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# Infectious Disease Outbreaks in Sierra Leone: Exploration of the Emergency Preparedness and Response in a Decade

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## To cite this article:

Ishata Nannie Conteh, Francis Chisaka Kasolo, Paul Olaiya Abiodun, Ebenezer Obi Daniel, Alhassan Fouard Kanu, Rashidatu Fouard Kamara, Aziza Amina Sahid, Olaniyi Felix Sanni, Aminata Tigiedankay Koroma, Josephine Amie Koroma, Lynda Foray-Rhall, Mukeh Kenneth Fahnbulleh, Charles Keimbe, Joseph Sam Kanu, Mohamed Vandy, Daniel Ganu. Infectious Disease Outbreaks in Sierra Leone: Exploration of the Emergency Preparedness and Response in a Decade. *World Journal of Public Health*. Vol. 8, No. 4, 2023, pp. 291-299. doi: 10.11648/j.wjph.20230804.16

**Received:** October 11, 2023; **Accepted:** October 28, 2023; **Published:** November 17, 2023

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**Abstract:** Introduction: The African region is constantly contending with more than one hundred public health emergencies annually with infectious disease outbreaks being considerably rampant. The outbreaks of infectious diseases in Sierra Leone in the last decade with the associated impacts on the health system were very palpable. There is scarce knowledge as regards the evolutionary status of Sierra Leone in responding to the outbreak of infectious disease which necessitates the need for this study. Objective: The main objective of this study is to unknit the evolutionary trend of infectious disease outbreak emergency management in Sierra Leone between 2010 and 2020, and find an updated knowledge of the strengths and weaknesses in its health system for informed decision-making. Method: This is a descriptive survey study involving a quantitative and qualitative approach with data collection from the desk review of secondary sources and key informants' interviews. A semi-structured questionnaire was used to collect primary qualitative data from 77 key informants from multi-sectoral agencies. Data collected were transcribed, coded, and analyzed thematically. Findings were presented in tables, pie and bar charts, and in narrations as appropriate. Results: The outbreaks of Ebola and COVID-19 pandemics ranked the most prominent among the infectious diseases needing emergency response with affirmative feedback from 97.4% and 90.8% of the respondents respectively. Respondents identified nine crucial elements of preparation for infectious disease management. Policy and decision-making, community participation, resource mobilization, and advocacy with the internal community and partners were visibly reported by the respondents to be the roles of the key stakeholders in the emergency preparedness and response to infectious disease outbreaks in the country. Generally, the respondents gave an appreciable positive view about the evolutionary trend of infectious disease management while some reservations hinged on the existing gaps in the public health system were stressed for improvement as necessary. Conclusion: Respondents' perceptions about the status of Sierra Leone's

health system on the management of infectious disease outbreaks may serve as a pivot for thoughtful deliberation among public health actors to initiate the necessary actions. Findings in this regard can propel holistic decision-making toward building a more resilient emergency health system towards mitigating the enormity of the impacts of disease outbreaks in the country.

**Keywords:** Infectious Disease, Emergency Preparedness and Response, Sierra Leone, Health System, Public Health Stakeholders

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## 1. Introduction

The health impacts of infectious disease outbreaks and associated catastrophes have captured the world's attention. These have been reinforced through the importance of strengthening public health systems to protect communities and populations from present and human-caused threats. Different methods have been developed, including initiatives to enhance public health preparedness and global health security [1]. The recent increase in international public health events demonstrates how critical it is for each country to establish permanent preparedness and response mechanisms to ensure its internal health security and contribute to global health security. The West Africa Ebola virus epidemic that afflicted a few countries exposed their inability to anticipate health disasters as these countries lacked almost all emergency coordination structures [2]. As a result, provided responses were unprepared, as there were no anticipated mechanisms for managing the full implementation of disease emergency preparedness and response plans.

