health emergency programming (Frimpong et al., 2021).

Through a cross-sectional survey in Sierra Leone, Sengeh et al. (2020) calculated the percentage of participants who understood the characteristics of COVID-19, the risks of infection, and strategies to prevent transmission of the virus. This research underscores the relationship between knowledge of risk and mitigation practices. Most individuals surveyed believed themselves to be at moderate to high risk of contracting COVID-19, yet characteristics such as the deadliness of the virus remained lesser-known. There were apparent discrepancies when stratified by gender on knowledge of COVID-19 and risk mitigation strategies. For example, women had a higher percentage of misinformation. These gaps in knowledge must be improved to lower infection rates in vulnerable populations and improve mitigation practices and community mobilizing. This strategy is the crux to reducing transmission and the long-term impacts of the virus. Additional evaluations of general knowledge of COVID-19 and risk perceptions specific to local communities will further aid recommendations to address shortcomings of the community and country-wide mitigation efforts and educational programming (Sengeh et al., 2020).

Conclusion

Significant research has been conducted to evaluate the Ebola epidemic's impact on Sierra Leone and then projected to inform current COVID-19 community perceptions. However, additional nuances should be analyzed to improve government mandates, educational programming, vaccination efforts, and community-led responses. With context-specific evaluations of the COVID-19 impacts, Sierra Leonean local leaders and healthcare workers can

better address potential risk mitigation barriers amongst their community members. Additional analyses of the impacts of COVID-19 in Sierra Leone will supplement the previous research to contribute to identifying the drivers of health emergency perceptions. Understanding these perceptions is an essential step in developing educational programming to improve mitigation and vaccination efforts and counteract the short and long-term impacts of the pandemic.

CHAPTER 3: METHODS

Data Collection

The present study utilizes data from key informant interviews conducted in Sierra Leone, which derive from a more extensive CHAMPS Network qualitative study on the perceptions of COVID-19 across seven countries. The CHAMPS country offices, including Sierra Leone, employ a variety of researchers—including social scientists who collect qualitative data through methods such as in-depth interviews, key informant interviews, focus group discussions—and epidemiologists and pathologists who generate quantitative data from mortality surveillance. In 2020 in response to the COVID-19 pandemic, CHAMPS social scientists shifted their research away from causes of death for children under five toward community responses to the COVID-19 pandemic. CHAMPS developed a qualitative rapid assessment process on the perceptions and community impact of COVID-19 among CHAMPS community sites in Sierra Leone, Bangladesh, South Africa, Kenya, Ethiopia, Mali, and Mozambique. This assessment includes multiple phases to evaluate changes in perceptions of the COVID-19 pandemic over time and contains measures of vaccination acceptance. The first wave of this study collected country-specific key informant interviews on seven topics: general perceptions of COVID-19, knowledge of transmission, perceptions of risk, other impacts, stigma and blame, perceptions of CHAMPS and its staff, and other topics determined by country site staff specific to their location.

The CHAMPS Program Office developed the interview guide for in-depth interviews, key informant interviews, and focus group discussions. Each country office team was charged with supplementing the interview guide with additional site-specific topics, recruiting participants, conducting interviews or focus group discussions, transcribing the data, and translating data into English as needed. The verbatim transcripts were then sent to the CHAMPS

Program Office in Atlanta (USA) to assist with various analyses to provide each country site with country-specific and network-wide research findings.

This thesis comprises a secondary analysis of fourteen key informant interviews conducted by the CHAMPS SBS team in Sierra Leone in the first wave of the study in late 2020. These interviews were conducted by researchers from CHAMPS Sierra Leone's catchment area of Bombali and ranged from 30 -60 minutes. Interviews were conducted in the local language Krio and then were translated into English by the CHAMPS Sierra Leone research team. The CHAMPS Sierra Leone staff consists of Sierra Leonean researchers with varying public health, social science, and medical backgrounds. In addition to a primary interviewer, a note-taker was present to assist in the interview and notetaking process. Transcriptions were anonymized to protect the participant's identity while keeping certain participant characteristics to allow for analytic comparisons. Quality checks from a CHAMPS country site researcher who did not conduct or translate the interview were performed on each interview. This process consists of cross-checking the interview recording with the transcription to ensure that the participants' responses' original integrity was upheld in the verbatim transcriptions and translation.

Participants

The 14 participants interviewed were all residents of the Bombali region of Sierra Leone, a Northern region that includes Makeni, the capital city and largest city in the region. A range of interviews was conducted in the urban area, while others occurred in the city's rural outskirts. To increase diversity, the researchers targeted residents with varying attributes, employing a sampling frame to ensure a sample of residents with the following characteristics:

a. diagnosed with COVID-19 with a confirmatory test and has since recovered from active infection (if feasible/possible)
b. received a COVID-19 vaccine (if feasible)
c. Village elder

d. Local chief or leader
e. Local governmental official
f. Religious leader(s)
g. Traditional healer and/or other informal healthcare providers
h. School teacher
i. Parents (both mothers and fathers)
j. Clinical providers
k. Community members

The CHAMPS SBS leads determined this purposive sampling frame with input from the SBS leads in each country site, focusing on understanding the perceptions of community members with significant influence on maternal and child health specifically. The perspectives of these community members on COVID-19 would inform the impact of such perceptions on CHAMPS surveillance activities most directly. Participants were identified and recruited from established CHAMPS relationships or identified through partnerships with local organizations established within the community.

Most participants were male, while four were female, and one person's gender was not specified. Participants ranged from 23 to 73 years old; two individuals' ages were unknown. There were diverse levels of schooling: none, incomplete secondary, secondary complete, professional training, Quranic school, and university or higher. All but three individuals were married. Over half of the participants were Muslim, a few were Christian (both Protestant and Catholic). Participants belonged to various ethnic groups: Temne and non-Temne ethnic groups, with eight of the fourteen participants identifying as Temne while other participants identified as Limba, Mandingo, Mende, and Loko. Occupations were diverse among participants, but many held notable roles in the community and were grouped for analysis by health-related and non-healthcare professions. An inductive grouping was added based on whether the participant revealed that they had proximity to a positive COVID-19 case (themselves or within their social network) and those who disclosed not knowing anyone who has tested positive for COVID-19.

