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## Article

# Delivering Health Services during Early Days of COVID-19 Pandemic: Perspectives of Frontline Healthcare Workers in Kenya's Urban Informal Settlements

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**Abstract:** The COVID-19 pandemic has caused widespread disruptions to health, economic and social lives globally. This qualitative study explores frontline healthcare workers' (HCWs) experiences delivering routine care in Kenya's informal settlements during the early phases of the pandemic, amidst stringent COVID-19 mitigation measures. Thirteen telephone interviews were conducted with facility and community-based HCWs serving three informal settlements in Nairobi and Mombasa. Data were analyzed using the framework approach. Results indicate there were widespread fears and anxieties surrounding COVID-19 and its management. Secondly, access to facility-based care at the onset of the pandemic was reported to decline, with service availability hampered by the imposed curfew hours and guidance on the maximum allowable number of clients. HCWs experienced heightened risk of COVID-19 infection due to poor working conditions including inadequate personal protective equipment (PPE) and unavailable isolation areas for COVID-19 positive patients. HCWs also experienced stigma associated with contact with persons suspected of having COVID-19 infection, thereby causing a strain on their mental health and wellbeing. The study recommends the need for interventions to support and protect HCWs' physical and mental health, alongside health system preparedness. Additionally, it is vital to identify ways of taking health services closer to the community to address access barriers in health emergency contexts.

**Keywords:** community health volunteers; COVID-19; healthcare professionals; health services; Kenya; mental health; qualitative study; urban informal settlements



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## 1. Introduction

When the first case of SARS-CoV-2 Virus (COVID-19) was reported in Wuhan, China in December 2019 [1,2], within a span of three months, countries across the globe were already experiencing the devastating toll of this 'new' pandemic. This included a rise in infections and deaths, estimated to be 118,319 and 4292, respectively, by 11 March 2020, when COVID-19 was officially declared by the World Health Organization (WHO) as a global pandemic [3]. In Africa, the uncertainties surrounding the spread and management of COVID-19 were met with mixed public reactions, pushing governments to institute multiple containment strategies in the early phase of the pandemic [4–6]. In response, Kenya, like many other African countries, enforced public health measures such as international travel bans and enforcing stringent quarantine protocols for incoming travelers, and requiring a minimum 14-day mandatory isolation in government-approved facilities at personal cost [7]. Within its borders, the Kenyan government imposed a nationwide lockdown minimizing local travel outside the jurisdiction of some of its 47 semi-autonomous counties, identified

as bearing the highest risks of infection, and variable dusk-to-dawn curfews between 6 P.M. and 5 A.M., which affected business operations, social activities, and healthcare services [7,8]. Similarly, the closure of educational institutions meant institution-based learning was discontinued for nearly 37 weeks/nine months in Kenya [8,9], adding to the billions of learners affected by the pandemic globally [10]. Cumulatively, the COVID-19 outbreak and its mitigation measures has disrupted livelihoods, daily living and wellbeing, thereby transforming society into a new economic order.

At the frontline of health systems, healthcare workers (HCWs) across the globe were battling with the rising COVID-19 cases and trying to save lives [11,12]. Evidence from the early phase of the pandemic showed that HCWs faced several challenges. These included absence and high pricing of personal protective equipment (PPE) such as gloves, face masks and gowns, which put their health at greater risk [13,14]. This was partly attributed to the global PPE supply shortage [15], and countries such as Kenya, responded through local manufacturing of low-cost PPE [16]. Reports further showed that high workloads and burnout faced by HCWs, which affected their mental health and wellbeing, with depression, anxiety and post-traumatic stress disorders (PTSD) reported to be on the increase [14,17–19]. The deplorable work conditions, safety concerns, and increased workload led to mass protests of HCWs in different parts of the world, demanding for speedy, appropriate responses from their respective governments [20]. On the health services front, the implementation of COVID-19 mitigation measures caused disruption in access and availability of healthcare services, including emergency care [14]. While these were unfolding, little was known about the extent of these effects on HCWs working and serving communities in more marginalized contexts, such as Africa's urban informal settlements.