Additionally, the coronavirus disease pandemic of 2019 (COVID-19) drew national attention to the critical role of the state, local, tribal, and territorial public health agencies in protecting and securing the nation's health. These agencies regularly face hard decisions about how to respond effectively to COVID-19, including using non-pharmaceutical interventions and addressing the needs of at-risk populations [3]. As with other disciplines, determining what is effective requires scientific evidence. Yet, the evidence base that guides public health agencies' actions in preparing for and responding to disease outbreak emergencies is limited and uneven, failing to meet the needs of practitioners in public health emergency preparedness and response (PHEPR)<sup>3</sup>. PHEPR is a broad term encompassing activities to prevent potential emergencies and plan for an adequate response and recovery in a crisis. The public health system is a complex network of organizations and individuals collaborating for the common good. These entities include local, state, and federal public health agencies, public safety agencies, emergency managers, academia, businesses, communities, the news media, and the healthcare delivery system [4].

Each year, the WHO Africa records over 100 public health events including disease outbreaks and humanitarian disasters, this poses a significant risk of rapid spread due to Africa's inadequate detection and response systems [5]. In Sierra Leone, effective and efficient disease outbreak responses have been challenging for the health system, as is

common in other African countries. Sierra Leone has, however, over the years, improved in response to health emergencies, especially after the 2013 – 2016 Ebola Virus Disease (EVD) outbreak in West Africa, which exposed the health system to address public health emergencies. In the past ten years, the country, like most African countries, has been responding to different public health events of infectious diseases (e.g., Polio, Lassa fever, Cholera, Ebola, among others) almost on an annual basis. Similarly, a review conducted in Nigeria reported five or more public health events per annum [6]. It is at this juncture essential to check if the level of preparedness of Sierra Leone's health system is at a considerably good level as enshrined in the Emergency Response Framework (ERF) of the World Health Organization [7] in order to ensure the required contribution towards the current ten proposals for strengthening the global architecture for health emergency preparedness, response, and resilience [8]. Hence this study was centered on unraveling the evolutionary trend inherent in the management of infectious disease outbreaks in Sierra Leone in Sierra Leone, within a decade of 2011 and 2020.

## 2. Method

### 2.1. Study Design

The researcher used extensive desk review and in-depth interviews with key informants using a descriptive survey study design hinged on quantitative and qualitative methods. A combination of extensive desk review and in-depth interviews with key informants was adopted using a semi-structured questionnaire developed and pre-tested before being administered by the research assistant to the key informants through virtual and some face-to-face interviews.

### 2.2. Sampling Technique

Purposive sampling was adopted in this study and participants were recruited through the different in-country network. The rationale for using this sampling method was to ensure the right people working in emergency preparedness and response are engaged and could provide the required into the preparedness and response to natural disaster emergencies in Sierra Leone. Sampling size determination was carried out using appropriate formula for estimating the sample size. A total of seven groups was organized and 11 participants were selected from each of the organizations, making a total of 77 participants, as highlighted in Table 1.

**Table 1.** Number of respondents by organizations.

SN	Organization	Number of participants
1	National MOH	11
2	DHMT	11
3	Clinicians	11
4	UN Agencies	11
5	Other partners	11
6	Others Government sectors	11
7.	Communities	11
	Total	77

The participants included the staff of the UN agencies, the national and district surveillance officers, clinicians at national and district hospitals, members of the response pillars laboratory pillars, and risk communication and community engagement (RCCE).

### 2.3. Data Collection

Data were collected through a semi-structured questionnaire administered through personal in-depth interviews using Zoom meetings considering the public health measures for COVID-19. Respondents were pre-informed through emails, phone calls, and messages seeking their consent to participate and to schedule the interviews. Two research assistant was employed and trained to conduct, deliver, and collect the questionnaire to other key informants who might not be reached through Zoom or email. Also, an online survey was created to collect data from respondents who prefer answering by filling out online forms. The online survey form was designed to enable respondents to record audio responses to the qualitative questions, and responses were retrieved from the online database. The cleaned data were exported into QDA Miner version 6 for coding and were thematically analyzed. The outcomes were presented in tables, charts, and narrations.

### 2.4. Ethical Consideration

The anonymity and confidentiality of the participants were preserved by not revealing their names and identities during data collection, analysis, and reporting of the study findings. In the same vein, the privacy of the interview was carefully managed during virtual data collection and dissemination of findings. All participants recruited for the study completed and signed a consent form. All participants were given the freedom to either participate or withdraw from the study.

