

Mary S. Mangai

School of Public Management and Administration (SPMA), University of Pretoria, South Africa

Tyanai Masiya

School of Public Management and Administration (SPMA), University of Pretoria, South Africa (Corresponding author, email tyanai.masiya@up.ac.za)

Yul Derek Davids

Developmental, Capable & Ethical State (DCES), "Human Sciences Research Council"

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Mary S. Mangai is a lecturer at the School of Public Management and Administration (SPMA), University of Pretoria. She obtained a PhD in Management Sciences from the Department of Public Administration, Radboud University Nijmegen, Netherlands. Her research focuses on public policy and management, citizen co-production and co-creation of service delivery, social protection, public health, local government and developing countries.

Tyanai Masiya is a senior lecturer at the University of Pretoria's School of Public Management and Administration (SPMA). He holds a PhD (Public Administration) from the University of the Western Cape. His research focus is on Public Administration and public policy, with specific emphasis on public service delivery, citizenship and democracy as well as local government management. He has also written extensively on constitutionalism, democratisation as well as transparency and accountability of the state.

Yul Derek Davids is a research director in the Developmental, Capable & Ethical State (DCES) division. He holds a MA from the University of the Western Cape (UWC) and a PhD in Political Studies from the University of Stellenbosch. He specialises in the area of democracy, governance and social cohesion. He has also done work focussing on the socio-economic conditions of vulnerable people such as the poor and quality of life and wellbeing.

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A Comparative Policy for the COVID-19 Emergency Management of Frontline Health Workers in Selected African Countries

Abstract

Health workers are often exposed to health risks and danger in the discharge of their duties. This is especially distressing during the COVID-19 pandemic. This study employs a multiple case study design to investigate the COVID-19 emergency management of frontline workers in South Africa, Kenya, Ghana, and Nigeria. The findings from the study reveal that governments in the selected countries prioritize the response phase of the emergency management theory over the mitigation and preparedness phases. The response phase was meted with inevitable consequences. Health workers feared risking their lives, and the majority threatened to abandon their jobs due to insufficient personal protective equipment (PPE) and welfare support. The study concludes that the government should prioritize all the phases of emergency management instead of focusing on the response phase, which involves the use of both human and financial resources on an overwhelming pandemic. They should have prepared the frontline workers adequately and equipped their health systems in preparation for any impending epidemic.

Keywords:

frontline workers; COVID-19 pandemic; comparative policy; emergency management; African countries

Introduction

As both the developed and developing countries struggle to cope with the outbreak of the novel Coronavirus disease 2019 (COVID-19) pandemic, countries in Africa are facing an even more unprecedented threat

to human life, social cohesion and economic prosperity due to their already fragile healthcare systems and socio-economic vulnerabilities (Mangai et al., 2018, p. 146; World Health Organization [WHO], 2020b). Among those most threatened by

the pandemic are those who contracted the disease and the frontline workers whose profession is to save lives. They are in the frontline to fight the COVID-19 pandemic. According to WHO (2020a), the hazards which place the frontline workers at risk of infection are “pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical and psychological violence” (p. 1). The present study focused on the emergency management (EM) of frontline workers during the COVID-19 pandemic and how the government adopts ways to reduce the vulnerability of frontline workers to the pandemic.

Prior to the COVID-19 pandemic, a number of frontline workers in Africa died, risking their lives due to the lack of equipment, environmental health hazards and their lives directly targeted by individuals and communities (WHO, 2015). During the COVID-19 pandemic, the death toll among frontline workers across the globe rose significantly (WHO, 2020a). Further, the WHO spokesperson reported that in April 2020 alone, there were more than 35 serious incidents in over 11 countries that involved attacks on either individual health workers or groups (WHO, 2020c).

The occupational risk frontline workers undergo during the COVID-19 pandemic has worsened because of the nature of the outbreak and partially due to the overreaction by individuals or communities who are uninformed, scared and do not fully understand the severity of the pandemic themselves (WHO, 2020b). Frontline workers endure assaults because they are perceived as bringing the health hazard of COVID-19 back to their communities. However, they simultaneously face the traumatic pressure of exposing their families to the pandemic while worrying about contracting the virus themselves (Schwikowski, 2020; WHO, 2020b).

At the time of writing this paper, Africa had recorded more than 3400 COVID-19 infected frontline workers (WHO, 2020b). This has raised

the question of the significance of EM and whether the policy response to inhibit and control the infection among frontline workers is adequate. The pandemic experience further demonstrates that government policies matter and have a key role to play in leading and coordinating preparedness, response, and recovery among infected frontline workers. Capacity development must be activated swiftly and adjusted to the demanding and fast-evolving epidemiological and health challenges faced globally (Kauzya, 2020; Uroko, 2020; WHO, 2020c).

To combat the outbreak and reduce the risk of the pandemic on frontline workers, proactive, effective, accountable, and inclusive policies along with innovation in healthcare service delivery is critical. Fortunately, many African countries moved fleetingly toward readiness in policy response as more COVID-19 cases were confirmed on the continent (Kauzya, 2020).

This study sets out to answer the following research questions: (i) How is the COVID-19 EM of frontline workers expedited in South Africa, Kenya, Ghana, and Nigeria? (ii) How did the respective governments reduce the vulnerability of frontline workers to the COVID-19 pandemic in South Africa, Kenya, Ghana, and Nigeria?

The study employed the four phases of EM theory to explain the handling of frontline workers during the COVID-19 pandemic and specific policy responses implemented to reduce the risk of the pandemic on frontline workers. Our contribution to scientific knowledge is an investigation of the vulnerability of frontline workers to COVID-19 and how the government responded to reduce the risk of the pandemic on frontline workers. To achieve this aim, a multiple case study design and a qualitative approach was used.

The selected countries are considered regional powers in sub-Saharan Africa. Hence, lessons learned from the selected countries could be utilized to strengthen frontline workers management in the rest of the sub-Saharan region.

Moreover, these countries recorded the earliest COVID-19 cases on the continent. The various experiences related to effective policy actions to control and manage COVID-19 risk among frontline workers in the selected countries are also considered.