Kenya's rapid urbanization, like many other low-and middle-income (LMIC) countries, has resulted in the rise of several unplanned and informal settlements [21]. Nairobi and Mombasa are among the top urban cities in Kenya, with large populations living in informal settlements [22]. During the COVID-19 pandemic, both Mombasa and Nairobi cities were considered high infection zones and declared as epidemic hotspots [8,23]. Subsequently, these cities faced more stringent mitigation strategies, such as business closures or regulated operations, and curfew durations were prolonged compared to other parts of the country, which could have had other negative ramifications [24]. This qualitative paper explored frontline HCWs' experiences delivering routine health services in the urban informal settlements of Nairobi and Mombasa during the first year of the pandemic, amidst these stringent COVID-19 mitigation measures. This work contributes to further understanding systemic dynamics and individual-level needs and service-seeking practices during health emergencies such as the COVID-19 pandemic. The lessons drawn from this study will be useful in improving preparedness in similar contexts that are characterized by marginalization in service provision and access to basic social amenities. Furthermore, important lessons will be drawn on the impact of the COVID-19 pandemic and preparedness of healthcare workers, and how these lessons contribute to handling future health emergencies.

## 2. Materials and Methods

### 2.1. Study Design

This study is based on a broader sequential mixed methods study, which consisted of a quantitative household survey followed by a small qualitative exploratory phase, following the steps described in Creswell et al. [25]. The broader study's aim was to examine the psychosocial functioning, economic wellbeing, and mental health during the COVID-19 pandemic among caregivers of young children in Kenya's urban informal settlements. The broader study's methodology and setting have been described in detail elsewhere [26]. This present paper draws from the qualitative exploratory study phase, consisting of semi-structured interviews with community and facility-based HCWs and health managers (n = 13), exploring how the COVID-19 pandemic impacted on routine health services access and provision in the urban informal settlements studied.

## 2.2. Study Setting

This study was conducted in three urban informal settlements in Kenya: Bangladesh in Mombasa County at the Kenyan coast; Mathare and Dagoretti informal settlements in the Nairobi Metropolitan Area, as described in Angwenyi et al. [26].

## 2.3. Sampling, Recruitment and Data Collection Procedures

We sampled the respondents purposively, to reflect gender diversity and respondents' varying levels of involvement in the COVID-19 response, as summarized in Table 1. To note, our respondents are drawn from all three health facilities within the catchment areas of the informal settlements, and the final sample of interviewed frontline staff ( $n = 13$ ) was dependent on staffing and availability to participate in our telephone interviews. The rationale for conducting telephone interviews was due to the rapid design of the original study, and restrictions to conduct face-to-face data collection associated with the imposed COVID-19 mitigation measures. To identify eligible participants, we consulted health management teams in the respective sub-counties to identify health personnel with diverse roles in the COVID-19 response at the different health system levels. In the facility-level category, we targeted health managers and HCWs in maternal and child health, mental health, disability, and COVID-19 response teams. For the community-based provider category, community health volunteers (CHVs), and their supervisors—community health assistants (CHAs)—were targeted.

**Table 1.** Participants sampling criteria.

CATEGORY	TOTAL ( $n = 13$ )	Dagoretti ( $n = 4$ )	Mathare ( $n = 4$ )	Bangladesh ( $n = 5$ )
Community-based HCWs				
Community health volunteers	4 (2M, 2F)	1F	1M	1M, 1F
Community health assistants	3 (1M, 2F)	1M	1F	1F
Facility-based HCWs and health managers				
Rehabilitation and disability care	1 (1M)		1M	
Maternal and child health	2 (2F)	1F	1F	
Mental health/psychosocial	2 (2F)	1F		1F
COVID-19 response team	1 (1M)			1M

Abbreviations: F-female; HCW-healthcare worker; M-male.

Data were collected between 23 September and 22 October 2020, a time when some of the COVID-19 restrictions in the country had eased (e.g., in-country travel, curfew hours shortened, and partial opening of learning institutions). The semi-structured interview guide was developed by authors and informed by emerging themes from the larger mixed methods study, i.e., household survey with caregivers, whose findings have been published [26]—see topic guide in Supplemental File S1. Eligible participants were contacted by the research team in advance to schedule appointments for the telephone interviews, which lasted between 30–45 min. Interviews were conducted by two research assistants trained on qualitative interviewing skills and worked under the supervision of V.A.