## 3. Results

### 3.1. Demographic Information of the Study Participants

Table 2 presents the socio-demographic information of the study respondents. There were 76 respondents, 54 (71.1%) males and 22 (28.1%) females. The respondents with the highest proportion (36.8%) were aged 41–50 years while those of the age bracket 21–30 ranked the lowest in proportion (3.9%). The respondents' organizational representation is in close range (13.2–15.8) with the UN agency being the highest (15.8%). Those with work

experience within 11–20 years have the highest proportion (40.8%) while respondents with work experience of 1–5 years have the least proportion (10.5%) of representation.

**Table 2.** Socio-demographic profiles of the study respondents.

Parameter	Frequency	Percent
Gender		
Male	54	71.1
Female	22	28.9
Age category		
21 – 30 years	3	3.9
31 - 40 years	24	31.6
41 - 50 years	28	36.8
51 - 60 years	16	21.1
Above 60 years	5	6.6
Organization		
Clinicians	10	13.2
Community member	11	14.5
DHMT	11	14.5
National MOHS	11	14.5
Other Government Sector	10	13.2
Other partners	11	14.5
UN Agencies	12	15.8
Work experience		
1 - 5 years	8	10.5
11 - 20 years	31	40.8
21 years or more	18	23.7
6 - 10 years	19	25.0
Total	76	100.0

### 3.2. Public Health Disease Emergencies in Sierra Leone Over 10 Years

Table 3 shows the public health disease emergencies in Sierra Leone over the past ten years. The most remembered or well-known public health emergency in Sierra Leone over the past 10 years was Ebola with 74 (97.4%) as mentioned by respondents. This was followed by COVID-19 which was mentioned by 69 (90.8%) and measles 55 (72.4%). Cholera, polio, and yellow fever were also highlighted as significant public health emergencies in Sierra Leone, by 47 (61.8%), 46 (60.0%), and 21 (27.6%) of the respondents, respectively.

**Table 3.** Public health infectious disease emergencies in Sierra Leone over the past ten years mentioned by respondents (no of respondents =76).

Emergencies	Respondent	Percentage
Ebola	74	97.4
COVID-19	69	90.8
Measles	55	72.4
Cholera	47	61.8
Polio	46	60.5
Yellow fever	21	27.6
Lassa fever	4	5.3

### 3.3. Crucial Elements of Preparedness for Infectious Disease Outbreaks in Sierra Leone

The critical pillars of preparedness for the public health system to be operational and ready for infectious disease outbreaks were identified by the respondents in the interview. Study participants reported that Sierra Leone had implemented several measures to ensure preparedness for infectious disease outbreaks in the public health system is in

place. The respondents identified nine critical areas of preparedness for the public health systems in emergencies as follows:

**Coordination and leadership:** In a more direct form, the respondents are unanimous in their responses to conclude that this pillar involves a multi-sectoral approach that should be well-coordinated for emergency preparedness and response. The inference from most of the responses directs towards the need for countries (like Sierra Leone) should invest and ensure Public Health Emergency Operations Centers (PHEOCs) and should ensure that it is fully operational and functional. Responses that corroborate this are highlighted thus;

*“Disease outbreaks are now coordinated at the national emergency operation centers (NEOCs) and district EOCs (DEOCs), prior to the Ebola outbreak in 2014 and it has proved to be an effective and efficient mechanism for coordinated response.” (Respondent J)*

*“The use of one health approach in implementing emergency response bringing all sectors together has been an effective way to coordinate outbreak response in the country. In the same vein, the availability of national all-hazard preparedness and response plan at the PHENOC and DEOC and the testing capability through simulation exercises have all been contributing in no small measure to the responding to emergencies in Sierra Leone” (Respondent L)*

**Epidemiology and Surveillance:** Respondents believed the country has made progress in surveillance and active case search system- a consequence of training of field epidemiology training program (FETP) as exemplified in the following response;

*“Call centers have been popularized to encourage the reporting of cases and community participation has been increased through awareness-raising efforts. It is also noteworthy to state that the workforce has been well-trained, with community health workers (CHWs) and community adolescent health workers (CAHWs) in place, as well as rapid response teams (RRTs). This is well complemented by the implementation of the event-based surveillance to enhance early warning systems.”(Respondent G)*

**Laboratory services:** One respondent’s submission represents the thoughts of many which indicated that the country has the capacity to test all viral haemorrhage fevers since the Ebola outbreak in 2014 and this plays a critical role in related outbreak response. The respondent recapitulated the propelling factor thus;