Subsequent sections of the paper will discuss the theoretical underpinnings of disaster management and the role of street-level bureaucrats during a disaster, followed by a section on the adopted research methodology. The next section expounds on the results and detailed discussion, followed by a conclusion.

Disaster and Emergency Management

Disaster and EM literature explains how society responds to: (i) a sudden circumstance threatening core values; (ii) unpredictability of the circumstance; (iii) urgency of the action to be taken; and (iv) immediate action to be taken (McEntire, 2005; Rosenthal et al., 1989). The following constitute the characteristics of a disaster: the virus can reproduce quickly and spread through human-to-human contact (this occurs when infected persons incubate the virus unknowingly and spread it to others), the mutation of the virus happens rapidly, and the virus causes ‘multiple waves’ of victims.

Resolving the circumstances would include specific management challenges associated with sense-making, policy-making, reforms, public information, learning, and accountability (Weible et al., 2020).

According to Weible et al. (2020, p. 235), “disasters/emergencies such as COVID-19 pandemic demand swift and coordinated action that adapts fluidly to condition”. Coordination requires various agencies, levels of government and policy cycles to participate. The interplay between the policymakers who formulate the policy, public administrators who interpret it, and street-level bureaucrats who will operationalize and implement the policy on the ground is

necessary to manage and eventually combat the disaster/emergency. Certain schools of thought assume the role of the street-level bureaucrats encapsulates an entire policy cycle (Lipsky, 2010). This suggests that adequate policy response is required to manage their welfare, considering the crucial role they play in disaster and EM (Erasmus, 2010; Weible et al., 2020).

The street-level bureaucracy theory contends that the action and decision of a street-level bureaucrat could represent the policies of the parastatal of government they serve, more so since their decisions and actions are as a result of what the citizens experience (Lipsky, 2010). Erasmus (2010) explains that due to the discretion street-level bureaucrats have during implementation and the level of liberty they possess to execute their tasks, they can actually ‘make policies’. The argument here may pivot on whether their discretion and liberty conform with their organizational expectations or if it resists it. Resistance could come in the form of, *inter alia*, strikes, protests, and absenteeism (Erasmus, 2010).

In a disaster/emergency like the novel COVID-19 pandemic, the role of street-level bureaucrats who are considered government implementers or frontline workers is critical as it was in similar crises, for example, Ebola, AIDS, Lassa fever, etc. (WHO, 2015). They are left to develop creative strategies, standards, and procedures to manage the difficult tasks assigned to them in unprecedented times (Hupe, 2013; Weible et al., 2020). Frontline workers, in particular, undergo hospital rounds and heuristics as essential services in their response to contain the COVID-19 pandemic. This is aside from their schedule to manage staggering COVID-19 positive cases while coping with the short supplies of medical equipment (Erasmus, 2010; Schwikowski, 2020; Weible et al., 2020; WHO, 2015). Weible et al. (2020) gave credence to the fragmentation that can complicate the implementation of a pandemic

response such as COVID-19. This strengthens the argument that the COVID-19 pandemic places frontline workers in a self-regulatory and discretionary position and in a position to resist government expectations through industrial action, protest and even absenteeism (Erasmus, 2010). In order to avoid frontline workers resistance during the fight against a novel pandemic such as COVID-19 disaster, appropriate frameworks should be implemented to support and protect them from the risk of the pandemic.

A theoretical framework from the EM theory is developed in Figure 1 below to analyze the 'before', 'during' and 'after' of COVID-19 EM of frontline workers. EM is an "organized analysis, planning, decision-making and assignment of available resources to mitigate, prepare for, respond to and recover from the effects of all hazards" (McEntire, 2005, p. 45). The four phases (mitigation, preparedness, response, and recovery) of EM theory are employed to save lives, prevent injuries, and protect properties and the environment before, during and after the disaster. The first phase, which is mitigation, occurs before the disaster. In this phase, efforts are made to reduce the risk and impact of the disaster, and the loss of lives and properties to the lowest minimum should a disaster occur. At this stage, hard choices are made to understand local risks, and investment in the long-term well-being of the people is the norm.

Preparedness is the second phase and also occurs before the disaster. During this phase, a coordinated approach and operational readiness in the form of adequate planning, training, organizing, evaluating and corrective actions are put in place to combat any upcoming disaster. The level of readiness in Phases 1 and 2 would determine the degree of risk and impact of a foreseeable disaster. When the disaster eventually occurs in the third phase – an integrated response is required. The deployment of necessary capabilities to save lives and properties, stabilize