Data Analysis

The fourteen transcripts were uploaded to MAXQDA 2022 qualitative data analysis software (VERBI Software, 2021). The steps of organizing the data included: detailed memoing of data, developing a codebook, and coding data. Fifteen inductive codes were created and applied to the transcripts to break the data into topics for analysis:

a. General knowledge
b. Risk mitigation
c. Transmission
d. Symptoms
e. Information source
f. Risk perceived
g. No risk perceived
h. Religious references
i. Emotional impacts
j. Daily life impacts
k. Economic impacts
l. Blame & stigma
m. Community mobilizing
n. Government response
o. Ebola (*in-vivo*)

During data analysis, data were reviewed using these inductive codes and revisited under various lenses during the thematic analysis. Data analysis involved first using codes to retrieve data by topics using the qualitative data analysis software. This allowed for specific lines of text associated with each code to be viewed across all transcripts. Further refinements were then made to the codebook to ensure code consistency throughout the dataset.

Data for each code was then reviewed irrespective of each and compared by demographic characteristics. Deductive variable groups were created based on location, age, sex, profession, religion, ethnic group, and relationship status. This allowed for the relationships, or lack thereof, between variables and topics to be identified. Thick descriptions were then created of each code to clearly delineate depth, breadth, and nuance within each topic. This allowed for a deeper understanding of the codes to further contextualize each topic.

An analysis plan was developed to help guide the comparisons of the data and explore potential patterns and broader themes. This initial analysis plan enabled a focus on perceptions of COVID-19 to uncover themes including how information sources affect knowledge of COVID-19; how economic impacts influenced other impacts of COVID-19; how Ebola prepared communities for COVID-19 response; the relationship between understanding of COVID-19 and risk perceptions; and how community mobilizing affected mitigation and response to the pandemic. Comparisons were made within and between subgroups of data by variables. Codes were analyzed for intersections with other codes, with each code and variable combination leading to additional combinations as reoccurring patterns began to arise.

Once comparison groups were exhausted, conceptualization began to add context to the data within greater emerged themes. This led to a reoccurring relationship between the government-mandated response, COVID-19 impacts, and community mobilizing. However, after returning to the data to test this conceptual framework, inductive variable groups of proximity to COVID-19 were included and led to a more robust understanding of the two main themes of the data: community mobilizing because of the impacts of the government-mandated response and the effects proximity to COVID-19 had on perceptions of pandemic impacts.

To verify the identified conceptual framework, both concepts were validated by revisiting the data to ensure the concepts consistently and adequately represented the informants' responses. The verification process of testing different codes and variables within the conceptual models led to further refinement of the models to improve clarity. Finally, an alternative theory was tested to highlight whether the causal link identified was the proper conceptual pathway. Revisiting the analytic cycle finalized the thematic analysis results, ensuring they were empirically developed and supported (Hennink et al., 2020).

Institutional Review Board & Ethical Considerations

The qualitative rapid assessment study received Institutional Review Board (IRB) approval from both the Centers for Disease Control and Prevention and Emory University, and from the Ethical Review Board of the Ministry of Health in Sierra Leone. CHAMPS researchers inquired about the need for any further approved from the Emory IRB since the author is a student at Emory; since the data used for this thesis was de-identified before being received and the thesis chair is a named researcher in the approved protocol, this thesis did not require a second IRB approval. Characteristics necessary for data analysis such as profession, location, language, age, and gender were kept in the interview transcription; however, individuals cannot be identified regardless of the inclusion of this demographic data. Additionally, it was made clear to each participant before the interview that their participation was voluntary, and they could stop the interview or skip a question at any time if desired. Verbal consent was given before each interview was recorded, and participants were able to direct the discussion to create open-ended responses and minimize harm.

Limitations

One of the topics of interest for the primary rapid assessment is based on the community's perceptions of CHAMPS. Thus, each interview conducted by a CHAMPS representative contained questions related to individual and community opinions of CHAMPS at the end of the interview. This may have led to response bias specifically related to this thesis' code *community mobilizing*. Therefore, the questions pertaining to opinions of CHAMPS and other organizations' responses to COVID-19 were not included in this study to avoid biased analysis.

Additionally, due to the nature of a secondary analysis, saturation was unable to be

assessed as data collection was not conducted for the original purpose of this thesis. Since a subset of interviews were obtained from a larger CHAMPS qualitative study, only this set number of interviews could be used regardless of whether additional issues or perspectives exist. The inability to claim saturation of the research data inhibits the assertion of the sample being adequate and data collection being complete. This is due to the nature of secondary analysis, as additional interviews could not be included regardless of any interest in gaining additional perspectives.

CHAPTER 4: RESULTS

Introduction

The fourteen Sierra Leonean informants interviewed shared detailed opinions of the community perceptions and impacts of COVID-19. It was clear that COVID-19 greatly affected their daily lives through risk mitigation practices, economic obstacles, and changes to emotional well-being. These participants elaborated on their understandings of COVID-19 characteristics, the immense impact the pandemic has had on their community, and the community mobilizing occurring as a result. While most participants had a detailed understanding of the characteristics of COVID-19 transmission, symptoms, and risk mitigation strategies, there were no differences in their experiences based on deductive variable groups such as age, sex, or location.

However, participants drew connections that continued to resurface between conversations. Informants indicated that the government mandated national lockdown served as a catalyst to devastating economic impacts throughout the country. The government lockdown triggered the lack of movement between regions and thus also sparked economic impacts tied to traveling for business or selling products at market. The government mandated response and economic impacts then led to daily life and emotional impacts such as a lack of social life and increased loneliness. This causal pathway culminates with community mobilizing: the way in which community members join together in response, mitigation, and education to reduce the further spread and impacts of the COVID-19 pandemic. Experiences with the Ebola epidemic influenced a community's mobilizing as community members were seen to leverage their learned behaviors and knowledge and apply them towards the current pandemic.