*“The country now has a network of laboratory in other district that can help with the testing and there is a central public health reference laboratory, though small in size and need to be upgraded, but has been serving a significant function and response outcome would have been at a much more abysmal level without it” (Respondent N)*

**Points of entry:** On this important pillar of emergency response one captivating response stated *“The point of entry*

*has been strengthened to better respond to outbreaks. Interaction with neighboring countries on disease surveillance activities has been very helpful. During the Ebola outbreak, we established screening at ground crossing points this helped in picking out cases using community case definition.” (Respondent O)*

This response emphasized the importance of the POE in managing outbreaks of etiological agent that has a tendency to cross the border across countries as well as highlighted in the International Health Regulation of 2005. The inherent action, as opined by the respondents involves strengthening cross-border collaboration with neighboring countries and within districts.

**Case management:** Respondents are clear about the importance of case management systems during public health emergencies which should be operated in accordance with protocols, guidelines, and standard operating procedures for the management of infected patients. Respondents gave vivid situations in Sierra Leone as captured in the responses below.

*“Trained and qualified health workers on management of infectious diseases such as Ebola and other infectious diseases are available to manage the infected patient.” (Respondent S)*

*“The existence of holding center at 34 military hospitals was beneficial to the response of infectious disease outbreaks and the setting up of isolation centers in certain health facilities has also been very helpful in breaking chains of infection and preventing nosocomial infections (Respondent AB)*

**Infection prevention and control:** This important pillar which has previously been corroborated in the previous response was seen by respondents as an important pivot on which the control of health facility-acquired infections is hinged.

As succinctly stated by a respondent- *“provision of infection prevention and control (IPC) materials is a crucial element of preparedness in Sierra Leone, with training provided to healthcare workers and the general public and establishing isolation Centers. The country now has an IPC program which was established during the Ebola outbreak and is being strengthened with partner’s support” (Respondent AJ).*

**Risk communication and community engagement:** This pillar involves creating awareness and ensuring the right messages reach the communities for any disease outbreak or health emergencies. Respondents opined that the communities must be involved in preparedness and response activities. Respondents stated that:

*Communication is very crucial. With awareness measures and robust communication campaigns in place, communities will be well-informed. In Sierra Leone, health education structures are in place at all health system levels and skills provided for emerging diseases in Sierra Leone.” -(Respondent Y)*

*“Community participation is also an important aspect of preparedness, with community bylaws in place and*

stakeholders involved in social mobilization, health promotion, and RCCE activities’”-(Respondent Z)

“Apart from the Ebola outbreak in 2014/2015 that was not expected and prepared for, all others had elements of preparedness, including community awareness using, particularly radios and televisions.”-(Respondent AL)

Operation support and logistics: This is one critical pillar that involves the provision of emergency medical supplies, and other logistics supplies for the response team. This pillar should ensure supplies are preposition before an emergency occurs. Respondents stated that:

“Logistics supplies such as PPEs and medical supplies are available at the national level. Let me unequivocally state that the ambulance service during the COVID-19 pandemic was much better as compared to the Ebola outbreak. Of note is also the fact that the availability of decentralized medical stores helped with the rapid deployment of medical supplies” (Respondent E).

Psychosocial and mental health support: The lacuna existing in this important aspect of emergency response in the context of Sierra Leone was of high frequency and conspicuously stated by a good number of respondents. Among the numerous analogous responses, the response from one respondent summarizes the minds of others thus;

“The availability of survivors’ support program in the MOH was not optimal during the EVD and COVID-19 outbreaks in the country as during emergency response, the responders had limited psychosocial support to prepare them mentally and to respond effectively as fatigue might set in. The main factor is that there are no adequate number of relevant experts within the health system and the support structure is not solid”.

(Respondent K)

### 3.4. Level of Preparedness of the Public Health Systems in Sierra Leone in Previous Outbreaks in the Past Ten Years

When asked if the public health systems in Sierra Leone had been prepared during previous outbreaks over the past ten years, 48 (63.2%) said ‘Yes’, and the remaining 29 (36.8%) said ‘No’, as shown in Figure 1.