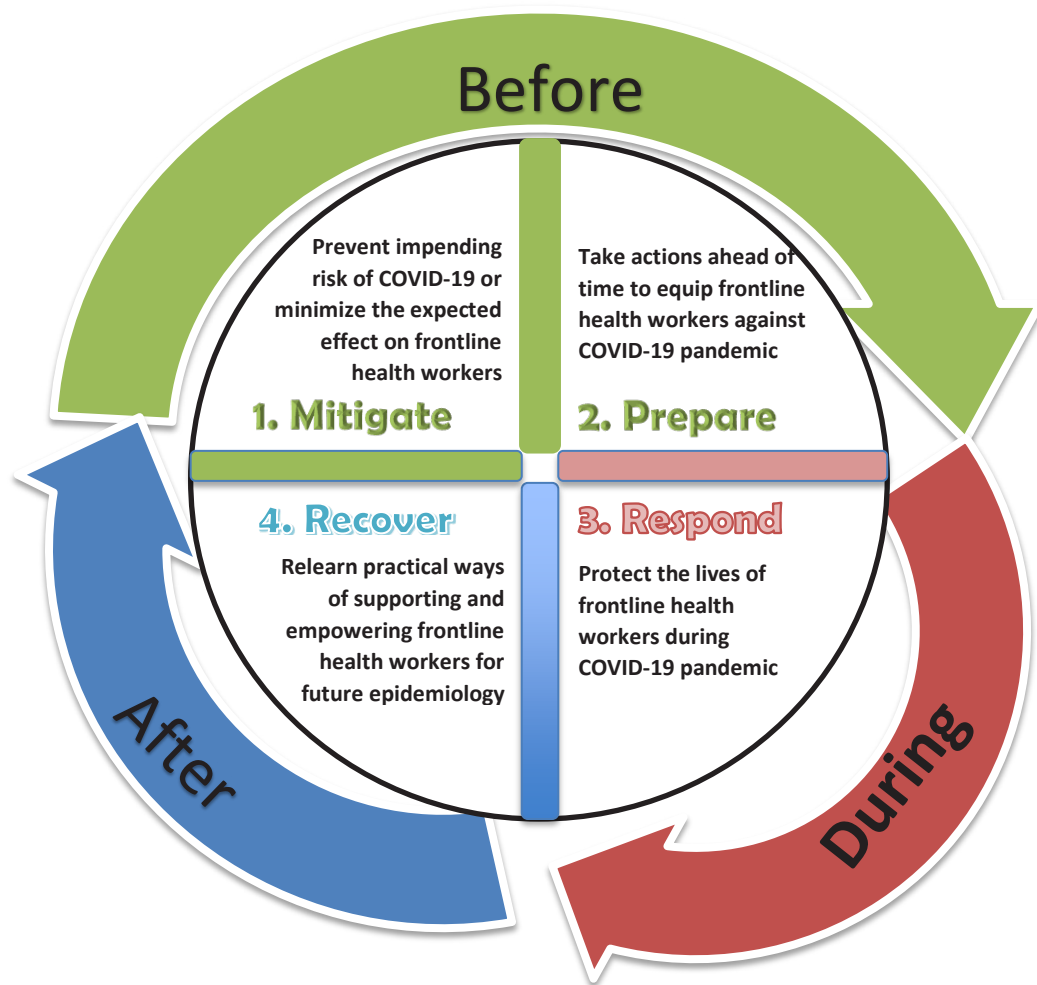
the situation and restore the people and community to a stable and functional state becomes a priority. The third phase of EM occurs during the disaster and transition to the fourth phase, which is the recovery phase. In the recovery phase, efforts are made to return society to a "normal" state. This is the process of ensuring everything is restored after the disaster hits.

The public sector is predominantly responsible for EM, and research in the field is focused on the public officials in this arena to deal with or prevent the disaster. During the COVID-19 pandemic, frontline public officials were involved in dealing with infected patients, maintaining lockdown rules and a host of related professional assignments. However, the four phases of EM could be utilized to study the interplay of the government and other stakeholders and sectors in the mitigation, preparedness, response, and recovery of the COVID-19 pandemic in general. This study only focused on the COVID-19 EM of frontliners using the four phases.

As earlier reiterated, the crucial role of frontline workers in a disaster such as COVID-19 cannot be ignored. A proactive and comprehensive EM is required to prepare the frontline workers before, during and after the COVID-19 pandemic.

Figure 1 below illustrates an analytic perspective of the COVID-19 EM of frontline workers. It is expected that before the COVID-19 pandemic affects the countries studied, the EM of frontline workers would have concentrated on creating frameworks to reduce the risk of the virus on them. In Phases 1 and 2, that is, before COVID-19 arrives, the government would have ensured frontline workers are well-equipped and trained to be battle-ready for the pandemic. The equipping should entail operational readiness, including adequate financial, psychological, and emotional preparedness. The first two phases are important in arming the frontline workers before the COVID-19 era. Phase 1 and 2 is further imperative because the level of readiness of the

Figure 1.
Theoretical framework of the COVID-19 EM of frontline health workers



Source: Authors' construction from the literature review

frontline workers would determine the overall impact of the pandemic on both themselves and those infected by the virus during the response (third) phase. The latter phase requires the involvement of frontline workers who are engaged in the process of responding to combat COVID-19 and to save the lives of infected patients. In this phase, frontline workers' capability and sufficient availability of personal protection equipment (PPE) are necessary to save lives and to protect the frontline workers and their families. The government must prioritize the protection of frontline workers if the fight against the virus is to succeed. It is expected that an integrated response that is in accordance with the strategic prioritization of the frontline workers' welfare

would end the COVID-19 war. The last phase of the COVID-19 EM of the frontline workers is recovery. In this phase, it is projected that the government would have learned new ways of supporting and empowering the frontline workers for future epidemiology challenges.

The *a priori* expectation in this study is that a proactive and comprehensive government policy reaction to the EM variables would lead to an insignificant impact of COVID-19 on the frontline workers. The dependent variable is the vulnerability level of frontline workers to COVID-19, which is dependent on the government policy response to the EM indicators (independent variables). The influence of government policy reaction on the EM variables and how its action

resulted in the way frontline workers were affected by the COVID-19 pandemic is analyzed in the results and discussion.

Methods

This study adopts multiple case studies and a qualitative approach to profile the occupational risk of the COVID-19 pandemic on the frontline workers and how governments on the African continent are adopting policies to minimize the health risk on frontline workers. Data was gathered from WHO, Ministries of Health, and frontline workers in the selected countries to conduct the study. Atlas.ti 8 was used as a data analysis tool because the software facilitates the processes of segmenting, categorizing, annotating, retrieving, and searching within and across documents and categories during data analysis. The handling of graphics in the networks and computation of frequencies are added advantages compared to the manual way of analyzing qualitative data. During the thematic data analysis in Atlas.ti 8, important data segments were identified and coded using open and list coding. Relevant quotations and codes were created with a prefix that referenced each country. Each country's codes were also colored for easy identification and sorting of code groups and themes. The yellow, green, red, and blue colors represent South Africa, Nigeria, Kenya, and Ghana, respectively. The results were presented using networks and Code-Document Table. The networks were used to visualize the results (see Figures 2, 3 and 4), while the Code-Document Table illustrates the outcomes of the comparison analysis from the document groups and the themes that emerged from the theoretical framework (see Table 2 below). The findings are presented in the results and discussion section. Certain studies revealed the benefit of multiple case studies to include representativeness and robustness (Anderson et al., 2014). However, the limitation of this study is the inability to collect and analyze primary

data from policymakers about why there is no preparedness against disaster and emergencies on the continent and what they would do differently to mitigate pandemics, such as COVID-19, in the future. It is also acknowledged that this study does not fully represent the COVID-19 narrative in Africa. Nevertheless, it is hoped that other African countries will learn, replicate, and adapt the study findings.