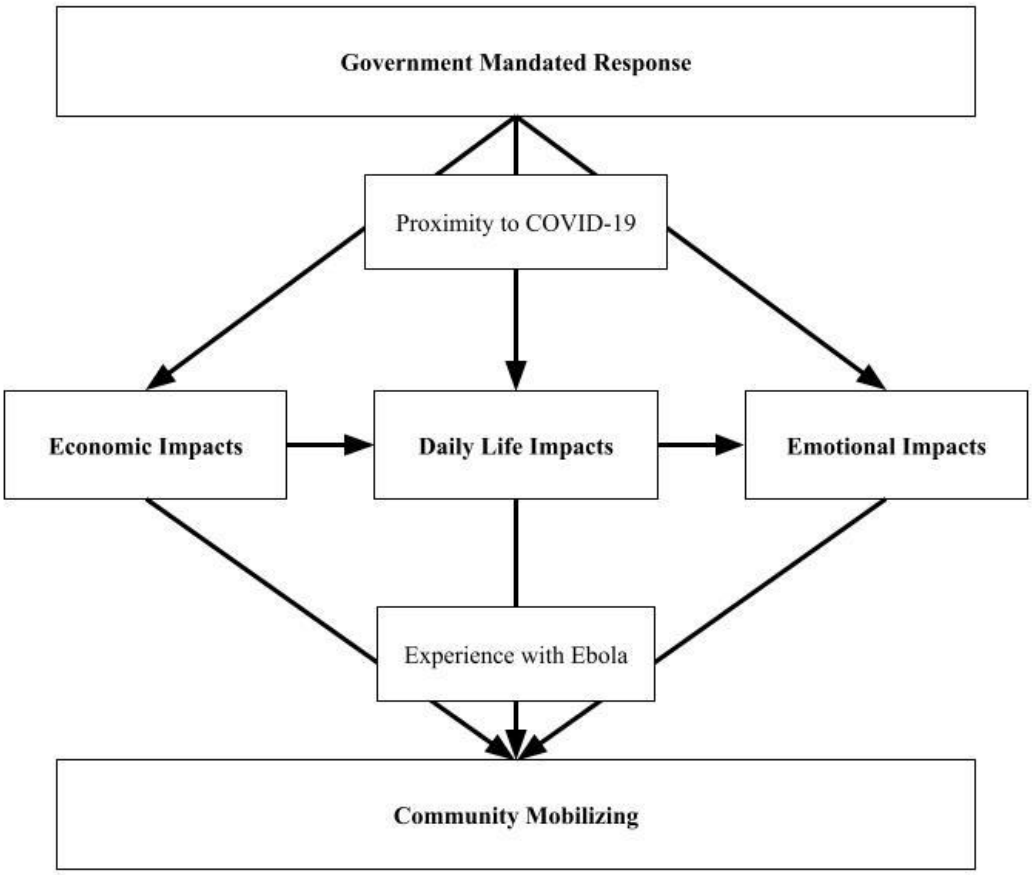
In each interview participants disclosed whether they knew someone personally who has previously tested positive for COVID-19, whether themselves or someone within their

communities. Two participants in the known proximity group were previously diagnosed as COVID-19 positive themselves. Other individuals discussed not having any known proximity to COVID-19 despite acknowledging that COVID-19 currently exists in Sierra Leone. A comparison of experiences by these two subgroups – proximity and no proximity to COVID-19 – showed the most distinct pattern in the results as compared to other variable groups. Those without proximity highlighted many more economic, daily life, and emotional impacts than those with known proximity to COVID-19. However, those with proximity mentioned stigma associated with testing positive while those without proximity did not. Closeness to the virus affected the overall perception communities have on the impacts of the COVID-19, more than any other participant characteristics or variables.

Theme I: The Impacts of the Government Mandated Response to Community Mobilizing

Key informants thoroughly discussed the vast impacts the pandemic has had on their economic status, daily lives, and emotional state, which is depicted in Figure 2. These impacts were discussed as an outcome of the government-mandated restrictions preventing movement throughout the country. However, the perceptions of these impacts were influenced by a participant's self-determined proximity to a positive COVID-19 case. Furthermore, economic impacts were viewed as also being a catalyst for other challenges of the pandemic in addition to the government-mandated response. Finally, the vast pandemic impacts within the key informants' communities led to community mobilizing to maximize the mitigation of the COVID-19 virus. Community mobilizing was perceived as being directly correlated with Sierra Leone's experience with Ebola as learned behaviors and knowledge led to swift and organized mobilizing throughout the interviewed communities (Figure 2).

Figure 2: Government Mandated Response to Community Mobilizing



Government Mandated Response

Informants consistently raised the government mandated lockdowns that occurred to limit movement between regions in Sierra Leone. The interviewers did not prompt the discussion of government lockdowns, but participants frequently brought up the inter-district travel restrictions and national lockdowns in their responses (Table 1). The government mandated responses were viewed as a trigger for many subsequent impacts of COVID-19, particularly economic obstacles (Figure 2).

Participants also expressed dismay at the lack of government support despite the travel restrictions and lockdown. Having described the connection between the travel ban and the

consequent impacts of the pandemic, participants pled for the involvement of the government in overcoming these impacts.

Interviewer (I): OK so which kind of challenges were you facing during the fight against COVID-19?

Participant (P): Well there were lot of challenges like the resources because at first when it all started, we were expecting government to step in and do this and this that was needed like providing face mask, PPE and they should train staff and all other things were expected but that was not happening.

Participants drew a correlation between the government response at the beginning of the pandemic and the consequential impacts of the pandemic rather than connecting the virus directly to these community impacts. Individuals acknowledged the extensive obstacles that the pandemic and the government's response to COVID-19 in Sierra Leone had on their community. This lack of government response to the outcomes of the pandemic in addition to the government attempts to mitigate risk led to communities themselves identifying a need for community wide mobilization (Figure 2).

Government Response to Community Mobilizing

The COVID-19 pandemic and correlating responses impacted the Sierra Leonean people while attempting to mitigate the spread of the virus. Participants viewed the government as passive in supporting local communities, but community mobilizing was seen as a present and effective source of resources and education. The community mobilizing was spearheaded by local leaders and NGOs, but often facilitated by people within the community.

I: Ok so what have you been doing in order to stop the spread of corona virus?

P: Well at my own area, I tried to sensitize the people in my environment about corona because my children and my family do interact with other people in my environment

Participants referenced both sensitizing their community to mitigate the pandemic's effects and experiencing sensitizing by NGOs. Various organizations were highlighted as information sources for informing and educating communities on the dangers and risk mitigation strategies of COVID-19. Additionally, NGOs provided many resources to help locals properly utilize their learned risk mitigation strategies:

I: Do you know any organization that is working effectively in this your community to help control the spread of the corona virus?

P: We have the donors, but if I say this organization has come to help us with the corona virus except for you CHAMPS because you came and gave us face mask and health messages which you want to help stop this sickness, another one is COOPI, WHI also came with the same help which is veronica bucket [handwashing station] and face mask that is the only help we receive but no one gave use clothes or anything else.

