ORIGINAL RESEARCH

Healthcare workers' experiences in caring for critically ill COVID-19 patients at a tertiary hospital in Malawi

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Abstract

Introduction

The coronavirus pandemic overwhelmed the healthcare landscape, placing a strain on healthcare workers worldwide. In addition to directly causing the deaths of people, the COVID-19 pandemic disrupted critical health services in developing countries. The study aimed to explore the experiences of healthcare workers who cared for critically ill COVID-19 patients at a tertiary hospital in Malawi.

Methods

A qualitative descriptive design was used. Data were gathered through in-depth interviews with doctors, clinical officers, nurses, and allied staff (n=25) who were involved in the care of critically ill COVID-19 patients at the hospital's COVID-19 treatment centres during the first and second waves of the pandemic in Malawi. The interviews were conducted in English, audiotaped, and later transcribed verbatim. Conventional content analysis was used to analyse the data following the steps proposed by Hsieh and Shannon[1].

Results

The overall experience of the health workers was negative. However, delivering care to critically ill COVID-19 patients was associated with positive and negative experiences. The positive experience was a result of *teamwork among staff and support* from hospital authorities and the community. Negative experiences, on the other hand, were attributed to *a lack of knowledge and skills* in managing critically ill COVID-19 patients, *a lack of resources, and abuse* by some patients and members of the community. Furthermore, there was *fear of contracting the virus* from patients and fellow health workers while providing care.

Conclusion

The findings point to the need for adequate preparedness within the health sector to support and protect the healthcare workers and individuals they look after. There is a need for disease awareness strategies for health workers and the general public for future pandemics.

Keywords; COVID-19; Critical Illness; Developing Countries; Malawi; Critical Care

Introduction

Coronavirus disease (COVID-19) is an acute respiratory disease caused by SARS-CoV-2 virus[2]. The disease spread globally since it was first reported in China. The overall pattern of the pandemic has been characterised by a series of COVID-19 waves. A wave is defined as a disease phase that includes a rising phase marked by an increase in the number of sick people and a subsequent falling phase marked by a decrease in the number of cases[3,4]. Malawi was hit by the first and second waves from the 22nd of April to the end of September 2020 and the 12th of December 2020 to the beginning of May 2021, respectively[5]. At the time of this writing (8th April 2022), Malawi had reported 85,694 confirmed cases and 2, 628 deaths[6]. The COVID-19 pandemic has led to dramatic loss of human lives worldwide and disrupted health services in developing countries. It has created a shortage of both human and material resources in the developing countries where the health system is already challenged[7].

The COVID-19 pandemic created extreme demands on healthcare workers worldwide. The healthcare workers put themselves at risk of getting the infection in the battle against COVID-19[8]. Experience from the 2003 SARS outbreak showed that health care workers experienced stress, anxiety and fear when providing direct patient care[9]. During the pandemics such as COVID-19, the healthcare workers work long hours and under pressure. They are expected to manage increased numbers of patients with high mortality rates[10]. A study by Zerbini et al.[11] in Germany reported that healthcare workers who provided direct care to COVID-19 patients were anxious, overworked and depressed. In addition, challenges such as shortage of material and human resources, inadequate knowledge and stigma were reported[10,12,13].

In Malawi, the COVID-19 pandemic worsened the existing shortage of human and material resources in the health system[12]. In order to address these challenges, there was redeployment of staff from different hospital departments and other hospitals to the COVID-19 treatment centres, recruitment of additional health workers[12] and material resource mobilisation[14]. However, the impact of COVID-19 pandemic and the cited challenges on frontline healthcare workers remain unclear. Therefore, the purpose of this study was to explore the experiences of healthcare workers who cared for critically ill COVID-19 patients in Malawi.

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Methods

Study design

This was a qualitative descriptive study underpinned by constructivist epistemological assumptions. The design was informed by keys axioms of a naturalistic inquiry which acknowledge that reality is complex and contextual; there are multiple views of reality which can be studied holistically; no priori theory encompasses the multiple realities, instead the theory is grounded in the data; and the realities are co-constructed through the inseparable interaction between the knower and known[15].

Study setting

The study was conducted at a tertiary hospital in Malawi. It is one of the four referral hospitals in the country. It serves the country's central region, which has a population of 7,523,340[16]. At the time of data collection, the hospital had two treatment centres with a total of 125 beds for critically ill COVID-19 patients requiring specialised care. The centres offer comprehensive services which include drug administration, oxygen administration, feeding, continuous monitoring, mechanical ventilation in isolated cases and mental health services such as counselling. Critically ill COVID-19 patients from the central region are referred to this hospital.