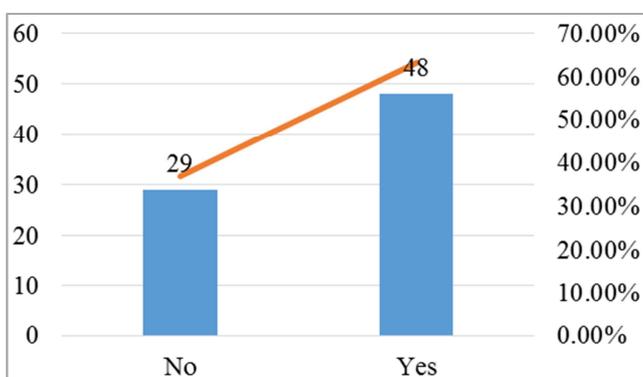


Figure 1. Public health systems in Sierra Leone had prepared for any of the previous outbreaks in the past ten years.

### 3.5. Current Gaps Identified and Public Health System Mitigation in Response to Infectious Disease Outbreaks

Although 63.2% of respondents said the country was prepared for previous outbreaks, there are still some critical gaps identified in the area of preparedness and response to infectious disease outbreak(s) of Sierra Leone.

List of Current gaps identified by the response to the infectious disease outbreak(s) emergencies in Sierra Leone.

1. Fragmented public health response system with political influence and multiple layers of reporting
2. Inadequate resources for routine active surveillance
3. Lack of skilled emergency responders for critical functions such as critical and clinical care, trauma care, psychosocial care, etc.
4. Knowledge gap in some emerging and reemerging diseases with low-risk perception about disasters and emergencies
5. Inadequate resources for community engagement and social mobilization activities
6. Coordination and communication challenges among responders using the One Health approach
7. Lack of a proactive risk mitigation plan, and inadequate support for risk communication
8. Unavailability of specialized facilities such as burns and trauma unit
9. Weak infrastructure in the health system – ineffective ambulance services, inadequate stock of essential supplies, and inadequate laboratory capacities to carry out specific tests
10. Inadequate funding for emergency preparedness and response

When respondents were asked if the public health system mitigated the effects of outbreaks and infectious disease emergencies over the last ten years, 50 (65.8%) said yes, and 26 (34.2%) said no, as shown in Figure 2.

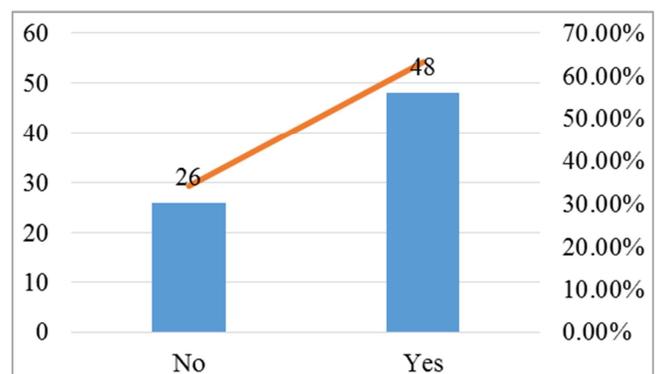


Figure 2. Respondent’s response on whether the public health system mitigated the effects of outbreaks and infectious disease emergencies over the last ten years.

Some explanations behind their submission are captured thus

“The government and partners have faced challenges in effectively mitigating public health emergencies in the past

*ten years. These challenges include a lack of coordination, inadequate community engagement, and limited in-country resources such as trained personnel and infrastructure for infection prevention and control (IPC). Surveillance systems had also been weak, particularly during the 2011/2012 cholera and 2014/2016 Ebola outbreaks.”- (Respondent B)*

*“The health system in Sierra Leone has been fragile due to the civil conflict, and there has been a lack of a national public health institute or agency to prepare for and manage emergencies. In the same vein, Sierra Leone had implemented systems to mitigate the effects of some outbreaks, such as polio, COVID-19, and cholera, but there has been no overall mitigation plan for all outbreaks.”- (Respondent H)*

However, some responses highlighted an improved capacity at all levels, including coordination and surveillance, which have helped mitigate the impacts of subsequent outbreaks, including COVID-19. According to the study participants, Sierra Leone did learn from the Ebola outbreak, which was challenging due to a lack of preparedness and the newness of the disease. So, structures like the Emergency Operations Center (EOC) and Rapid Response Teams (RRTs) have been established to coordinate and respond to outbreaks. By inferential conclusion from the respondents’ feedback, despite some progress, the public health system in Sierra Leone has been unable to fully mitigate the effects of outbreaks on the population, particularly due to a lack of structures in place to respond to emergencies effectively.

