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ORIGINAL ARTICLE

Exploring the impact of COVID-19 on frontline health workers through a photovoice study in Kaduna, Kwara and Ogun States, Nigeria

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Background: Described as the 'backbone of health systems', particularly in low- and middle-income countries, community health workers (CHWs) are a critical cadre on the frontline of any outbreak response. However, it is widely recognised that CHWs are frequently lacking in appropriate support from the health system due to inadequate physical, social and financial resources. Furthermore, despite their critical role in service delivery, the health and well-being of CHWs is seldom considered and the additional emotional and physical burdens that health systems shocks can present are frequently ignored. Thus a critical step in strengthening health systems to manage disease outbreaks or other system shocks is to ensure that CHWs are adequately supported. Within this study we document the experiences of CHWs within Nigeria during the coronavirus disease 2019 (COVID-19) outbreak to understand the impact of the pandemic on CHW well-being with a view to identifying strategies that could support CHWs during COVID-19 and subsequent health system shocks.

Methods: This study was based in Ogun, Kaduna and Kwara States, Nigeria. We used the creative participatory methodology of photovoice with 30 CHWs (10 in each state). Participants were asked to take photos documenting their experiences of working and living through the pandemic. Participants sent photos with captions to the research team via WhatsApp following one-on-one discussions. Photos were co-analysed among participants in focus group discussions using thematic analysis.

Results: Our findings reveal similar experiences of CHWs across Ogun, Kwara and Kaduna States in Nigeria, providing a unique insight into how the Nigerian health system was impacted and how this closely aligns to the performance and well-being of CHWs. CHW experiences related to three overarching themes: major stressors and challenges experienced due to COVID-19 (fear of contracting COVID-19, food insecurity, personal and gendered impacts), the impact of COVID-19 on providing routine care (stigma from community members, heavy workloads and inadequate equipment provision) and motivation and support from the community (pride in their roles and valued support from community leaders). The challenges highlighted through photovoice led to developing recommendations to address some of the challenges. This included training, adequate resource provision, routine supervision and peer support.

Conclusions: COVID-19 highlighted the burden health workers often face. Photovoice allowed a space for frontline health workers to come together to share common experiences, particularly the psychosocial impact of working during health system shocks and its impact on performance. This underlines the need to acknowledge mental health and prioritise the well-being of healthcare staff. Sharing stories from the perspectives of health workers provides a platform to share learning and strategies on how to best support health workers holistically, particularly during health system shocks.

Keywords: community health worker, COVID-19, health workers, mental health, NTDs, psychosocial.

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Introduction

The ability of any healthcare system to contain or control pandemics is largely dependent on healthcare workers on the frontline.[1] Health workers often bear the burden of managing the crisis, and, because many are in direct contact with coronavirus disease 2019 (COVID-19) patients, they are often at greater risk of disease exposure.[2–4] Additionally, COVID-19 resulted in health staff facing high patient volumes and working in unprecedented and stressful environments.[5] The World Health Organization (WHO) has highlighted the burden that COVID-19 placed on healthcare workers and the need to support both their physical and mental health.[6]

COVID-19 emphasised many physical and social support needs of health workers who operate at the forefront of disease outbreaks. These include adequate training in infection prevention and control, personal protective equipment (PPE), medical supplies, hand washing and sanitation kits, ongoing supportive supervision and remuneration.[7] However, the broader health system structures in which many frontline health workers operate often results in an absence of many of these physical and social support needs, which can cause additional stress and shape negative mental well-being.[8] Furthermore, in providing routine and emergency care, health workers often experience discrimination and stigma due to fear of disease transmission among the general population.

Described as the 'backbone of health systems', particularly in low- and middle-income countries (LMICs), community health workers (CHWs) play a vital role in providing care to underserved areas.[9] However, it is widely recognised that CHWs are frequently lacking in appropriate support from the health system due to inadequate physical, social and financial resources. Such resource shortages are thought to be exacerbated during health system shocks. Despite their critical role in service delivery, the health and well-being of CHWs is seldom considered and the additional emotional and physical burden that health system shocks can present is frequently ignored. Thus a critical step in strengthening health systems to manage disease outbreaks or other system shocks is to ensure that CHWs are adequately supported, and understanding the best ways to support CHWs during a crisis is essential to the delivery of shock response.