<u>Economic Impacts</u>

Every participant cited many economic impacts such as lack of income, inability to work, food insecurity, and more (Table 1). While the financial burdens discussed were associated with the pandemic, individuals attributed the impacts more specifically as a repercussion to the government lockdown and travel bans. The government mandates were distinct events in time that made it easier for participants to equate with the financial obstacles they faced directly. Many Sierra Leoneans were nervous about breaking the mandates and were willing to minimize movement outside the home to mitigate the spread of COVID-19. However, due to government

mandates, this lack of movement made it easy for participants to ascertain the cause and effect between the two (Figure 2).

> *P: Now I am unable to work because like I said earlier I use to move a lot by so doing I use to work and get money but I can no longer do that, I was unable to make a farm but I only planted swamp rice so because I was unable to move around I was unable to hand much.*

Sierra Leoneans experienced vast economic impacts during the pandemic, most of which were attributed to the government lockdown. These participants also recalled the government's lack of financial support to help overcome the overwhelming additional financial burdens due to the pandemic. Instead, participants discussed the response of local, national, and international NGOs in attempting to mitigate the economic impacts. In addition to the contributions of these NGOs to provide education and risk mitigation resources for communities in Sierra Leone, participants also related these organizations to efforts to counter the pandemic impacts throughout the country. Participants perceived these organizations to aid community mobilization with financial support:

> *P: All of them supported us in different ways: some came with money, some came with their expertise... So we think that we are having support from all of them but strong financial support is coming from those that are supporting case management, surveillance, and social mobilization.*

Daily Life Impacts

Participants saw the economic impacts of the lockdown as the spark to cause both daily life and emotional impacts. Participants perceived the government response as directly causing disruptions to everyday life due to mitigating risk behaviors and indirectly impacting regular

daily routines through the pandemic's economic impacts. The lack of income many participants faced led to a disruption of typical social activities. Participants cited a decrease in fun activities in their interviews. They attributed this to precautionary risk mitigation and travel restrictions and the inability to fund social activities due to financial struggles (Figure 2).

> *P: The social life is not there; you are involving in a social life because you have money. You cannot do anything if the stomach is empty. If you are hungry and laugh continuously, your stomach will be aching*

The changes to daily life for Sierra Leoneans led to many communities being impacted by the pandemic regardless of whether COVID-19 positive cases were known. Many participants discussed their inability to continue their normal pre-pandemic activities, such as attending church or socializing with friends. To encourage understanding of why risk mitigation behaviors such as social distancing and avoiding large crowds are necessary, community leaders advocated for improved understanding and education through community mobilizing.

> *P: I tried to sensitize the people in my environment about corona because my children and my family do interact with other people in my environment. I tried to sensitize them because I don't want to stop my children and family members from interacting with them because other people may not seem to understand and will start to misinterpret me wrongly from stopping my children and family members from interacting with them so that is why I tried hard to sensitize them about the movement between my family and the environment.*

Emotional Impacts

Economic impacts also influenced the emotional impact of COVID-19 on community members. Participants felt more stressed and fearful due to the pandemic, but they also felt

emotional stressors based on the economic insecurity of themselves and others. While also associated with general COVID-19-related stress and anxiety, these emotional impacts were exacerbated by the financial challenges.

> *P: The only way it affected me mentally is that I may have food to eat but whenever I saw my neighbors struggling to have food to eat... Sometimes the food I have may not able to share with my neighbors while they will be struggling with their children to get food to eat so that affects me emotionally.*

Participants made it clear in each interview that the COVID-19 pandemic has led to vast emotional impacts affecting their mental wellbeing. Individuals elaborated on the pandemic's emotional impacts, stating their changes to their emotional state and how the emotional states of neighbors and COVID-19 diagnosis of community members further compound their own emotional distress. Due to the interconnectedness of community social networks and how the struggles of others affected individuals' own perceived emotional state, participants utilized community mobilizing to overcome the pandemic's emotional impacts, mainly through education to diminish misinformation and stigma associated with the virus.

> *P: I will come close to the person but will not expose the person. I will try to encourage the person and try to make the person not to feel bad*

Experience with Ebola

When discussing community mobilizing, many participants correlated the community's response to COVID-19 to that of the Ebola epidemic. Despite the interviewers never introducing Ebola to the interviews, ten participants included Ebola in their responses. In addition to drawing comparisons and contrasts between the characteristics of both viruses, participants highlighted the influence Ebola had on their community's ability to mobilize communities properly. Ebola

greatly advanced the mobilizing of Sierra Leone communities by using learned risk mitigation behaviors to minimize the spread of COVID-19. Prior experience with Ebola throughout Sierra Leone communities led to a quickened response to implement community mobilizing to improve COVID-19 education and risk mitigation practices while counteracting the impacts of the pandemic experienced throughout the country.

> *P: The only thing that I want to add is that, this is not the first time Sierra Leone is having such an outbreak, of course we all know that we had got Ebola outbreak and when the Ebola outbreak came, it exposed the our health system which lead to little improvement on the health system so when the COVID-19 came, we didn't start from the bottom but we started somewhere because we have already had the experience.*

Theme II: Proximity to COVID-19 & Perceptions of Pandemic Impacts

Participants shared their personal proximity to a positive COVID-19 case, whether themselves or someone in their community. Their adjacency to the virus influenced their risk perceptions and perceptions of pandemic impacts, stigma, and blame. While participants with known proximity to COVID-19 reported a high perceived risk of the virus, those without proximity only disclosed situational or no risk. Conversely, those with no proximity to COVID-19 detailed pandemic impact at a much higher frequency and with more variation than those with proximity to the virus. Those with proximity cited less blame for the pandemic but acknowledged existing stigmas towards those associated with a positive diagnosis, while those with proximity stated the alternative (Table 1).