### **3.6. Roles of Key Stakeholders in Influencing the Preparedness and Response Actions for Major Infectious Disease Emergencies in Sierra Leone**

The study participants’ responses showed that in Sierra Leone, the government and other key stakeholders had been playing leading roles in influencing the preparedness and response actions for major infectious disease emergencies in the past ten years. These roles include policy and decision-making, community participation through social mobilization

activities, resource mobilization, and advocacy with the international community and partners. Some of the respondents shared their thoughts as captured below;

*“The government has committed funds, mobilized additional donor resources, coordinated partners to support response activities, offered government buildings for emergency response, and recruited emergency staff.” (Respondent I)*

*“Stakeholders have made a lot of investments in the health security system. These investments have made the country make good progress in IHR core capacities. The government has taken ownership in many areas. Human resources capacity for emergencies has improved through FELT training. A strong partnership has made it possible to support prioritized areas and avoid duplication of effort”. (Respondent M)*

*“Key stakeholders have also participated in surveillance and contact tracing, prevention planning, education, vaccination, and coordination between ministries and within the ministry of health and sanitation.” (Respondent P)*

*“The government has worked hard to fight all outbreaks, including seeking help from partners and deploying key stakeholders for various elements in the response. In addition, the government has provided awareness and infection prevention measures, such as risk identification, law enforcement against risky behaviors, risk communication and social mobilization, and active and passive surveillance of disasters and public health emergencies.- (Respondent AA)*

The responses pointed to the fact that the government and stakeholders have provided logistics support and engaged with key community stakeholders. Furthermore to this, it can be deduced that collaboration and coordination with partners, donors, UN agencies, and other government agencies have been critical in the response efforts, as well as community engagement and sensitization, planning, and supervision of response activities, and provision of necessary resources. Some of the key points are summarized in Table 4.

*Table 4. Roles of key stakeholders in influencing the preparedness and response actions.*

KEY STAKEHOLDERS	ROLES
Government	Leadership provided and good working ambiance Strategic and policy roles including planning, coordination, and decision making Strong political will Resource mobilization and advocacy with the international community Provided financial support Coordinate all stakeholders including MOHS and line ministries Assigned human resources Security personnel also took the front line provided technical and financial support
Partners	supported planning, implementation, monitoring & evaluation, and learning Human resources capacity for emergencies has improved through FELT training Strong partnership has made it possible to support prioritized areas and avoid duplication of effort Build capacity of emergency workforce
Community	Community participation and willingness to own the response Establishment of byelaws and task forces at community level Involvement of CSOs in response action

## 4. Discussion

### 4.1. Most Common Disease Outbreak in Sierra Leone Between 2010 and 2020

Almost all the study respondents (97.4%) opined that the most common disease within the ten years (2010-2020) under consideration is Ebola Virus Disease (EVD) while a close proportion (90.8%) pointed out COVID-19 as the trailing most common disease outbreak within the same period. Researchers have corroborated the evidence of the occurrence and magnitude of EVD within the study period [9-11] while related research articles confirmed the global impacts of the COVID-19 pandemic in which its occurrence and associated morbidities and mortalities in Africa and especially Sierra Leone, in addition to other existing emerging and re-emerging diseases, is not an exemption [12, 13]. It was reported that the rate of hospitalization, deaths, and the fact that most of the infections of EVD in Sierra Leone were within the family, makes the reminiscence of the disease very difficult to delete from the inhabitants' memories [14]. In the same vein, researchers have opined that the COVID-19 pandemic may last long in the memory of the global population with many, including health workers who participated actively in its response having its mental impact for a long time, consequent to its multi-faceted negative experiences [15, 16].