Results and Discussion

The results and discussion section presents the EM variables and how government policy reaction led to the marginal or substantial impact of COVID-19 on the frontline workers in South Africa, Kenya, Ghana, and Nigeria. The thematic variables in the theoretical framework in Figure 1 was inductively coded in the data that was analyzed using Atlas.ti 8. These themes form part of the focal discussion in this section.

The Emergency Management of Frontline Workers against the COVID-19 Pandemic

Data analysis revealed three emerging themes on the EM of frontline workers against the COVID-19 pandemic in the selected countries and the immediate policy reaction by governments to protect frontline workers from the COVID-19 virus. These included: Theme 1 – Mitigation and preparedness, Theme 2 – Response and Theme 3 – Recovery. The themes are discussed below.

Theme 1 – Mitigate and Prepare Frontline Workers before the COVID-19 Pandemic

Mitigation and preparedness for COVID-19 were emerging themes in the EM of frontline workers in the selected countries. The outcome of the data analysis conducted in Atlas.ti 8 is presented in Figure 2.

Prefix coding was particularly utilized during the data analysis to distinguish the results of the four countries. Figure 2 illustrates the

network of Theme 1. The network is a visualization of the findings. This comprises quotations labeled with codes from important segments of the data and can be related to the research. As illustrated in the theoretical framework in Figure 1, mitigation and preparedness were analyzed together as the precautionary measures the selected governments need to put in place before the COVID-19 pandemic arrives. The result reveals poorly equipped health facilities, understaffing, doctors' strikes, and brain drain had characterized the work environment of the frontline workers in the selected countries. Some of the indicators of lack of preparedness in Kenya, similar to Nigeria, stem from brain drain, testing capacities and overstretching of the health systems. A frontliner from Nigeria explains that "although they want to make sacrifices, the lack of attention from the government regarding health financing and welfare resulted in the exodus of a number of his colleagues to seek employment abroad". The same reason is responsible for the brain drain in Kenya. It is expected that the brain drain in Kenya led to the understaffing experienced in the country. While it would imply that brain drain automatically results in understaffing, this is not so for South Africa. The understaffing in South Africa is associated with human capital investment in the health sector. The health system is fairly resourced; however, it lacks the desired human resources, and South African frontline workers are comfortable working in their country. Ghana is no exception to the problems that characterized the selected countries in the first and second phases of the COVID-19 EM of frontline workers. A Ghanaian frontliner expressed concern about the lack of equipping the intensive care units (ICUs). He feared that an overwhelming COVID-19 infected rate would not be accommodated in the limited ICU facilities in the country. Needless to say, the data from the health ministries of Ghana and South Africa points to contrary views expressed by the frontline workers on COVID-19 EM. Results from the Ghanaian health ministry revealed that it had

strengthened its medical regulatory systems to ensure the safety and quality of its health systems (See Figure 2). In conformity with the EM theory, South Africa's data revealed that the government was seen to have made a pivotal decision to mobilize tens of thousands of frontline workers while the pandemic was racing through Europe. The government claimed their decision resulted in a relatively low mortality rate among the frontline workers and the population compared to that in certain parts of the world during the first wave of the COVID-19 pandemic in South Africa. From the analysis conducted, the government in the selected countries were to a large extent unprepared in Phases 1 and 2 of the COVID-19 EM of the frontline workers. It was evident that the pandemic caught both the frontline workers and the government off guard as mitigation and preparedness did not confirm what was predicted in the theoretical framework (Figure 1) and the EM theory. It is, therefore, foreseeable that the lack of preparedness in Phases 1 and 2 is expected to negatively affect the frontline workers in the third phase of the COVID-19 EM in the selected countries. The findings in the next section will discuss this prediction.

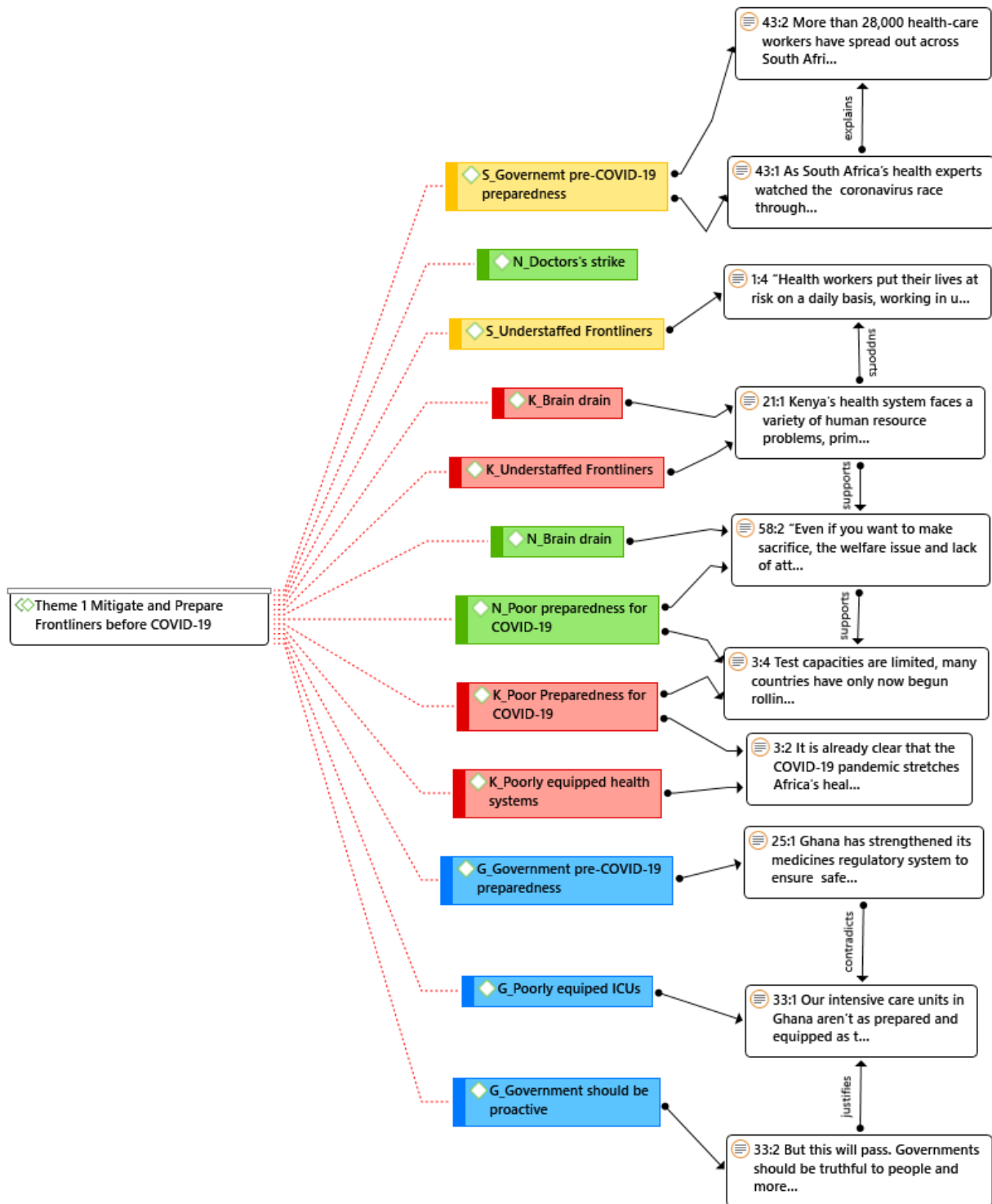
Theme 2 – Response to Frontline Workers during the COVID-19 Pandemic