## 2.4. Data Management and Analysis

Audio files from telephone interview recordings were transcribed verbatim and in the original spoken language (English and/or Kiswahili). Transcriptions were completed by trained research assistants and, after transcription, an independent research assistant reviewed each transcript along with the voice files to ensure accurate reporting and removal of potential identifiers. Transcripts were then imported into NVivo Windows (QSR International), where analysis using the framework approach was performed [27]. The first step involved developing an initial coding framework, which was completed independently by

two research assistants and V.A. based on a review of three transcripts, guided by emerging themes from the data. A meeting was held to review the different coding frameworks and develop a harmonized codebook for use across the entire dataset. Coding was then performed by the research assistants and, upon completion, charts were generated by V.A. based on grouped themes, which were exported to Microsoft Excel. The first (V.A.), second (S.A.O.), and third (S.M.) authors were involved in the charting process by interrogating the data for emerging patterns. They met weekly to jointly reflect on the analysis progress, interpretation of findings, review write-ups for the respective themes, and select quotes and their translations for inclusion in this article's findings section.

### 2.5. Ethical Considerations

Scientific and ethical approval was obtained from the Aga Khan University [021-ERC-SSHA-20-EA (COVID)], and the National Commission for Science, Technology and Innovation (NACOSTI/P/20/6020). Additional approvals were obtained from the Nairobi Metropolitan Services Directorate of Health Services and Mombasa County Department of Health Services. The Sub-County Department of Health officers of Dagoretti, Ruaraka, and Jomvu permitted the study's implementation and provided advice and support with planning of study activities. Informed consent was obtained through the telephone calls, and all study participants were provided with a detailed description of what the study involved, its benefits, risks, confidentiality, data storage and management plans. Consent to participate in the telephone interview was captured in audio recordings.

## 3. Results

This section describes the perceptions of both facility-based and community-based HCWs on delivery of routine health services during the early days of the COVID-19 pandemic.

### 3.1. Provision of Health Services Amidst COVID-19 Fears and Anxieties

An emerging concern due to the COVID-19 disease was the increasing demand to provide emergency care for COVID-19 related cases; hence, health facilities resorted to regulating routine health services. In some instances, this resulted in patients missing their medical appointments or other routine services such as maternal and child health services due to this regulation—additional quotes in Supplemental File S2, Table S1a.

*... they reduced the number to almost a half to reduce congestion in the hospital so that we minimize the number of COVID-19 infections, so most of them [patients] could not even come for the ANC [antenatal care] visit ... [KII01\_Male\_Community-based\_HCW]*

Some healthcare facilities restricted access to patients who did not wear face masks. Patients were turned away and asked to purchase masks before re-entry to the facilities. Some patients never returned for services.

*... you tell clients to go for the [face] mask and then they disappear because maybe they can't afford even that 20 [Kenya] shillings to buy that mask. So, some don't even come back. [KII05\_Female\_Facility-based\_HCW]*

Where health services provision continued, facility-based HCWs described their feelings of fear, uncertainties, and anxieties of risks of contracting COVID-19 in their line of duty. The HCWs were concerned about patients' behaviors that suggested non-cooperation with infection control measures, for example, not wearing face masks or observing social distancing. These challenges were compounded by inadequate access to PPE at their workplace. Interview narratives further depicted HCWs concerns about their possible roles in spreading COVID-19 to their household members.

*Even if it is one patient you are attending to, you don't know how much care they [patient] are taking ... they come here, we say [to patients] when you come in you must wear a mask. But as you walk outside, you find that they are just walking around like nothing is happening ... sometimes you find you are not sure of the risk you are exposing yourself to ... so you feel these people may be a risk to you. [KII04\_Male\_Facility-based\_HCW]*

The lack of adequate provisions of isolation rooms created anxieties among HCWs and raised concerns about the proper management of suspected COVID-19 cases. They reported these anxieties as particularly high when patients under their care tested positive for COVID-19 virus.

*... in our institution we never had isolation rooms ... for example, if a patient is to be admitted, we are worried we don't know the status of COVID [since] that person has not been tested. [KII25\_Female\_Facility-based\_HCW]*

HCWs felt compelled to take many repeated tests at their own cost to confirm their COVID-19 status, which implied steep personal costs. Similarly, reports that HCWs were infected stressed their colleagues.

*... well psychologically it was really traumatizing ... I mean we were like our staff they were infected; we were like how did it get to the facility, how were they infected? [KII11\_Female\_Facility-based\_HCW]*

Community-based HCWs experienced challenges when confronted with community members' expectations during household visits. In some instances, community members hoped to receive material support (e.g., food and money) to help alleviate their socio-economic hardships. These HCWs felt helpless and found it inappropriate to even talk about other health issues, in the midst of the glaring household economic situations, for example, lack of food.