Table 1: Proximity to COVID-19 and Perceptions of Pandemic Impacts

	Proximity to COVID-19	No Proximity to COVID-19	Similarities Between Both Groups
Risk Perceptions	Risk perceived	Some perceived no risk	Risk perceived when interacting with others Less risk with prevention methods
Economic Impacts	Unemployment Lack of money Higher cost of living	Goods spoiling Decreased food portion sizes Farmers, children, and traditional healers cannot work Debt through microcredit	Difficult to sell Lack of movement Unable to buy goods People are suffering Cannot afford medical care No jobs Lack of access to food
Daily Life Impacts	Isolation Only interact with work friends	Not able to go to church Traditional ceremonies stopped Decrease in social greetings Lack of trust among people Cannot hug or handshake with others Lack of fun	Lack of movement School closures Avoidance of health clinics Unable to visit family Meetings cancelled Cannot see friends No normal activities
Emotional Impacts	Depressed Loneliness	Trauma for hospital patients Lack of self-confidence	Stress Fear

Blame	Some blame no one	Blame China	Blame God Blame those in denial Blame government
Stigma	Stigma towards those previously positive	Many cited no stigma	Stigma towards those perceived currently positive

Proximity to Positive COVID-19 Case

Seven participants directly asserted personal proximity to someone who has tested positive for COVID-19, either themselves or individuals in their community. These participants acknowledged that the virus is present amongst people they know and discussed how COVID-19 has impacted their communities

Proximity Participant (PP): even the community that I am residing has been affected, we have had people who tested positive and same also went through the process

These participants with proximity to COVID-19 elaborated on the impacts COVID-19 had on their daily lives, but also how a positive diagnosis affected people through means of isolation, symptoms, and stigma. Proximity affected an individual's understanding of the vast effects COVID-19 can have on both the community at large through economic impacts, and those who test positive due to symptoms, isolation, and stigma (Table 1).

The participants who explicitly stated that they did not know anyone who has tested positive for the virus or that the virus did not exist in their community were grouped as having no proximity to COVID-19. These individuals all mentioned that they knew COVID-19 positive individuals existed in Sierra Leone, just not within their own community or social circle.

Interviewer (I): do you know anybody who have become affected or infected in this

community?

Non-Proximity Participant (NPP): No, we thank God for that because nobody was affected here.

This lack of proximity to COVID-19 led to lower risk perceptions of the virus than those with proximity. Additionally, these participants often elaborated their responses on economic, daily life, and emotional impacts. More impacts were found in this group than for those with known proximity. Additionally, informants with lack of proximity were seen to blame China for the virus, but also assert a lack of stigma towards those previously known to be COVID-19 positive (Table 1).

Risk Perceptions

Proximity to a COVID-19 case affected an informant's risk perception as those with proximity holistically asserted perceived risk, while those without proximity asserted no risk or situational risk on average. Participants with known proximity to COVID-19 all noted being at risk of the virus but differed in their perceived risk from high to low. When asked if they felt that they themselves were at risk of contracting COVID-19, there were a variety of responses. Multiple participants attributed their risk to their profession, such as working in healthcare, or having previously been exposed to someone who was positive. Additionally, these participants referenced both personal and community risk levels:

I: Do you think you are at risk?

PP: ...we are all at risk because this is a disease that someone can have from another person who is showing no signs. We are made to understand that you can get it from someone who is not even shown signs. The person will appear normal, appear okay but you will still... So I think that all us are at risk, me too is at risk.

The participants without known proximity to COVID-19 varied in their risk perceptions but trended towards less risk or only situational risk. Some of these participants who believe to be distanced from COVID-19 proclaimed that they are not at risk. They discussed this lack of risk being due to proper risk mitigation protocol however, as they believed risk mitigating practices lowered their risk of contracting the virus. There were also participants with no proximity to COVID-19 who asserted that they are in fact at risk of contracting the virus. Similar to those with proximity to COVID-19 though, this group often attributed risk to occurring during interactions with other people or large gatherings (Table 1).

I: Do you think you or your congregation is at risk of getting this virus?

NPP: No I am not at risk

I: Why do you say so

NPP: I do not think I am at risk because all the precautionary advices given to us, we are obeying them. We are told that we should obey the laws shown to us so that the disease will not enter our community as it will spread quickly if it enters here, we are doing everything we could so that we will not be infected here. That is why when we pray in the mosque, we remind the people about the dangers of this sickness.

Economic Impacts

Both proximity groups detailed the economic difficulties the pandemic has had on them, but those without proximity to COVID-19 included much more variation in types of impacts than those with proximity to COVID-19. Participants spent a significant amount of time during their interviews discussing the economic impacts the pandemic has had on them. Many responses associated the economic impacts with the lack of movement due to government mandated lockdowns, such as difficulty selling, inability to buy goods, lack of access to food, and trouble

earning an income. No respondents mentioned economic impacts related to having COVID-19, such as inability to work during isolation. Those with proximity to COVID-19 simply highlighted the lack of money and employment due to the pandemic:

> *I: So how about your income level how do you and your family use to access food and health services, did it affect you in those areas?*
>
> *PP: Well yes during the COVID-19 crisis, to have money was a very big challenge and even if you have the money especially during the lockdowns in order for you to have access to the marketplace to buy the condiments and to buy food stuffs it was depriving. It deprived me, it deprived my family like to access food at that critical moment.*

Economic impacts were asserted almost triple as many times by the no proximity to COVID-19 group than those with known proximity. These group-specific impacts included goods spoiling; decreased food portion sizes; debt; and farmers, traditional healers, and children unable to work. These responses occurred in much more depth and frequency than those with known COVID-19 proximity; the participants not only listed more economic impacts overall, but also elaborated on the toll the pandemic has had on their financial status in much more detail (Table 1).

> *NPP: It affected me because it is difficult for me to survive; I used to do my business transaction in the villages because of the restriction of movement, I was unable to go and buy goods for sale or send someone to buy goods for me*

Daily Life Impacts

Like economic impacts, those without proximity to COVID-19 discussed many more daily life challenges due to the pandemic than those with proximity to COVID-19. Additionally, those with proximity to COVID-19 focused their responses on the effects of isolation or

quarantine, while those without proximity discussed the inability to travel, attend school, practice religious ceremonies publicly, and more. Many aspects of daily life for participants were affected due to the COVID-19 pandemic. Most daily life impacts included lack of movement, which then caused other impacts referenced such as inability to attend events or socialize. These impacts were correlated to the government-mandated lockdown as well as risk mitigation strategies of social distancing and avoiding large crowds. The inability of individuals to engage in everyday activities of work, socializing, religious events, and more, were all attributed to the lack of movement.