Population

The participants were doctors, clinical officers, nurses and allied health professionals such as physiotherapists, mental health clinical officers and anaesthetists who were involved in the care of COVID-19 patients at the COVID-19 treatment centre. The healthcare workers are allocated to the treatment centre in teams of different cadres which swap after a week. The size of each team is decided by the coordinator responsible for allocating staff to the centre based on the number of patients at the beginning of the one-week shift. Most of the participants in the present study had worked with different teams for more than a week. In Malawi, clinical officers are para-medicals (similar to nurse practitioners in some western countries) who are trained for three years at the diploma level to perform the duties of the medical doctor under the doctor's supervision[17].

Sample and sampling

In keeping with qualitative descriptive studies, the sample size was pragmatic (n=25). The researchers considered the large amount of data which was expected to be collected during the study. Purposive sampling method was used to identify the participants. The sampling aimed for maximal variation to ensure a mix of health workers from various departments and with different levels of experience. Maximal variation sampling is a type of purposive sampling which focuses on the selection of participants who would provide a different perspective of the phenomenon under study[18]. The healthcare workers who accepted to participate in the study were nurses, doctors, clinical officers, anaesthetists, physiotherapists and mental health clinical officers. The demographic profile of the participants is presented in Table 1.

Data collection

The potential participants were approached by the researchers and were provided with written information about the study.

Table 1: Demographic profile of the participants

Variable	Category	n (%)
Gender	Male	12(48)
	Female	13(52)
Cadre	Nurse	13(52)
	Doctor	2(8)
	Anaesthetist	2(8)
	Clinical Officer	4(16)
	Mental Health Clinical Officers	2(8)
	Physiotherapist	2(8)
Age, mean (SD)	31.8(5.1)	
Work experience in years, mean (SD)	7.6(7.1)	
Experience at the COVID-19 Treatment Centre, weeks, mean (SD)	4(1.9)	

The health workers who expressed willingness to participate in the study provided written consent. The interviews were conducted at a convenient time and place for the participants within the hospital. They were conducted in English and a semi-structured interview guide was used. The content of the interview guide covered the following areas: the healthcare workers' experience at the treatment centre; their preparedness to care for the critically ill COVID-19 patients; the support that is available for the healthcare workers; and challenges faced during the care of the critically ill COVID-19 patients. The interviews were audiotaped and later transcribed verbatim.

Data analysis

The data were analysed manually following the steps of conventional content analysis as described by Hsieh and Shannon[1]. The steps of the analysis are as follows: (1) reading the data repeatedly to achieve immersion and obtain a sense of the whole; (2) deriving and labelling the codes by highlighting the exact words that appear to capture key thoughts and concepts; (3) sorting the codes into categories based on how the codes relate or link with each other; (4) organising the larger number of subcategories into smaller number of categories; (5) defining each category; and (7) identifying the relationship of the categories in terms of their concurrence, antecedents, or consequences.

Ethical considerations

Ethical approval of the conduct of the study was sought from National Health Science Research Committee (NHSRC) in Malawi, reference number 2648. In addition, permission to conduct the study at the hospital was granted by the Hospital Director. The participants were requested to use pseudonyms of their choice during the interviews to ensure anonymity.

Trustworthiness

The researchers used strategies of credibility, transferability, dependability and confirmability to ensure trustworthiness[15]. Credibility was achieved by consulting qualitative research experts from both academic and research institutions to ensure accuracy in coding and analysis. Sufficient study details have been provided to ensure transferability. With regards to confirmability, the preliminary findings were

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presented at the hospital to allow the healthcare workers to verify the findings.

Results

The overall experience of the healthcare workers was negative. However, the delivery of care to the critically ill COVID-19 patients was associated with both *positive* and *negative* experiences. The positive experience was a result of *teamwork among staff* and *support from hospital authorities and the community*. Negative experiences, on the other hand, were attributed to a *lack of knowledge and skills* in the management of critically ill COVID-19 patients, *a lack of resources,* and *abuse* by some patients and members of the community. Furthermore, there was *fear of contracting the virus* from patients and fellow health workers while providing care.

Teamwork among staff

Teamwork among staff refers to the perception that the health workers interacted well with colleagues at the treatment centre. The participants observed that teamwork facilitated the delivery of care to the critically ill patients.

"Teamwork was there, in the isolation centre we worked to achieve the common goal, providing quality care. Clinical officers, nurses, patient attendants, physiotherapists could help each other to feed, and bathe patients" **(Participant 3)**.

While appreciating teamwork, the participants expressed a desire for teamwork in the other hospital wards/departments where they worked. This was reported by one of the clinical officers, *"teamwork was just good. I wish such kind of teamwork was present in the wards"* **(Participant 7)**.

Support from the authorities and community

The participants reported that they received support from the hospital management team and the community. They were provided with basic needs such as accommodation, good food and incentives for the period that they were allocated to the treatment centre as explained by one participant, *"the management was supportive, management provided us with food and accommodation"* **(Participant 13)**.