*When you enter into a household, you inform them the purpose of your visit, as a healthcare worker, but they tell you, "Yes, I hear what you are saying, but I have not eaten anything" ... So maybe the husband/partner lost their job or maybe they themselves lost their job because of COVID-19 ... So, they start narrating to you other issues that even draw you away from your original intention of visiting. So, you start viewing them with sympathies, you wonder, so, how am I going to help them. [KII18\_Male\_Community-based\_HCW]*

### 3.2. Difficulties in Implementing COVID-19 Preventive Measures and Stigma

COVID-19 preventive measures such as the use of PPE, practicing social distancing, and regular handwashing were acknowledged and accepted as necessary in service provision, though implementation was fraught with challenges. In communities, observing physical distancing proved difficult since informal settlements are often overcrowded, and people did not adhere to preventive measures. Within facilities, there was inadequate space to observe social distancing. Furthermore, the unreliable supply of water meant that handwashing stations were often times non-functional—additional quotes in Supplemental File S2, Table S1b.

In response to inadequate supply of face masks, some community-based HCWs decided to buy them out-of-pocket. Interview accounts also described the emergence of poor practices, for example some CHVs who could not afford new disposable surgical face masks, washed and reused their masks against official recommendations that masks should only be used once and disposed safely.

*... I am forced to wash the one I have, I wear it, and go to households, because I cannot visit homes without a mask on. [KII08\_Female\_Community-based\_HCW]*

While frontline HCWs acknowledged the importance of face masks, some CHVs worried that wearing masks created communication barriers between themselves and the community members. Similarly, wearing of masks was perceived to create virtual distances and a sense of not belonging between them and audiences that did not wear masks. To navigate these dilemmas, some CHVs resorted not to wear masks when engaging people, but practiced social distancing to minimize their risks of infection.

*I would like to deliver a message, but I somehow feel like I may not raise such issues with them because I have a mask on, yet they [community] don't ... others may not give*

*you the attention [ . . . ], so you want to pass the message, sometimes you have to step back so you don't interact so closely with them, to be able to remove the mask so that they somehow see that there is no gap between you and them . . . you do this but you are risking yourself. [KII17\_Female\_Community-based\_HCW]*

The pandemic disrupted community-based HCWs activities. CHVs did not have authorization to visit households for routine activities such as monitoring health, monthly household data collection and providing health education. When they resumed household visits, they were either not welcomed or viewed suspiciously for fear of spreading the virus.

*When they see healthcare workers . . . they [community members] get anxious they think perhaps HCWs have come with issues of corona . . . even how they [community members] received us [CHVs] was not that easy . . . the fear [of COVID-19] was immense and everywhere to an extent it was affecting our [CHVs] work. [KII18\_Male\_Community-based\_HCW]*

The emergence of stigma towards COVID-19 cases complicated the home-based care (HBC) management. For example, patients preferred HBC personnel to leave their vehicles some distance away and access their households on foot, to avoid raising unwanted attention and community stigma. This implied personal difficulty for HBC support staff. Within households, the HCWs were thrust into yet other dilemmas—on the one hand, to comply with COVID-19 infection control protocols aimed at self-protection, versus the practical need of showing compassion when engaging with the affected persons. After home visits, the HCWs were confronted with the challenges of minimizing the risk of spreading infections to their own household members; they had to perform extra sanitation and hygiene measures beyond their normal day-to-day personal hygiene.

*. . . when you have the car, they [patients] tell you 'don't come to visit me with the car and you should park far away' . . . you are compelled to leave the car, you walk another distance. When you get to the household, you enter with dignity because you don't want to cause trauma. [KII22\_Female\_Community-based\_HCW]*

### 3.3. Healthcare Workers' Experiences, Support, and Perceived Gaps during the Pandemic

#### 3.3.1. Higher HCW Workload and Reduction of Productivity during Early Days of the Pandemic

Interview accounts with HCWs showed that, at the early phase of the pandemic, there was a reduction in attendance rates within healthcare facilities resulting in patients missing appointments and defaulting on care. Later, when the COVID-19 case reporting in the country began to decline, there was an influx of patients resulting in high workload for HCWs.

*. . . in the [beginning of] COVID-19, we have not been admitting any [mental health] patient . . . [when] the COVID [reporting] was reducing around June-July [2020], we had a lot of patients almost 100 inpatients . . . and some are outside who cannot cater for . . . [hospital] admission [which] is 10,000/ = [Kenya Shillings] . . . [KII25\_Female\_Facility-based\_HCW]*

Besides higher workloads due to surge in patients' numbers, HCWs also had to work longer hours, including weekends. The response to COVID-19 sometimes entailed steep trade-offs with private family time and domestic responsibilities such as childcare. The HCWs also perceived inadequate support at their workplace, despite the stressful work conditions.