Nigeria has reported 266,463 confirmed cases of COVID-19 as of 3 February 2023.[10] In Nigeria, CHWs, including community health volunteers (CHVs) continue to be at the forefront of the health system and are engaged in both preventive and curative health services; this includes neglected tropical disease (NTD) medicine distribution (also described as community drug distributors [CDDs]), maternal healthcare, immunization services and epidemic response.[11] Due to the pandemic, the WHO recommended that NTD activities should be postponed in March 2020, with many not resuming until 2021. During this time, existing NTD platforms and associated CHWs were used to support the COVID-19 response. Redeployment of these cadres was linked to the embedded nature of NTD programs within communities and to support COVID-19 interventions, such as screening, contact tracing and community engagement.[7] However, despite rapid redeployment and the essential role these cadres were playing in the Nigerian response to COVID-19, the best ways to support and motivate these health workers was not considered.

Within this study we focused on documenting the experiences of CHWs within Nigeria in real time, from their own vantage point, during the COVID-19 outbreak. Drawing on photovoice methodology we explored specific challenges related to workload, stigma and community relationships. We were specifically interested in understanding the impact of the pandemic on CHW well-being with a view to identifying strategies that could support CHWs during COVID-19 and subsequent health system shocks, ultimately contributing to broader efforts to strengthen health systems. This study focuses specifically on CHWs providing care in health facilities and communities in Kaduna, Kwara and Ogun States, Nigeria.

Methods

Study design

The study was conducted from September 2020 to July 2021 across Kaduna, Kwara and Ogun States, Nigeria. Study participants included 30 CHWs working at facilities and those working in the community (CHVs and CDDs). We used photovoice to document experiences of CHWs, adapted to be facilitated remotely. Photovoice, initially developed by Wang and Burris,[12] is a community-based participatory visual methodology whereby photographs are used to represent community issues. Photographs and accompanying captions are used as an advocacy tool to add to knowledge and bring participant voices to the attention of key stakeholders, raising awareness about the issues identified, so that they can stimulate change.[13,14] Photovoice has been used in several studies in different settings, e.g. highlighting the essential roles of health professionals during the pandemic[15] and exploring the experiences of social work educators using a conceptual framework of a shared traumatic reality.[16] Thus photovoice felt like an appropriate tool to not only capture the everyday experiences of CHWs on the frontline, but to ensure that recommendations would be given appropriate consideration by senior stakeholders.

Photovoice process

Participants were asked to take one to two photos per day over a period of 14 days to send to the research team via WhatsApp. Participants were asked to record captions relating to photographs, describing the reason they took them and what the photos meant to them. One-on-one discussions were then facilitated between participants and the research team. Discussions utilised the SHOWeD method developed by Wang and Burris[12] asking: What do we **S**ee in the photo? What is really **H**appening? How does this relate to **O**ur life as frontline health workers during COVID-19? **W**hat are the processes that can explain this situation? What can we **D**o about it?

Following one-on-one discussions, participants were then asked to pick five key photos to bring to an in-person focus group discussion (FGD). One FGD was conducted in each state among the participants, with a total of three FGDs for the study. The FGDs were conducted in English and Hausa or Yoruba, as preferred by the participants. Drawing on the SHOWeD method, within FGDs, key photos were then discussed by group members and a co-analysis process was facilitated to support participants