Participants with known proximity of COVID-19 emphasized a shift from normal routines particularly due to quarantine and isolation. This shift of normal routines because of the pandemic further exacerbated the economic and emotional impacts as individuals could not continue their usual work activities, which in addition to a lack of socialization, greatly affected the emotional states of community members as social networks and relationships were disrupted (Table 1).

> *PP: It also has secondary impact like I mean it has devastated the economy of countries, created unemployment, schools, social lives and so many others; you name it. So it affect so many spheres, it brought a halt to all the human race I will say because it is like everybody was vulnerable to the pandemic.*

Participants without known proximity to COVID-19 emphasized a decline in social activities and enjoyment. Due to risk mitigation, these participants decreased their interactions with friends and social greetings with others. Additionally, participants described how traditional ceremonies and church services were paused (Table 1).

> *NPP: For my friends, of course we were not visiting each other because no one knows*

where the other is coming from except we do communicate on phone. By then there was no trust for each other that was why we did not exchange visits.

Emotional Impacts

Those with proximity to COVID-19 were emotionally impacted by the pandemic leading to loneliness and isolation related emotions, while those without proximity to COVID-19 discussed mostly responses also highlighted by the proximity group. References to stress and fear were common when asked about emotional well-being. Stress was often related to lack of financial security while fear was attributed to high-risk perceptions. The stress that participants asserted was mentioned alongside the uneasiness and uncertainty the lack of financial security has on them. Stress was also mentioned in reference to there being no foreseeable end to the pandemic and thus a continuation of the barriers negatively contributing to their emotional well-being. Those who discussed being fearful as a cause of the pandemic discussed this fear being to the uneasiness of potentially becoming COVID-19 positive despite risk mitigation practices and the affects transmitting the virus would have on their already debilitating impacts. A few individuals in both proximity groups cited no changes to emotional well-being due to the pandemic, however they elaborated on the immense pressure changes to their economic stability and daily life the pandemic has had on their overall well-being (Table 1).

Participants having proximity to COVID-19 discussed symptoms of depression and loneliness as a cause of isolation. Since this group has known direct or indirect experience with COVID-19 positive individuals, they better understand the toll isolation and quarantine have on the individual's mental state. This group attributes their poor emotional state to both the overall pandemic's effects as well as the possibility to test positive for COVID-19 (Table 1).

I: So how did this affect you emotionally?

PP: Well I thought that it was depressing in one way or the other and we all knew that this sickness didn't only affect us here alone but it affect all over the world. But emotionally, sometimes one can feel lonely because whenever you return home, you have to isolate yourself from your family so that makes you to feel lonely. So it really affected us on that...

Those without proximity to a COVID-19 patient had similar responses to the proximity group. Differing responses included trauma for hospital patients without COVID-19 and uneasiness due to fear of infection. This group did not mention isolation as an influencer of emotional state but also asserted stress and fear as an outcome of the pandemic due to uncertainty of the future and potential COVID-19 transmission (Table 1).

NPP: I no longer hug my friends, even when my wife comes from a two or three days journey, I will be afraid of her, I will take it that she has contracted the disease where she went so that she will not pass it on to me, so that has made everyone... especially me, my mind is always blowing up, because I do not know if the preventions, I am taking are enough, I no longer believe in myself.

Blame

While both proximity groups mentioned blaming the government, God, and individuals in denial, only those with proximity to COVID-19 asserted blaming no one while those with proximity to COVID-19 blamed China. Throughout all conversations recurring themes of blame included blame for those in denial of COVID-19, the government, and God. Blame referenced towards the government was primarily because of the government mandates being associated to the negative consequences of the pandemic. The government was also blamed for their lack of assistance in providing resources and education for mitigating the effects of COVID-19 through

financial assistance or risk management resources such as hand sanitizer and face masks. God was blamed many times , but not with a negative connotation like the other attributions of blame. Blame for God was associated with the belief that God is the creator of everything and the reason for COVID-19's existence. God was also simultaneously thanked by participants for aiding the community's ability to mitigate the virus, therefore the blame given to God differed from other references of blame (Table 1).

Only participants with proximity to COVID-19 denied directing blame. These participants discussed the inevitability of the virus and claimed that there was no purpose to assert blame due to the vast effects of COVID-19 on the world and throughout Sierra Leonean communities, Similarly, participants with proximity also blamed individuals in denial of COVID-19. While they claimed that no one is to blame for the overall existence of the pandemic, these participants also claimed that individuals in denial of the virus are the cause of transmission throughout their community due to a lack of risk mitigation (Table 1).

> *PP: Do I have to blame anyone? No I won't. I don't have anyone to blame. This is a sickness that came to Sierra Leone one Sierra Leonean who honestly did not leave Sierra Leone and go just to go and take COVID to bring it to the country. How he too got it, he himself probably doesn't know. So do I blame and institution? No I won't. Do I blame I blame him either? No I won't. I will not blame anyone.*

In addition to many similar responses to the group with proximity to COVID-19, those without proximity also blamed God, the government, and those in denial. There were no assertions from this group that no one should be blamed for the pandemic, and instead they blamed various entities for either the creation of the virus or the cause of COVID-19 transmission. Additionally, these participants without proximity to COVID-19 blamed China for

the pandemic. While also blaming God more, this group frequently blamed China for the cause of the global COVID-19 outbreak. The blame directed towards China was alleged in response to understanding that COVID-19 originated from China, regardless of whether the participant also added that the virus was man-made or naturally occurring (Table 1).

> *NPP: Me, me I am sitting here with my God, am not blaming anybody because it is an outbreak and am not blaming anyone, at first I will not lie I was blaming China because they eat everything and then alone know where they came with the corona virus because it started from China and our people were traveling to China so they might bring it for us.*

Stigma

Blame and stigma arose were often discussed simultaneously. While blame was cast towards specific individuals or groups for the cause of the pandemic and its effects, stigma was specified towards those believed to have previously tested positive or currently be positive for COVID-19. In general, many individuals specified not having stigma towards others; they discussed how they personally do not stereotype nor hold negative opinions towards individuals who test positive for the virus. Instead, when stigma was referenced, it was either regarding the stigmatizing attitudes that participants perceive among community members or the stigma the participant themselves have felt by community members (Table 1).

Participants in both groups discussed the stigma others cast towards those perceived as currently COVID-19 positive. Additionally, participants with proximity to COVID-19 also talked about stigma towards those known to be previously positive. This assertion is correlated to having personal experience with being stigmatized or having heard about the stigmatization towards the individual in their community who tested positive for the virus (Table 1).