*. . . We had no weekends. Monday was same as Sunday . . . and working through even late [at night] . . . even in terms of family . . . I had a small infant that time, and had to go to work . . . you get back home tired . . . the baby wants to breastfeed the entire night and only get to sleep in the morning and wish you didn't have to wake-up . . . [KII22\_Female\_Community-based\_HCW]*



*... there is nobody who comes in [to support HCWs]. You know, you come to work ... you go home. Tomorrow you come ... you go to another department again, with its own needs. Nobody really comes to your rescue. [KII04\_Male\_Facility-based\_HCW]*

### 3.3.2. Inadequate and Inequitable Financial Incentives Demotivated HCWs

Respondents reported inadequate or no compensation at all, depending on their additional roles in the pandemic control. Whereas clinical frontline HCWs reported inadequate financial allowances to compensate for their efforts in the COVID-19 response, other HCW cadres, particularly those performing preventive, public health roles at the community level, were not compensated at all, and perceived inequities and discrimination in the provision of COVID-19 allowances. Thus, they felt that their contributions to contain the pandemic were not acknowledged. Consequently, their motivation to work was adversely affected. Community-based HCWs clarified that even though CHVs normally worked voluntarily, without financial remuneration, they expected allowances for their involvement in the COVID-19 work, just like frontline clinical workers. A government ban on public meetings (including outreach activities) implied further diminished opportunities for CHVs to earn some stipends that they would have received, especially when engaged in activities by private sector partners—quotes in Supplemental File S2, Table S1c.

*... you know they [CHVs] are not paid they were working voluntarily even during this time of COVID-19. The government could at least have stated due to the emergence of COVID-19, you people [CHVs] will be given a small token ... [KII06\_Female\_Community-based\_HCW]*

*... when it comes to COVID-19 allowances, it was only for nurses, the MOs [medical officers], the COs [clinical officers] ... and public health [officers] categorized as others. As if we are not that important ... so even the morale ceases ... Yet we did a lot of work related to COVID-19 prevention. [KII22\_Female\_Community-based\_HCW]*

### 3.3.3. Mental Health, Psychosocial Wellbeing and Coping Mechanisms

HCWs experienced mental health problems including stress due to the demanding nature of their jobs, while some experienced psychological trauma associated with deaths of COVID-19 cases and handling the dead bodies. Many HCWs identified dealing with non-cooperating clients as sources of stress, and difficulties in their roles. Interview narratives identified coping mechanisms of frontline HCWs, for instance, accessing professional counselling support—additional quotes in Supplemental File S2, Table S1c.

*... in fact, within the course of this pandemic, there were some counsellors who came to our offices to give us some sort of counselling ... concerning what we have gone through ... [KII24\_Male\_Facility-based\_HCW]*

HCWs developed mechanisms to confront these stressors, partly informed by the overriding need and duty, to help others, suggesting a deeper feeling of responsibility and professional ethos to provide care for people in need.

*You have to give what you can ... you don't have a choice. You have to go to work, you have to attend to people, you have to use what you have, even if we are not sure of the quality of what you are using [PPE], but you still have to do that. Because we have a duty to serve the public ... so when it comes to my health, I think my duty comes first. [KII04\_Male\_Facility-based\_HCW]*

Psychological and social support mechanisms included talking to family members, friends and colleagues. HCW narratives also indicated spiritual inclinations, and in most instances belief in God's protection from COVID-19. Some HCWs reported that they were able to cope better, because of training on psychosocial support and exposure to previous epidemic responses such as Ebola outbreaks in West African countries.

*... we were taught ways of prevention and the fears [about COVID-19] we had, we were advised to stop ... about stress we were told at the onset ... when you go to*

*work in the community, you put your stress aside and should not be afraid . . . I thank God because we worked wholeheartedly, and fortunately, we have not experienced any problems. [KII07\_Male\_Community-based\_HCW]*

*. . . so, from that experience back from West Africa, it gave me a strong experience. If God helped me to work [through] the Ebola experience for six months, why not help my people during COVID-19? [KII12\_Female\_Facility-based\_HCW]*

### 3.3.4. COVID-19 Related Training and Capacity-Building Initiatives

There was a general appreciation of the training and sensitization HCWs received on COVID-19 from both the government and non-governmental organizations—additional quotes in Supplemental File S2, Table S1c. CHVs received training on COVID-19 Home-based Care (HBC) guidelines and protocols, especially on managing different clients in households, depending on their symptoms. HBC teams constituted frontline HCWs such as nurses, community health assistants and CHVs.