However, some participants complained about a lack of supervision by the managers and involvement in decision making. The participants felt that it was necessary for managers from the nursing and clinical sides to go into the treatment centre and do ward rounds with them. They also wished they could be involved in decision making.

"I wish the consultants, from surgical, medical, obstetrics and gynaecology departments… if they can be coming at least once a day, or Mondays, Wednesdays and Fridays to have a picture of what is going on there, to have a look at how the patients are doing rather than talking on the phone, do this, do this…." **(Participant 8)**.

"*… most of the decisions are made outside without involving the people in the centre…so I want to be involved…. make the decisions together…"* **(Participant 19)**.

Furthermore, the participants acknowledged support from the community. According to one participant, some members of the community appreciated the care that health workers provided to patients, *"some people from the community valued our work, they could bring us food like cakes, fruits, bottled water etc"* **(Participant 1)**.

Lack of knowledge and skills

This refers to the reports by some health workers that they did not have adequate knowledge and skills in caring for the critically ill COVID-19 patients. Although they were given an orientation before being allocated to the treatment centres, the period for the orientation was considered inadequate. Some participants observed that critical care training was necessary to equip the healthcare workers with the knowledge and skills required for the management of critically ill COVID-19 patients, *"I cannot say I had adequate knowledge, I was oriented for a day"* **(Participant 3)**.

"I feel that there is a need for people to be trained in critical care because most of these patients are critically ill" **(Participant 6).**

The participants also considered critical care experience important when caring for the critically ill COVID-19 patients. The healthcare workers whose original unit was a critical care unit (CCU) indicated that they had some knowledge of caring for critically ill patients, as reported by one participant from the ICU:

"For me I can say it was not that bad because I have experience of caring for critically ill patients because of the area I work, but for some, they need to be schooled on perfussors, they need to be schooled on how to use oxygen cylinders and other equipment…" **(Participant 25)**.

Some participants also commented on the expertise of their colleagues whose original department was the ICU. As explained by one clinical officer, they relied on ICU nurses for help on how to manage some equipment:

"I had a nurse from ICU who was conversant with the machines, and at one point in time she could tell me what was going on because I could not understand everything in terms of operating the machines, so it was easy for me having someone with experience from the ICU, you talk of monitors, other equipment, fluid management, it was this nurse who mentored others who did not know that" **(Participant 2).**

Shortage of resources

Shortage of resources describes the impact that shortage of material and human resources had on the care of the critically ill COVID-19 patients at the treatment centres. The participants reported that a shortage of resources such as oxygen cylinders was a challenge during the first wave but improved with the second and third waves. However, some participants reported that the resources were available but some equipment was faulty.

"The resources were always available during the time I worked there, drugs that were needed were available but sometimes we had challenges in terms of monitoring patients, you could find out that some monitors were not working" **(Participant 7)**.

Similarly, participants noted that there was a challenge with human resources. It was noted that the workload was high as it was dependent on the number of patients and severity of illness. Some participants reported a high workload when there were a lot of patients against a few health workers, and the severity of illness also contributed to high workload.

Abuse by the community and patients

While appreciating the support from multiple sources, the participants observed that some members of the community did not appreciate the risks taken by the healthcare workers in the fight against the disease. The participants felt stigmatised because they cared for the COVID-19 patients:

"I remember sometimes when you board a min bus and you are in nurses' uniform, it was like you are the one carrying COVID-19 and spreading it everywhere, we could see the way people were treating us…. We stopped putting on uniform, we could wear uniform only at work… We were afraid of the community" **(Participant 3)**.

In addition, participants reported that some patients did not appreciate the care provided by the healthcare workers. In

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some cases, they were verbally and physically abused by the patients.

"Some patients felt like they were more important than others…… so in turn, we got all sorts of insults…for instance a patient calling you stupid, saying that you do not know how to do your work" **(Participant 21).**

"… she told me she could not feel the air, I went to see the flow meter to fix it… but I could feel the air so I kept on asking … can you feel the air? … she was angry, she removed her mask and threw it to my face" **(Participant 22).**

Fear of contracting the virus

The participants expressed fear of contracting the virus from their patients and colleagues at the treatment centres. The fear was common during the first wave of the pandemic. Because of the fear, some healthcare workers were reluctant to work at the treatment centres as stated by one participant:

"I was not prepared psychologically, I was afraid I would get the virus, I did not go during the first wave" **(Participant 11)**.

Discussion

The study aimed to explore the experiences of health workers in caring for critically ill COVID-19 patients in Malawi. The findings of the study showed that the participants had positive and negative experiences. They appreciated the teamwork among the health workers and the support from managers and the community. However, the participants complained about a lack of critical care knowledge and skills, a shortage of both human and material resources, abuse by some patients and members of the community, and fear of contracting the virus.