The same data analysis protocol was utilized in Atlas.ti 8 to gather the findings in Theme 2 (Figure 3). Figure 3 presents the results of government responses to the EM of frontline workers during the COVID-19 pandemic.

An array of issues is responsible for the third phase of the EM of frontline workers in the selected countries. The network of the findings in Figure 3 is useful in visualizing the variables which point to the governments' management of the frontline workers in phase 3 of the EM theory.

One of the recurring codes from all the selected countries is "inadequate PPEs" (see Figure 3). The result of our analysis revealed that in the wake of the COVID-19 pandemic, many

Figure 2.
Theme 1 – Mitigate and prepare frontline workers before COVID-19 pandemic

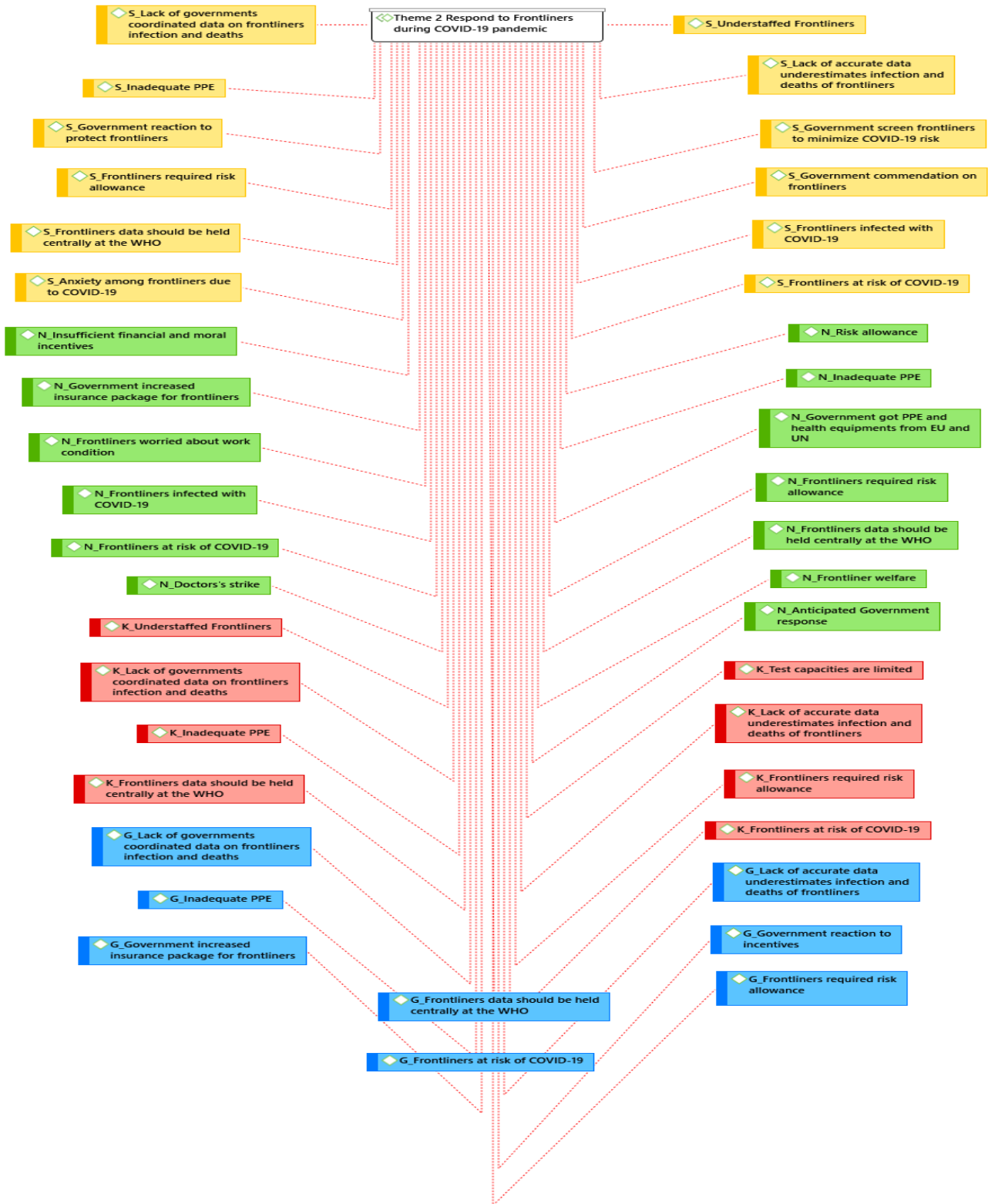


Source: Authors' analysis in Atlas.ti 8

frontline workers feared they would contract the virus because they did not have access to PPE. A nurse in a government public hospital in South Africa said: "I am very afraid because we don't have any masks, they promised us they will come but

meanwhile we are working unprotected and the community still comes in numbers to the clinic" (Tshangela, 2020, p. 2). Frontline workers in Kenya and Nigeria also echoed the same expression as above. Besides Ghana, frontline workers in the