*We were trained on home-based care through which we have learnt a lot . . . especially care for people with Corona. Maybe someone may be having Corona and does not have any of the signs, you learn the kind of care to provide at home. [KII18\_Male\_Community-based\_HCW]*

Psychological first aid training was offered to facility and community-based HCWs and representatives of community health committees—the latter were reported only in one study site, which were selected since they are an important unit in the community health structure and to promote a sustainability model.

HCWs training content was tailored to respond to the evolving pandemic situation (e.g., case definition) and the content updated in local guidelines. One NGO implemented an innovative strategy by training CHVs on the use of mobile phones to educate and raise awareness about COVID-19.

*. . . we had a sensitization on COVID-19 and we were given some guidelines; you see the case definition of COVID-19 when it came [early pandemic phase] it was different because we relied on people coming from outside [the country] but this had to be changed. So, within this period the county and sub-county [health management team] developed some guidelines, which we followed, and we are still following the same guidelines. [KII24\_Male\_Facility-based\_HCW]*

Some respondents also reported using peer-learning approaches to pass the knowledge to untrained colleagues. Peer mentorship was also used as an opportunity to elaborate on tasks and expected roles. HCWs acknowledged the importance of organizing monthly data reviews and reporting meetings, with the support of NGO partners, during the pandemic in order to be updated on community activities such as dialogues and review health indicators and identify problems of vulnerable groups, such as women, who were facing further action.

## 3.4. Recommendations towards Improving Health Services Delivery in Times of Pandemics

This theme highlights respondents' reflections of the strategies and approaches implemented in response to the COVID-19 pandemic and how they perceived them, and offers recommendations for consideration in improving the COVID-19 response as well as pandemic preparedness in the future.

### 3.4.1. Improving Service Provision during a Pandemic

The initiation and increase in community outreach services, especially for antenatal care and child health, aimed to bring services closer to those in need. Furthermore, there were attempts to encourage community members to alert HCWs of clients in need of care. Interviewees proposed the need to increase access and close proximity of ambulances within informal settlements for timely pick-up of patients in need of emergency care—additional quotes in Supplemental File S2, Table S1d.

*... we realized that people were not coming for health services in the hospitals ... people were fearing to go to hospital because they will get infected at the same time the hospital [services] were rationed ... so we organized for outreaches whereby we took our services to the community, and we mobilized people to come for the services that they were missing. [KII01\_Male\_Community-based\_HCW]*

Observing the recommended quota for in-person activities and public gatherings enabled CHVs to continue with community-based activities in their houses, though at times these visits implied disrupting household chores.

*... we are not supposed to have a big crowd. We are supposed to have a number of 20, below 20 participants if the room is big but according to the [COVID-19] guidelines the minimum is 15 ... [KII06\_Female\_Community-based\_HCW]*

In order to adjust how health facilities were operating, to observe COVID-19 prevention measures, some proposals were put forward—quotes in Supplemental File S2, Table S1d. For instance, improvement of facility waiting bay areas to enhance social distancing and patients' comfort was proposed. Similarly, health facilities should be equipped with adequate isolation centers and separate triage areas for infectious conditions. Emphasis was placed on wearing face masks. Some respondents suggested that face masks should be issued free of charge to patients who could not afford them, rather than sending them away.

*... we should make sure every hospital at least in every county ... that the highest facility level they should have an isolation ward ... the way the [former] president was putting it, 'if you want me to open the boundaries, make sure you have over 300 hundred seater isolation units'. [KII12\_Female\_Facility-based\_HCW]*

With regards to COVID-19 home-based care and contact tracing guidelines, respondents proposed that HCWs should use non-stigmatizing strategies when approaching households suspected with COVID-19. Additionally, it is important that cultural sensitivity is observed in the burial and disposal of corpses of COVID-19 positive cases to minimize traumatizing affected people.

*... there are those who used to attend to patients. At the beginning they used to come with so much force and wearing those white outfits. People used to be afraid ... they [COVID-19 team] used to enter with so much force until people started saying, 'so that person had Corona and we were with them' ... that brought about stigma since people used to run away. So, I would like for the [COVID-19 team] to be educated on better ways to approach patients. [KII07\_Male\_Community-based\_HCW]*

Two key recommendations were put forward related to COVID-19 infection control and its management. That is, in the initial containment response it would be important to prioritize how to deal with COVID-19 as a respiratory problem, and prioritize supply of appropriate protective resources. Secondly, future screening efforts should include testing of other common respiratory conditions such as tuberculosis.