PP: Well, from now just like when we came newly off course they were talking about us but since it has taken a long time now they have stopped pointing fingers at me. At some point when they were pointing fingers at me, I told them that corona is God that brought it, if God gave it to me and also make me to recover, I will thank God for that. I told them that I am a corona survivor.

Those without proximity to COVID-19 often asserted that no stigma exists regarding COVID-19 diagnosis *per se*; rather they asserted the potential for stigma toward those working in the COVID-19 response. They asserted that individuals working on the COVID-19 taskforce sometimes faced stereotypes that they are at a heightened risk of exposure. Because community members assume anyone working in COVID-19 mitigation could be positive and should be avoided (Table 1).

I: Has there been stigmatization on you personally because you are working in the COVID response?

NPP: Well, except... I would not want to call it stigma rather I will say people are making false claims. That because you are working on COVID even if you buy this fine phone they will tell you that aah these are the ones eating the corona money. So I will not say that is stigmatization. I will just call them false claims. But you know knowing my country for kind of people that we are, I am not moved by such comment.

Conclusion

During each interview, participants discussed the extensive impacts the pandemic has had on their lives, regardless of proximity to a positive COVID-19 case. However, known proximity to COVID-19 influenced perception of those impacts and individual's understandings of the extent of economic, daily life, and emotional impacts. These obstacles were perceived to be

sparked by the government mandated response leading to travel restrictions throughout the country, but it was clear throughout each interview that the effects of the pandemic directly impacted all Sierra Leonean communities regardless of whether known COVID-19 positive cases existed in the community. Past experiences with Ebola in these communities and eagerness to spearhead responses to the pandemic impacts, led to the willingness and success of community leaders, NGOs, and average citizens mobilizing to aid their community's resiliency during the pandemic.

CHAPTER 5: DISCUSSION AND CONCLUSION

Introduction

Exploring the knowledge and risk perceptions of COVID-19 throughout the communities where CHAMPS operates will allow for improved cultural understanding of the diverse impacts of the pandemic. Fourteen key informant interviews were conducted in the fall of 2020 and analyzed to understand the community-wide implications of the COVID-19 pandemic for this thesis. The findings of this secondary data analysis can lead to recommendations for more effective COVID-19 mitigation and vaccine education throughout rural and urban communities in Sierra Leone. Furthermore, the influence these perceptions and impacts have on community mobilizing can aid local and large-scale stakeholders to responding to and recovering from the obstacles and effects of the pandemic with community specific and applicable recommendations. Proximity to COVID-19 proved important when discussing knowledge and perceptions of both COVID-19 components and impacts; those with proximity to a known COVID-19 positive case had higher perception of risk, but less detailed explanation of impacts than those without proximity to COVID-19. Simultaneously, the government mandated lockdown acted as a catalyst for the impacts of COVID-19 more than the virus itself and led to community mobilizing throughout the CHAMPS Network communities.

Proximity to COVID-19

In this analysis, stratifications based on proximity to COVID-19 led to variations of perceptions, knowledge, and impacts of the virus. Those with proximity to a positive COVID-19 case, whether through their own infection or by knowing someone who had the virus, had a higher risk perception than those with no proximity to COVID-19. While all fourteen participants acknowledged the existence of COVID-19 within Sierra Leone, there were seven

participants in both the proximity and no proximity groups. The effect of proximity during COVID-19 was researched in Li et al.'s (2021) quantitative research study. They evaluated specific geographical distance to COVID-19 epicenters and how that distance influences risk perceptions.

Contrasting this thesis' conclusions, Li et al. (2021) asserted that closer proximity to COVID-19 correlated significantly to lower risk perceptions. However, these findings relate to geographical proximity based on location rather than psychological proximity based on personal perceptions. The inversion of risk perceptions between both findings could be attributed to the differences between quantified geographical distance to COVID-19 and qualitative responses of perceived psychological proximity to COVID-19. Geographical distance to COVID-19 was determined by geographical coordinates, rather than individuals self-identifying they social proximity. This could infer the influence of participants consciously acknowledging their theoretical closeness to the virus if participants in the interviews for this thesis were categorized as having proximity by self-acknowledging as such (Li et al., 2021).

Additionally, Li et al. (2021) conducted their study in various locations around the United States, potentially proving less generalizable to the context of COVID-19 in Sierra Leone. While a subset of Li et al.'s study did allow participants to self-identify closeness to a COVID-19 epicenter, COVID-19 cases are significantly higher in these American epicenters than throughout Sierra Leonean communities. Believing to live near where COVID-19 is rampant significantly differs from those who directly know of someone who has been diagnosed with the virus. The personal proximity identified in this thesis' data can account for the increased risk perception as knowing of specific and individualized cases could increase awareness of the severity of the pandemic (Li et al., 2021).

Comparisons were previously made based on proximity to Ebola in Sierra Leone in Davidson et al.'s (2022) study. In their cross-sectional study, they evaluated the influence proximity to Ebola had on stigma to those infected with the virus. Their findings confirm the increased perception of stigma for those with closer proximity to the virus in question. For the Ebola epidemic, Davidson et al. (2022) asserted that those who either have closer connections to or identify with those previously quarantined due to Ebola as having a heightened understanding of the existence of community stigma towards those quarantined. Similarly, the Sierra Leone participants in this thesis' qualitative with proximity to COVID-19, cited stigma towards both those currently perceived as COVID-19 positive and those previously believed to be COVID-19 positive. While both study's findings agreed upon perceived stigmatization towards viral cases, they diverged in the exploration of personal attitudes of stigma as all participants for the present COVID-19 study declined personally stigmatizing anyone regarding their COVID-19 status (Davidson et al., 2022).

Government Mandated Response

Government mandated restrictions such as the household lockdown and inter-district travel ban created a domino effect to economic impacts and subsequent daily life and emotional impacts in Sierra Leone. Government mandates to mitigate the spread of COVID-19 led to similar consequences in other countries as well. Kumar et al. (2021) used data sequencing to determine the effects of government lockdowns on COVID-19 cases through estimating the number of days with and without a lockdown that positive cases would peak in India. While it was determined that government lockdowns effectively work to prevent major increases in cases, government lockdowns are temporary, and therefore COVID-19 cases will simply begin to increase as soon as the government lifts the mandates. Kumar et al. (2021) concluded that

government lockdown mandates simply delay the spread of COVID-19, rather than preventing all together.