Figure 3: Theme 2 – Response to frontline workers during the COVID-19 pandemic



Source: Authors' analysis in Atlas.ti 8

remaining countries had threatened to abscond from their work if appropriate PPE was not availed for them to work. The frontline workers required more than a pair of gloves, which is the minimum

precautionary standard required by the WHO to attend to a patient. A complete PPE is crucial and necessary for frontline workers to fight COVID-19. Governments in the selected countries did not

hesitate to avail the PPE; however, it was adjudged by the frontline workers to be limited in supply (Schwikowski, 2020; Tshangela, 2020).

It is unfortunate that these governments only became responsive to providing PPE during the COVID-19 pandemic. A Nigerian doctor said: “Coronavirus is a blessing in disguise”. He was, on the one hand, happy that the health equipment they had been requesting for extended periods had suddenly arrived due to the pandemic, while on the other hand, unhappy that COVID-19 was claiming lives. The provision of PPE was crucial to protect the frontline workers against contracting the COVID-19 virus and infecting their families. It also helps with the frontline workers mental preparedness to fight the virus (WHO, 2015; Hasnain, 2020). The WHO Regional Director for the Eastern Mediterranean, Dr Ahmed Al Mandhari, reinforces this point by reiterating that “Testing as many people as possible and protecting health workers who come into contact with suspected and confirmed cases of COVID-19 are crucial aspects of policy response” (WHO, 2020b, p. 2).

Although PPE was available, it was not enough to meet the need of the frontline workers. This instance provides a different nuance on what we know about EM. If these governments fail to prepare frontline workers for the pandemic, the response phase is not expected to be better organized either.

During the data analysis, negotiations of frontline workers’ welfare and compensation dominated the third phase of the COVID-19 EM in all the selected countries (Figure 3). The governments in all the selected countries responded to either compensate or incentivize the frontline workers during the COVID-19 pandemic. The selected countries were no exception to paying their health workers poorly. The high risk of the COVID-19 infection prompted the frontline workers who place their lives and those of their families at risk to demand an increased hazard allowance. Frontline workers in the

selected countries, except Ghana, protested for an increase in their risk allowance, including salaries. Policymakers did not hesitate to meet this demand (Adejoro, 2020; Hasnain, 2020). There was a swift policy response to increase the COVID-19 risk allowance, which in the end, minimized the rate of frontline workers absconding from their duties for fear of contracting the COVID-19 virus (Engelbrecht, 2020). The COVID-19 pandemic exposed the poor remuneration that frontline workers in Africa receive in the health sector. The health sector is one where both health and non-health workers receive risk or hazard allowance as part of their wages (Drager et al., 2006; Hasnain, 2020). The reason for the risk allowance is obvious because this set of workers interface with patients who might visit their health facilities with highly contagious diseases. As a result, they are vulnerable and exposed to the disease themselves. The risk allowance is compensation, motivation, or inducement. South Africa, Kenya and Nigeria responded to the long-awaited frontline workers’ demand for increased risk allowance including other remuneration during the fight to contain COVID-19 (Adejoro, 2020; Hasnain, 2020; Kauzya, 2020; Schwikowski, 2020).

For many decades health workers in Africa had expressed dissatisfaction with their remuneration and especially hazard allowances (Drager et al., 2006; Adejoro, 2020; Schwikowski, 2020). In a study conducted by Drager et al. (2006) on the “health workers wages in more than 150 countries” (p. 2). They revealed that health workers’ monthly wages in high-income countries are five times higher than most of the low and middle-income countries. The average monthly wage rate in high-income countries is between US\$6000 to US\$10000, while in low and middle-income countries it is US\$150 to US\$2000. The huge wage difference is regardless of the control for contextual factors in the model.

There was a hike in the frontline workers risk allowance due to COVID-19 in the selected

countries of this study. In Nigeria, before the COVID-19 pandemic outbreak, the frontline workers received N5,000 monthly equivalent of US\$12.81 as a risk allowance. In the wake of the pandemic, the government responded to the numerous and backlog of complaints from health workers and increased their risk allowance by N620,000 (US\$1,588) per month (Olufemi, 2020; Uroko, 2020). At the federal level, the minister of health said: "A special COVID-19 hazard and inducement allowance of 50 per cent of Consolidated Basic Salary will also be paid to all health workers in Nigerian Teaching Hospitals, Federal Medical Centres, and designated COVID-19 centres for the first three months in the first instance" (Adebowale, 2020, p. 1). Moreover, 5,000 frontline workers are also granted life insurance.

Similarly, in South Africa, the government perceived the frontline workers' allowance as a form of compensation and recognition for their direct exposure to the danger of the COVID-19 pandemic. The allowance was tagged "special danger allowances related to COVID-19" (Tshangela, 2020). The pre-COVID-19 standard risk/danger allowance was R474 (US\$27) per month, which is now increased to R709 (US\$40) as a special risk/danger allowance (Hasnain, 2020). Although the incremental risk allowances were disproportionate across these countries, there are, however, similarities in the way their governments responded to increase the frontline workers risk allowance. Frontline workers would receive a special COVID-19 risk allowance for a period of 3 months (April to June). While COVID-19 may outlast three months, it is unclear whether these governments would continue to pay the new risk allowance in a post-COVID-19 era.

In the past, governments in Africa have not responded appropriately to the healthcare workers welfare package (Drager et al., 2006). It is expected that the COVID-19 pandemic would be a caveat for better policy responses to the

health, safety, protection, and welfare of frontline workers. Ghana had presented a sound example of a prepared response to the pandemic (Adejoro, 2020). It would appear that the Ghanaian frontline workers' risk allowance was equal to their expectations. Hence, no protest was recorded at the time they were most needed to fight COVID-19. This illustrates the Ghanaian government as proactive and responsive to the value it places on the welfare of its frontline workers. However, it took the other selected governments the COVID-19 pandemic to value the contribution of frontline workers. It can be inferred that much can be learned from the Ghanaian approach toward its health policy.