*What I would recommend is COVID together with other diseases like TB ... Tuberculosis because they are both respiratory infections, so how I would wish we would incorporate both of them, when you screen someone for COVID also [screen] for TB. [KII24\_Male\_Facility-based\_HCW]*

### 3.4.2. Health Workforce and Systems Support

Overall, respondents felt that appreciating the role and work of frontline HCWs and particularly CHVs is critical, as discussed in earlier section; additional quotes in Supplemental File S2, Table S1d. Furthermore, some respondents recommended a shift in attitude about health professionals among members of public, from a negative perception towards a more humane mind set.

*... also ensure we get equipment for doing our work, ensure we get more training and also there is this thing we call 'vitamin M' [money] ... because work is tough and we*

*still do it ... most of us have accepted we offer health services to help our communities ... and we commit ourselves whether there is money or not, we volunteer. Whatever comes our way we thank God ... [KII18\_Male\_Community-based\_HCW]*

*Everybody should change their perceptions [about] medical health workers [that is] ... the rude nurse, the harsh doctors, the striking [healthcare worker] ... no one thinks we have ... risked our lives for them. These people should change their attitudes. [KII12\_Female\_Facility-based\_HCW]*

Other suggestions included the establishment of an emergency fund to promptly deal with COVID-19, as well as promote domestic funding for Kenyans to conduct research on COVID-19.

#### 4. Discussion

This study investigated frontline clinical care providers and community HCWs' perspectives of the effects of COVID-19 preventive measures on health services provision in urban informal settlements of Nairobi and Mombasa, Kenya. The study established that during the early days of COVID-19 pandemic there were widespread fears and anxieties surrounding COVID-19 and its management, which contributed to variable utilization of healthcare services. The COVID-19 response was associated with operational difficulties including high workloads, fears of infection, inadequate resources to support healthcare provision and poor or no financial compensation for HCWs. Additionally, non-compliance with COVID-19 control measures among the public/community members, amidst structural limitations and stigma, affected HCWs' responses. HCWs privately bore direct financial costs and various forms of indirect economic and intangible costs of coping with difficulties of providing care for COVID-19.

The widespread fears and related health anxieties around COVID-19 is a phenomenon that has been described by Tyrer [28], and it is important to understand their potential effects on health and care provision, especially with the multiple waves of incidence of the disease. The manifestation of such perceived fears and anxieties of COVID-19 infections could be associated with official government communication for people to stay at home, unless seriously in need of healthcare interventions; the surge of (mis)information about the new disease; and the uncertainties about the disease trajectories and likely impact on health and wellbeing. Consequently, the disruptions to care associated with COVID-19 could lead to discontinuation in care and extra efforts may be required to track, trace and relink patients, especially those in long-term care, as confirmed in other reports [6].

The drop in health services utilization in the early phases of the pandemic demonstrate reconfigurations within complex adaptive health systems, when interventions are introduced, and resultant unintended consequences that may undermine the original intention of preservation of health [29]. Health facilities were perceived as "disease hotspots" that exposed service users and health professionals to high risks of contracting the COVID-19 virus. A study in Nairobi's informal settlements reported a 40% decline in pregnant women's health facility visits during the first wave of the pandemic [30]. Similar observations were reported during the Ebola outbreak in West African countries, where many more children died because of other endemic diseases such as Malaria, TB and HIV/AIDS, than from Ebola itself [31]. This calls for more efforts to ensure continuity of care at all levels and promote access, for instance, through increased outreach services to minimize disruptions in seeking care.

HCWs' preparedness, support in tackling the COVID-19 pandemic and provision of other routine healthcare services is of critical importance. Frontline HCWs in clinical settings and the public health workforce play a vital role in translation of health system resources to needed healthcare services. Therefore, HCWs should possess the requisite knowledge for patient care, as well as have sufficient resources to protect themselves in their line of duty. This study identified lack of PPE as a major challenge experienced by HCWs. In their bid to cope with the scarcities, some HCWs adopted poor practices such as reuse and recycling of basic disposable PPE, e.g., face masks. This situation further

created potential sources of infections. By August 2020, an estimated 300,000 healthcare workers had been infected with COVID-19, out of whom 2500 had died according to a global survey in 37 countries [32]. The poor provision of PPEs to HCWs was reported in many international settings, including high income countries such as the UK and the USA, underscoring the fragile global health supply chain systems [15,33].