The findings on teamwork are consistent with those of earlier studies undertaken in other countries in response to the pandemic[19-21]. For example, the studies by Leng et al.[20] and Liu et al.[21] reported that teamwork made health workers feel safe. In addition, Robinson and Stinson[19] observed that teamwork, expressed as the "human connection", was an important component of coping with stress and workload during a pandemic. The coronavirus epidemic has placed healthcare personnel around the world in an unprecedented situation, in which they are expected to make impossible decisions and work under pressure, causing stress[19]. Interestingly, the participants in the present study wished teamwork existed and continued in their original departments where they were drawn from. Therefore, these findings support calls for the promotion of interprofessional and interorganisational collaboration to ensure efficient and high-quality care[21].

Similarly, the participants were appreciative of the support from the hospital management and the community. This finding was also reported in previous studies by Vindrola-Padros, et al.[22] and Leng et al[20] in which participants appreciated the support from multiple sources which made them feel at ease and not alone. As an example, in the study by Leng at al.[20], the health workers were perceived as heroes by the community. However, participants in the present study complained of a lack of expert opinion on the management of the patients and a lack of involvement in decision making. One possible explanation for the absence of some experts and managers at the treatment centers was a lack of understanding of disease transmission and prevention during the first and second waves of the pandemic, which caused fear of contracting the virus. It is also sad to note that the healthcare workers were abused by the patients and some members of the community. It is difficult to explain the abuse by the patients, but it might be related to the severity of the disease. On the other hand, the abuse by the community was reported in the earlier phases of the outbreak or in contexts where less was understood about the transmission of the virus[10,12]. In such cases, the health workers are caught in the middle, to continue providing care to critically ill COVID-19 patients amidst being abused and stigmatised[10]. These findings may help in the development of disease awareness strategies for health workers and the general public, such as the risk, transmissibility, and prevention of future pandemics.

A lack of knowledge and skills in caring for critically ill COVID- 19 patients has been reported in previous studies and is attributed to inadequate training[21,24]. The pandemic, as observed by Salluh, et al.[23] has led to increased demand for health professionals with ICU training. At the peak of the pandemic, the healthcare workers at the hospital where the study was conducted were deployed to the COVID-19 treatment centres from other departments that do not manage critically ill patients and health centres which offer a primary level of care. The health workers were provided with crash training on the management of critically ill patients but this was considered inadequate. It is also worth noting that while anaesthesia and intensive care training programs exist in Malawi, there are no critical care nurse training programs[24]. The findings of this study support recommendation for a thorough assessment of redeployed staff's skills to ensure that their knowledge is put to good use to meet patient needs[22,25,26]. In light of the ongoing COVID-19 pandemic around the world, healthcare professionals should also be properly prepared in an in-situ simulation environment before dealing with a significant respiratory illness outbreak in real life[27]. We also advise that the country should invest in critical care training programs for nurses, who make up the bulk of health workers at treatment centers, as part of a long-term strategy.

Participants reported about a shortage of resources, such as oxygen cylinders and personal protective equipment (PPEs), during the first wave but the situation improved during the second and third waves. The shortage of resources such as PPEs has been a major challenge in the fight against COVID-19 in many countries[28-30]. The shortage of resources during the first and second waves could be attributed to a lack of preparedness for the pandemic. The country's response to the pandemic was hampered by insufficient funding to the Ministry of Health in the face of a high burden of diseases and an economically challenged population[31]. In some studies, the lack of knowledge and skills in the management of the patients, and the lack of resources led to fear of being infected with and spreading the virus among the health workers[10,32]. Based on these experiences, an improved emergency response plan is required to ensure continuous readiness for the next pandemic[19,33].

Conclusion

The study provides an understanding of the experiences of healthcare workers who cared for critically ill COVID-19 patients in Malawi. The study identified positive and negative experiences of the health workers who worked at the COVID-19 treatment centres during the first and second waves of the pandemic. Overall, the findings support the calls for the promotion of interprofessional and inter-organisational collaboration to ensure efficient and high-

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quality patient care, the introduction of critical care training programs for health workers especially nurses, availability of adequate resources including PPEs and disease awareness strategies for the health workers and general public in preparation for future pandemics. A further study could explore the experiences of survivors of severe illness of COVID-19 in a resource-limited setting like Malawi.

Limitations of the study

The study was conducted at one hospital; therefore, the findings may not apply to other hospitals because of differences in the context. In addition, most of the participants were nurses and clinical officers with few representations of the other cadres. Despite these limitations, the findings have significant implications for clinical practice and the management of critically ill patients in Malawi and other developing countries.

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Authors contribution

BG was the team leader. She drafted and revised the manuscript accordingly. JB, AS and DC contributed to data collection and reviewed the manuscript. RG and AK contributed to the conceptualization of the overall study and provided critical feedback at every stage including the writing of the manuscript.

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