A positive spin-off from the COVID-19 pandemic is that the selected African countries have implemented swift policies and strategies to solve their problems. E.g. Even though the production of local health equipment may not be a direct benefit for the frontline workers, it does impact on their psycho-social stress, which is part of the determinants of health workers epidemic infections identified in the literature (Erasmus, 2010; WHO, 2015). The discussion above shows that it is possible to make swift policies when needed. These can be lessons for governments, post the pandemic, in response to other urgent issues such as the deep poverty and inequalities in many African countries. It is worth noting that the South Africa government also introduced an array of measures to also support both the business sector and its citizens (in particular, marginalized groups such as the poor) with economic recovery packages and social relief or protection measures.

In conclusion, the pandemic revealed that the COVID-19 EM does not have to be an extended process and quick-fix solution to frontline workers' support or occupational health and safety. Governments must be ready to invest in their health workers and their facilities to ensure it is always work-ready. The face of a pandemic revealed that policymakers could take swift decisions.

Theme 3 – Recovery of Frontline Workers after the COVID-19 Pandemic

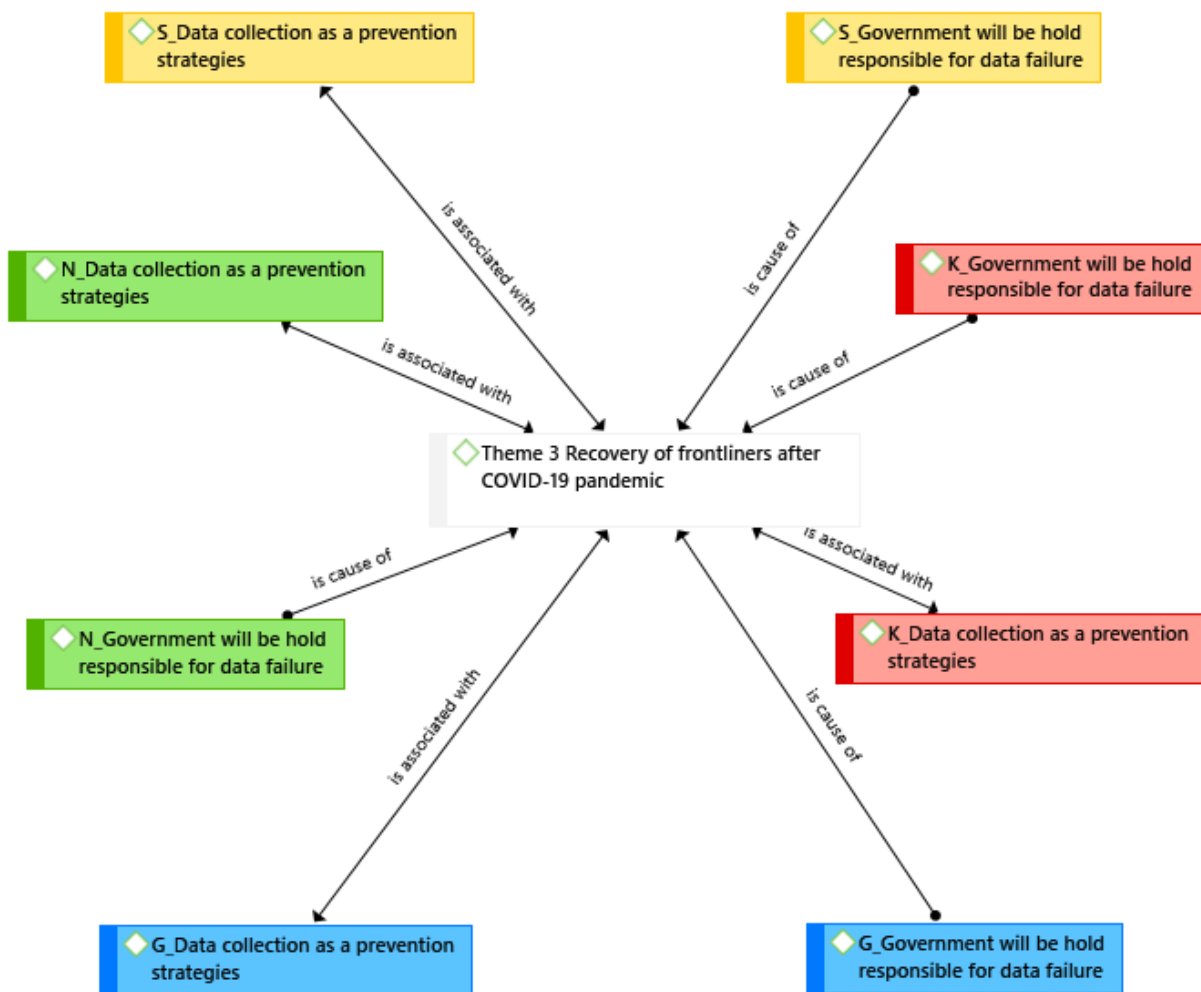
From the theoretical framework in Figure 1, the last phase of the COVID-19 EM of frontline workers is the recovery phase. Since this study was conducted during phase 3 of the EM of frontline workers, it would be too early to diagnose how governments in the selected countries would relearn practical ways of supporting and empowering frontline workers for future epidemiology challenges. However, the findings in Figure 4 provide certain clues of the strategic areas these governments should focus on after the COVID-19 pandemic.

Another crucial finding from the data analysis revealed that a coordinated database of the infection and mortality rate of frontline workers is associated with the prevention of the adverse effect of future epidemiology challenges on frontline workers. At the time of writing, there is no comprehensive digital database either from the WHO or the International Council of Nurses (ICN) on the infection or death rates of frontline workers during the COVID-19 pandemic. A frontliner reiterated that “governments should be held responsible for data failure.” While the WHO, ministries of health and other organizations publish daily, the COVID-19 infection and death rates of the population of each country. This data is not systematically collected on frontline workers aside from the ones published by the media. The Director of the ICN corroborates this finding by asserting that “*thousands of nurses have been infected with COVID-19 and hundreds have already died, but governments cannot say exactly how many because they are not collecting the data. This lack of accurate data has led to a serious underestimation of the infection rate among nurses, and the number of deaths.*” He recounted that “*failure by governments to record infection rates and deaths of healthcare workers is a scandal that puts staff at higher risk and underestimates the true scale of the problem*” (Catton, 2020, p. 2).