Like the present study, they further discuss the implications government lockdowns have on the economy. Longer or more frequent government lockdowns would lead to collateral economic impacts on communities coupled with changes to daily life and emotional impacts. These researchers reference the importance of education and personal risk mitigation behaviors instead of government lockdowns to permanently prevent an increase in cases and also avoid devastation to the economic and social structures in the country. While Kumar et al. (2021) conducted their research specific to India, their findings are applicable to the present study's findings regarding the impacts of the Sierra Leone government mandates. Notwithstanding, Sierra Leone also faced dramatic increases in cases after the lifting of mandates, however their case totals were much lower. This could be correlated to the preparedness of community members with general viral knowledge and behavior practices from the Ebola epidemic, that were asserted as preferred methods of mitigating COVID-19 outbreaks (Kumar et al., 2021).

Economic Impacts

All participants in this study asserted the economic impacts affecting them during the pandemic. Regardless of whether the participant correlated their pandemic-induced economic misfortune to the government mandates or not, individuals referenced loss of jobs, decrease in income, and lack of food due to a lack of travel influenced by the lockdowns. Buonsenso et al. (2020) evaluated the connection between the government mandated lockdowns and community economic damage during qualitative surveying of 78 Sierra Leoneans households in a rural village. Participants in the study described a reduction in weekly income as compared to before the lockdown, obstacles to providing food, and general anxiety regarding financial status during

lockdown. These participants, similar to the participants in the present study, referenced the lockdown as the catalyst to their economic impacts, rather than the COVID-19 pandemic itself. Buonsenso et al. (2020) surveyed participants on the 11th day of their lockdown in April 2020. The interviews for this thesis occurred months after the first lockdown, thus could provide clarity to the longer-term economic impacts as well as the most notable personal perceptions of said impacts rather than immediate cause and effect (Buonsenso et al., 2020).

Community Mobilizing & Ebola

Despite interviewers not asking questions related to Ebola, ten out of fourteen participants discussed the Ebola epidemic in Sierra Leone in their key informant interview responses. While some participants made comparisons to the general characteristics of the two viruses, many referenced the influence Sierra Leone's history with Ebola had on their community's mobilizing against the COVID-19 pandemic. Participants drew connections between their successful personal mitigation practices and community response, with their learnings from when they had to do the same when Ebola outbreaks occurred in their communities. Participants also asserted the importance of the community utilizing this learned behavior as the government was not providing the support the participants believed necessary to mitigate COVID-19 outbreaks. Gholizadeh et al. (2021) discusses the benefits West African countries who experienced the Ebola epidemic had in preparedness for the COVID-19 pandemic. Many West African countries without Ebola experience lacked a quick response and thus faced large outbreaks before learned behaviors were adopted. The researchers also asserted the role education and communication played in West African countries' abilities to adapt to pandemic response techniques. Despite the impacts the pandemic and government responses caused, Sierra Leone continues to report low COVID-19 cases. Thus, the Ebola epidemic proved to be an

essential community mobilizing tool for Sierra Leoneans (Gholizadeh et al., 2021).

Conclusion

This thesis' secondary data analysis serves to inform community stakeholders in how COVID-19 has affected community members in Sierra Leone and their ability to mitigate the spread of the virus. Cultural contexts of COVID-19 are important in understanding how the Ebola epidemic influences perceptions of the COVID-19 pandemic and community sensibilization and mobilizing. The knowledge of a community's perceived proximity to COVID-19 is essential to improving health education and mitigation to lessen the long-term impacts of the pandemic. Furthermore, the consequent effects of the government mandates must be understood to properly inform future governmental policies for both this pandemic and potential future outbreaks.

Powerful stakeholders, such as the Sierra Leonean government, have the unique position to directly influence a community's ability to combat global health risks both positively and negatively. A key informant referenced a local proverb to signify the worsening effects the Sierra Leonean government had on the overall community impacts of the COVID-19 pandemic despite the government's intention to lessen the burden of viral outbreaks; "we have a parable in "Themne" which states that '*fire comes from the waterside road*'; this means that the virus started from those who render to help us in [it]." Intentions to help citizens through mandated responses are clearly not sufficient when nation-wide decisions cause worsened impacts. Stakeholders must implement community perceptions alongside cultural contexts in their responses to viral outbreaks, such as the COVID-19 pandemic, as Sierra Leoneans must currently grapple with the incidental impacts caused by their government. Better informed stakeholders will lead to better supported citizens.

CHAPTER 6: PUBLIC HEALTH RECOMMENDATIONS

Community Mobilizing

Due to the variations in risk perceptions and perceptions of impacts of the COVID-19 pandemic, an increase in health education targeted at both those with proximity and those without proximity to COVID-19 are necessary. Separate strategies for health education programming should be created for each group. Communities with known COVID-19 cases would benefit from continued health education to eliminate negative stigma towards those previously diagnosed or currently positive for COVID-19. Those without known proximity to COVID-19 would particularly benefit from more publicized COVID-19 case numbers. It is possible that COVID-19 positive cases do exist in the communities of those who claimed no proximity to the virus, particularly because half of the participants who live in similar areas did assert proximity. Those in the no known proximity group were the only participants to believe to be at low risk of COVID-19 transmission. Therefore, more publicized community mobilizing on the spread of COVID-19 in the area would lead to improved risk perceptions and thus increased risk mitigation practices.

Government Mandated Response

While government mandated lockdowns and travel restrictions delay the spread of COVID-19, they fail to prevent spread over time and instead cause immense societal impacts for rural and urban Sierra Leoneans. However, the limiting of travel throughout the country could help prevent spread if coupled with additional government support. Participants cited a wish for additional risk mitigation resources from the government. Especially after the removal of mandates, providing materials such as face masks, handwashing stations and hand sanitizer could prevent any delayed outbreaks once travel commences again. Finally, the economic impacts due

to government mandated lockdowns and inter-district travel restrictions were far too immense to implement again without economic support for citizens around the country. Monetary supplements would greatly improve the economic well-being of Sierra Leoneans and encourage them to continue to follow risk mitigation protocols, particularly for individuals who sell goods at market and traditional healers. While these recommendations can serve as beneficial implications for stakeholders during the current pandemic, they can also be adapted to future outbreaks throughout Sierra Leone.

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