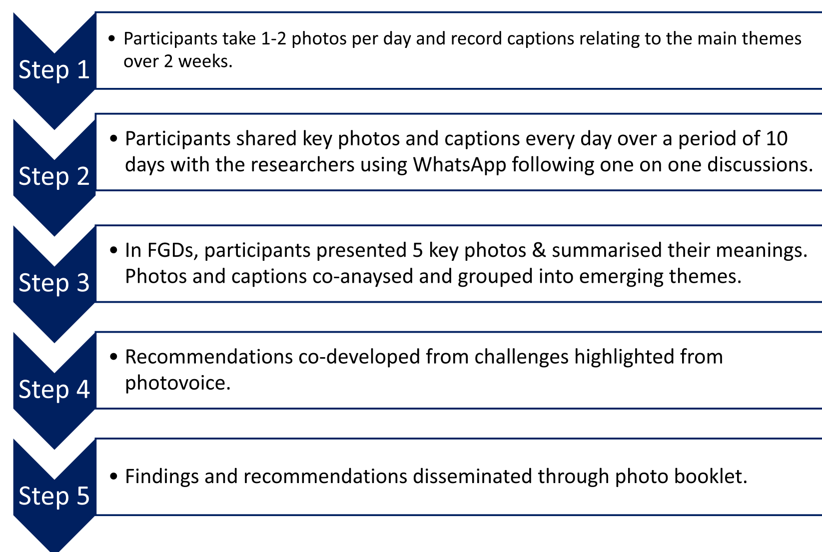

Figure 1. Process of photovoice.

in clustering images according to emerging themes. Participants were then asked to describe these themes and to co-create recommendations. The process is further described in Figure 1.

Study area and setting

We conducted the study in Kaduna, Kwara and Ogun States, based on existing engagement of NTD programs through the COUNTDOWN research program (https://countdown.lstmed.ac.uk/). One urban LGA was purposively selected in each state based on where COVID-19 responses were required. CHWs are present in these states and have significant daily interactions with community members.

Selection of study participants

We purposively sampled participants based on roles, including CHWs with at least 1 y of experience in NTD programs, having access to a smartphone (as data collection was completed remotely) and to ensure maximum variation in age and gender. All participants were ≥18 y of age, as this is the legal age of consent in Nigeria. Ten CHWs from one LGA per state were selected comprising of five facility-based CHWs and five CHVs. A total of 30 community health workers were selected across the study. Participant demographics are detailed in Table 1.

We identified participants by contacting the NTD coordinators of selected LGAs who discussed the study with potential participants before sharing their information with the research team. Prior to selection, the study was explained to all participants verbally over the phone as well as with an information sheet that was sent via WhatsApp for those who were literate. All participants were given the opportunity to ask questions and were reassured that they could withdraw from the study at any stage. Informed consent was obtained from all participants involved in the study as well as written informed consent to publish this article, including their names and images. Participants in Kaduna preferred the use of pseudonyms while participants in Ogun and Kwara preferred the use of their real names in the study, as reflected in the presentation of the results.

Participant training

The research team facilitated a 1-day training on photovoice in each state. Participants were trained on the process of photovoice, encompassing guidance on taking photos and a series of 'prompts' to guide their choice of what to photograph (i.e. focusing on their experiences of living and working through COVID-19), how to provide captions alongside the photos, how these captions would be used to prompt one-on-one discussions on the context and meanings of the photographs and the ethics of photography, ensuring that no recognisable faces were photographed unless they had obtained written consent and that no recognisable photos of children <18 y of age were included.

Data analysis

Data analysis was ongoing throughout the process by all participants. Captions, interviews and FGDs were extracted from WhatsApp and transcribed and translated verbatim by the research team. Using a thematic approach, the photos and captions were co-analysed with participants according to emerging themes through WhatsApp group conversations, telephone calls and FGDs.[13,17] Captions were validated and photos were organised and collectively summarized according to themes to reflect the experiences of research participants. All participants were familiar with their own photos as well as fellow participants, as they had shared their photos with each other within their WhatsApp groups prior to meeting in person during the FGDs. The adaptation of using photovoice remotely allowed a platform for collective sharing through WhatsApp.

Table 1. Participant demographics

Participant	State	Gender	Age (years)	Role	Experience in NTD activities (years)
1	Kaduna	Female	57	CHW	4
2	Kaduna	Female	40	CHW	1
3	Kaduna	Female	56	CHW	4
4	Kaduna	Female	56	CHW	4
5	Kaduna	Female	55	CHW	10
6	Kaduna	Female	40	CHV/CDD	2
7	Kaduna	Female	61	CHV/CDD	2
8	Kaduna	Male	26	CHV/CDD	3
9	Kaduna	Female	42	CHV/CDD	3
10	Kaduna	Male	34	CHV/CDD	3
11	Kwara	Female	55	CHW	30
12	Kwara	Male	63	CHW	20
13	Kwara	Female	53	CHW	20
14	Kwara	Female	57	CHW	3
15	Kwara	Female	55	CHW	13
16	Kwara	Male	35	CHV/CDD	10
17	Kwara	Male	57	CHV/CDD	15
18	Kwara	Male	31	CHV/CDD	7
19	Kwara	Male	25	CHV/CDD	7
20	Kwara	Female	20	CHV/CDD	3
21	Ogun	Female	54	CHW	20
22	Ogun	Female	50	CHW	5
23	Ogun	Female	45	CHW	8
24	Ogun	Female	45	CHW	2
25	Ogun	Female	45	CHW	5
26	Ogun	Female	53	CHV/CDD	8
27	Ogun	Female	35	CHV/CDD	5
28	Ogun	Female	41	CHV/CDD	6
29	Ogun	Male	60	CHV/CDD	15
30	Ogun	Male	35	CHV/CDD	6