The director called on national governments and the WHO to ensure there is a systematic collection of infection and deaths among frontline workers, which is centrally held by the latter. It is hoped that this suggestion would go a long way, respecting frontline workers who have sacrificed their lives but also inform preventive strategies such as addressing pertinent issues, such as the lack of PPE and frontline workers’ welfare.

Table 2 above illustrates the Code-Document Table produced from Atlas.ti 8, which reveals the between and within-country comparison analysis of the COVID-19 EM of frontline workers. The comparative analysis was conducted to further understand how the code frequency from each country interacts with the themes that emanate from the theoretical framework of the COVID-19 EM of frontline workers (Figure 1). The table reveals the number of times a code is assigned to the data on EM of frontline workers in each country. A comparison was made between the data (document group) of each country and the three themes from the theoretical framework. From the number of codes utilized in the data for each country, there is a considerable difference between Theme 2 and the remaining themes. Governments in the selected countries focused more on the EM of frontline workers during the COVID-19 phase than the ‘before’ and ‘after’ phases. Theme 2 has 70% code usage in Nigeria and more than 50% in Ghana and South Africa; however, less than 50% in Kenya. This reveals that these governments prioritize phase 2 over phase 1 and 3 of the EM theory. Instead of focusing on the response phase, which involved using human and financial resources for an overwhelming pandemic, they should have prepared the frontline workers adequately and equipped their health systems in preparation for any impending epidemic. Theme 2 verified the EM theory in the selected countries, while Themes 1 and 3 did not. While COVID-19 has tested the strength and capabilities of countries

Figure 4.
Theme 3 – Recovery of frontline workers after COVID-19 pandemic



Source: Authors' analysis in Atlas.ti 8

Table 2.
Between and within countries comparative analysis of the COVID-19 EM of frontline workers using Code-Document Table in Atlas.ti 8

	Ghana EM of frontline workers		Kenya EM of frontline workers		Nigeria EM of frontline workers		South Africa EM of frontline workers		Total
	Code frequency	%	Code frequency	%	Code frequency	%	Code Frequency	%	
Theme 1 – Mitigate and Prepare frontline workers before COVID-19	8	30.00	9	30.77	5	18.52	7	27.27	29
Theme 2 –Respond to frontline workers during the COVID-19 pandemic	15	55.00	12	46.15	19	70.37	16	59.09	62
Theme 3 Recovery of frontline workers after COVID-19 pandemic	4	15.00	6	23.08	3	11.11	4	13.64	17
Totals	27	100	27	100	27	100	27	100	108

Source: Authors' analysis in Atlas.ti 8

worldwide in managing and containing the virus, many African countries in general and the selected countries, in particular, have not met the expectations around handling the pandemic. Their governments are confronted with deficit financing in service delivery, including health care. The overall resource challenges faced by countries such as South Africa, Ghana, Nigeria, and Kenya mean that even in cases of pandemic outbreaks, the governments are likely to prioritize the response phase of EM theory over the mitigation and preparedness phases, which has a considerable bearing on emergency frontline workers. It also appears that there are many pressing basic needs such as hunger that these governments are yet to find solutions to; therefore, preparing for unexpected eventualities like COVID-19 becomes a 'luxury'. COVID-19 devastation has demonstrated that preparation for future epistemological challenges is no longer a 'luxury'; there should be deliberate policies to mitigate and respond to threats such as COVID-19.

Conclusion

This article endeavored to analyze the management of frontline workers using the four phases of the EM theory. Inadequate funding, low medical supplies and understaffing have characterized the health systems in Africa (Mangai et al., 2018). Moreover, a sudden and vile pandemic like the novel COVID-19 has further exposed the unpreparedness of the health sector in Africa (WHO, 2015; Schwikowski, 2020). We investigated the COVID-19 EM of frontline workers and the state policies adopted to manage the risk of COVID-19 among frontline workers in South Africa, Kenya, Ghana, and Nigeria. The underlying research questions included: (i) How is the COVID-19 EM of frontline workers expedited in South Africa, Kenya, Ghana, and Nigeria? (ii) How did the government reduce the vulnerability of frontline workers to the COVID-19 pandemic in South Africa, Kenya, Ghana, and Nigeria?

Our study revealed that COVID-19 had claimed the lives of frontline workers in South Africa and Nigeria. A number of frontline workers succumbed to COVID-19, partially due to the lack of the health system's preparedness, and due to the severity of the pandemic. The findings also revealed that governments in the selected countries prioritize the response phase of the EM theory over the mitigation and preparedness phases. The response phase was, however, meted with inevitable consequences. Health workers feared risking their lives, and the majority threatened to abandon their jobs due to insufficient PPE and welfare support. The government should prioritize all the phases of EM instead of focusing on the response phase, which involves using human and financial resources on an overwhelming pandemic. They should have prepared the frontline workers adequately and equipped their health systems in preparation for any impending epidemic. The COVID-19 pandemic calls for unparalleled policy action, including the protection, testing, vaccination, and welfare of the frontline workers. The pandemic experience further demonstrates that government policies matter, and it has a key role to play in supporting, leading, coordinating, preparing, and response and recovery among frontline workers and the citizenry at large.

Consequently, it can be argued that the government must be proactive during the four phases of EM theory to reduce vulnerability among frontline workers during an epidemic. The management of frontline workers must be sustainable in all the phases of EM to effectively combat fast-evolving epidemiological challenges being faced by African countries. This implies designing and implementing sustainable policies to protect and incentivize the frontline workers for work readiness at all times. Further research should be conducted to investigate the sustainable and resilient recovery of frontline workers from the COVID-19 pandemic and any other future epidemiological challenges they could be confronted with.

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