Besides PPEs, inadequate financial compensation, or no compensation at all for the community health volunteers (CHVs), raises important questions about HCWs' motivation, as well as basic human rights of fair compensation for work performed. In the case of CHVs, the lack of compensation provokes a rethink of 'voluntariness' model, and the risks of exploiting private individuals' labor to subsidize healthcare systems. The central role of CHVs in strengthening primary healthcare systems is increasingly acknowledged, amidst calls to institutionalize and enhance security for community volunteers [34,35]. These findings add to the growing calls for strengthening stewardship and governance functions of health system, towards desired objectives.

The dignity and wellbeing of HCWs during the pandemic emerged as an important finding in this study. The mental health problems by frontline HCWs, their dilemmas and the incurrence of steep personal costs to provide care during the pandemic have been documented [14,36]. Poor mental health status of HCWs has been associated with poor quality of care outcomes amongst patients [37,38]. Health systems strengthening processes must prioritize the wellbeing of healthcare service providers, to conserve HCWs' numbers and secure quality provision of healthcare services. Evidence from Asia, the USA, Europe, and sub-Saharan Africa indicates HCWs faced stigma associated with working and being in the frontlines of the pandemic [17,18,39]. This is in contrast to the appreciation messages that were streamed across social media and in the news [40]. HCWs found themselves in a predicament. While their work in providing care was appreciated, they faced difficulties in mingling with the public, and even members of their households, for fear of spreading the disease, almost like pariahs. There were reports of HCWs being thrown out of their residential homes as fellow tenants were afraid they could bring the virus home [39,41]. This affected the daily lives of HCWs, since they had to take extra precautions [17,18], for instance, staying away from family and friends; embracing new, more rigorous sanitation and disinfection routines when they arrived home; and, as highlighted in this study, taking on extra financial costs involved in routinely taking tests to make sure that they were not infected. The above reports raise prominent concerns regarding protecting the mental health and wellbeing of the health workforce, especially given the huge global shortage of HCWs worldwide, made worse by deaths of HCWs during the pandemic [12]. These findings also emphasize the role of health systems, as complex social institutions [42], in which actors such as HCWs bear multiple identities: as providers of care, as household heads, and as patients in need of healthcare support, such as psychosocial interventions, in times of need.

#### *Strengths and Limitations*

This study contributes to ongoing discussions of using the lessons drawn from the COVID-19 experience in different parts of the world to strengthen health systems for future pandemic preparedness. The diversity in respondents' categories, that is, facility-based and community-based frontline healthcare workers and managers working in three informal settlements, provided this study with a richness in perspectives. The small size of this qualitative inquiry may limit the transferability of these findings, for instance, having fewer categories of health personnel represented in the COVID-19 response team in mid-level and senior management positions. However, there are cross-cutting issues that may be transferable to other similar settings. The views presented in this paper feature experiences during the early phase of the pandemic and may not reflect changes that continue to unfold as the pandemic evolves. Our study was not designed to capture the evolution of the pandemic response in the multiple waves; hence, we hope future studies will provide further evidence on these important issues.

## 5. Conclusions

The effects of the COVID-19 pandemic have had a toll on the provision of health services, particularly for the most vulnerable, including residents in the informal settlements studied. Hence, there is a need for more responsive approaches towards ensuring continuity of healthcare amidst the COVID-19 pandemic. Our study established that the need to support and protect the wellbeing of the health workforce is of paramount importance, especially in areas of pandemic response preparedness, mental health and psychosocial support, and the creation of better working conditions. We recommend that future research explore the evolving status of service delivery during the pandemic, since different waves and changes in public health directives may have varying impact on how services were delivered during the pandemic.

**Supplementary Materials:** The following are available online at <https://www.mdpi.com/article/10.3390/covid3020012/s1>, Supplementary File S1: Telephone interview guide. Supplemental File S2: Additional quotes categorized by results section themes.

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**Informed Consent Statement:** Informed consent was obtained through telephone, and all study participants were provided with detailed description of the study, benefits, risks and what the study involved. Permission to participate in the study was captured in audio recordings, which were then later archived.

**Data Availability Statement:** All data are available within the manuscript and Supplementary Files.

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## Abbreviations

CHVs	Community Health Volunteers
COVID-19	Coronavirus-19
HCWs	Healthcare Workers
LMICs	Low-and Middle-Income Countries
PPE	Personal Protective Equipment
WHO	World Health Organization



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