### 4.2. Crucial Elements of Preparation for Infectious Disease Outbreak

Respondents in this study identified nine elements of preparation for infectious disease outbreaks- coordination and leadership, epidemiology and surveillance, laboratory service, point of entry, case management, infection prevention and control, risk communication, and community engagement, operations support and logistics, and psychological and mental health support [17] mentioned almost all of the highlighted pillars in their study findings as being pivotal in any infectious disease outbreak preparation. In the same vein, the relevant WHO Strategic Preparedness and Response Plan (2021-2022) clearly listed the mentioned elements as pillars for responding to the globally impacting COVID-19 pandemic with associated operational daily monitoring for desired outcomes and impacts. The encouraging level of awareness of the respondents on these elements/pillars in this study can be hinged on the first-hand experience and active participation of many of them in one or more pillars during the response to the disease outbreak in Sierra Leone as opined by the findings in various research [18, 19]. However, about two-thirds (63.2%) of the respondents are of the opinion that Sierra Leone's level of preparedness for the disease outbreak is optimum, implying that over one-third (36.8%) responded in the negative.

The implication of this is that the country is not seen to be operating at the maximum level of effectiveness in all the aforementioned pillars of disease outbreak

preparedness, a situation that can be detrimental to getting the desired outcome when the epidemic of the disease eventually comes demanding the full response from all the essential pillars.

It has been well-documented by researchers, with more conspicuous facts during the COVID-19 pandemic, that most African countries' health systems pillars are weak and only operating at a sub-optimal level, making them less competent in responding to disease outbreaks even in the face of no less than 100 emergencies annually [20, 21]. More specifically [22], corroborate the findings in this study in related research involving three countries including Sierra Leone which pointed out that there are hidden gaps in the public health system of the country with specific mention of lacuna in the leadership and surveillance systems during Ebola Virus Disease outbreak, referring to them as the most daunting pillars that need improvement attention towards preparation for disease outbreaks, generally.

Moreover, over half (65.8%) of the respondents opined that the public health system of Sierra Leone has shown mitigation prowess towards previous disease outbreaks in the country within the decade under review, which is considerably encouraging. However, the respondents also pointed out diverse challenges in this regard, which previous research has supported to be common features of most African countries, including the attendant economic and social burdens on the continent [23].

### 4.3. The Roles of Key Stakeholders in Emergency Management in Sierra Leone

In this study, most respondents confirmed four major roles being performed by the key public health stakeholders towards responding preparation and response to emergencies within the study decade, and they are policy and decision-making, community participation through social mobilization, resource mobilization, and advocacy with international communities and partners. In corroboration of these findings, a group of researchers [24] in their study emphasized decision-making based on good policies as an important role of key stakeholders in emergency management, stressing the keen attention on using a specific set of techniques, knowledge synthesis, and organized principles for efficacious and result-oriented management of public events emergencies. In another study, centered on social mobilization and community engagement during Ebola responses in West Africa, it was revealed that investment in trusted community members by key stakeholders can amplify the community entrance and collaboration for effective disease outbreak management. The study findings however, further stated that actors in public health will succeed more in this regard during the response to public health emergencies when the wide reach of the population is actualized and maintained through the use of key communication networks and channels minding the relevance of the messages to the target population [25].

The respondents' mention of resource mobilization as one

of the key roles of the stakeholders within the decade of study is supported and well captured in the relevant analysis conducted by the United Nations [26]. The WHO has developed a global strategy on human resources for health and highlighted its pivotal role in responding to emergencies, especially in Africa [27] and the criticality attached to the timely mobilization of funds for emergency response including comprehensive advocacy for all-round support from the international community and partners was explained by relevant research findings [28].

## 5. Conclusion

There is no doubt that the African region has been experiencing various outbreaks of infectious diseases without exempting Sierra Leone for decades. The findings about the health system's strengths and weaknesses with the associated need for improvement, as revealed in this study may be a yardstick for the concerned stakeholders to brainstorm and institute policies and actions. This action may further strengthen the capacities of the infectious disease outbreak response pillars for emergency management in Sierra Leone in the quest to continually contribute to achieving one of the triple billion targets of 'one billion more people better protected from emergencies'.

## 6. Recommendations

The following recommendations summarized the inferential extractions from respondents' feedback;

1. Further comprehensive research is advised on the assessment of the strengths and weaknesses of the management structure and elements for mitigation and response to infectious disease emergency management in Sierra Leone, with an extension of other factors beyond the scope of this study.
2. All stakeholders involved in the disease outbreak management should hinge further improvement discussion on the findings of the assessment in the suggestion above to ensure the facilitation of the needful for more effective emergency management of disease outbreak in Sierra Leone and the African region, by extension.

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