Results

Participants across the study took a total of 346 photographs, with 10–20 photographs per participant; each participant selected five key photos that further reflected their experiences. The findings that emerged from these photos and descriptions centred on 10 main themes identified by participants, including fears of contracting COVID-19, stigma, challenges in providing routine care, added workloads, lack of resources, environmental health, pride in role, community support, personal impacts and insecurity. These themes are summarised and presented in a photo booklet in Supplementary File 1. The themes were further analysed into three overarching thematic areas: major stressors and challenges experienced due to COVID-19, impact of COVID-19 on providing routine care and motivation and support from the community.

Theme 1: major stressors and challenges experienced due to COVID-19

Fears of contracting COVID-19

A common fear among CHWs was the added exposure and risk of contracting COVID-19 through their roles (Figure 2). Many expressed feelings of anxiety over contracting the virus and potentially infecting their families. A female CHV from Kaduna mentioned that her children would run away from her when she returned home from work for fear of infection (Figure 3), while other health workers mentioned having to keep a distance from their families due to the risks of their jobs. Community members not wearing face masks or social distancing was also a source of anxiety for many health workers as they explained that increased risk of COVID-19 infection among the community has a direct impact on them, as they are the first to respond to patients and therefore also at risk of being exposed to the virus (Figure 4).

Personal impacts

The pandemic impacted health workers personally in different ways. Due to restrictions, many could not attend places of worship or visit family members. A CHW from Ogun bought mobile data to connect with her pastor for service online despite financial struggles (Figure 5), while many faced personal loss and bereavement as an indirect consequence of COVID-19. A CHV in Kwara described the loss of her brother because he could not get to the hospital in time for treatment, due to the fear and stigma of

Figure 2. Our able and beautiful health workers on duty. This is how it is day in day out, whenever I look at them, **I feel we are all naked in the eyes of coronavirus because we are supposed to be covered with protective gowns, but all that is available is just face masks and hand sanitiser.** (Keira, CHW, female, Kaduna).

Figure 3. During the COVID-19 I am facing so many challenges between me and my family, I have to distance myself from my children and husband especially when I treated a patient I suspected of having COVID-19. In fact I do isolate myself so that I won't infect them. In this photo, the children were scared of coming close to me for fear of me infecting them with coronavirus. So they used to run away from me. I am unhappy about that. This is the reason I don't come close to them after returning from work until I have removed my work clothes and taken a bath. The situation was worrisome to me as well. (Imani, CHV, female, Kaduna).

Figure 4. A group of people who are waiting to collect their national identity card can be seen in this photo, unfortunately they are not observing social distancing. This makes me feel really sad because this act can be detrimental to their wellbeing and this can in turn affect the health workers if these people become infected with the COVID-19 virus and have to visit the health centres to seek medical care. **As a health worker I may be at risk because of my responsibility to assist any sick one among them to get to the facility as a volunteer health worker.** (Noela, CHV, female, Kaduna).

others thinking he had COVID-19 as well as facing transportation challenges, as he lived far from the facility (Figure 6).

Gendered impact

Many female health workers highlighted balancing their gendered roles as mothers and wives with their job and expressed particular concern over the impact of lockdown on their children's education. Due to the lockdown, schools were closed and activities were disrupted. One health worker in Ogun mentioned having to bring her baby with her to work, as no creches were available (Figure 7).

> "During COVID 19, our children in the community did not go to school, all our children were at home playing when they were supposed to be in school learning new things. This has a psychological effect on me because I know the impact of education in this present world, and I would not want my children to miss it in life". (Hanafi, CHV, female, Kwara)

Fearing for her daughter's future, a CHV taught her daughter to learn alternative skills, such as sewing, during the lockdown (Figure 8).

Food and insecurity

Lack of food was a common challenge, particularly among CHVs/CDDs, as their role is voluntary and many hold additional

Figure 5. During the covid-19, we couldn't go to church and worship accordingly because everywhere was locked, we had to manage from the little fund we have to buy data and connect virtually with the general overseer for church services. There was no money as we are managing. (Olayiwola Grace, CHW, female, Ogun)

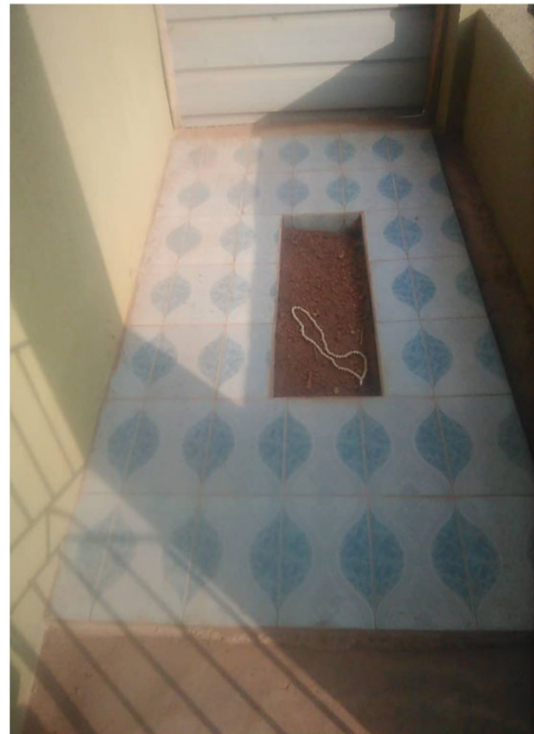

Figure 6. So many people died. It really affected me as I lost my brother then. He said he would not go to the hospital as he was scared they would say he has Covid-19. Even means of getting transportation from his place to the hospital was hard as he lived far away. So, during the process we just received a call that he died. (Kelani Kabirat Adekemi, CDD, female, Kwara).

jobs. For example, many participants worked as traders and could not open shops due to the lockdown. The price of goods increased due to restrictions and as a result, many struggled to afford food for their families. In Ogun, CDDs stated that rising food prices resulted in many facing difficulties in storing food as advised by the federal government (Figure 9). The pandemic also resulted in increased crime, as food was reported stolen in one community in Ogun. This resulted in CDDs forming their own group to provide security (Figure 10).

Psychosocial impact

CHWs, CHVs and CDDs highlighted that they often bear the brunt of responsibility when they are unable to help patients get treatment, often due to a lack of funds or transport, especially during the lockdown when many could not access the banks. A CHW in Kwara mentioned her sadness when she is unable to assist patients to buy recommended medicines, as she was also struggling financially (Figure 11). Depression and psychological trauma were expressed by a CHW related to the scale of deaths occurring in the hospital amidst COVID-19. The mental health impacts of the pandemic on others were also mentioned by a CHW, as she described having to also support her sister who was facing depression and stress due to being unable to work (Figure 12). CDDs described their anxiety due to their increased workloads.

> The occurrence of death of patients at the hospital with the prevalence of COVID-19 also brings fear to the mind of the health workers, especially the health workers that have had contact with dead patients. This brings depression and psychological trauma to the health centre or hospital. (Oriola Temitope, CHW, female, Ogun)

> I do feel tired and disorganized after work due to stress and anxiety. This is because the pressure of work was high during the lockdown, so sometimes I leave a lot of work undone at home. This affects me a lot because when I return home and ought to be resting, I would be forced to try to do some of my work at home…This sometimes makes me go to bed around 2:00am or 2:30am and by 4:30am I am awake again to go to my duty post and may not get to sleep until 2:00am again. (Abdulbasid, male, CHV, Kaduna)

Theme 2: impact of COVID-19 on providing routine care

Challenges in providing routine care

Stigma and fear of COVID-19 resulted in many patients not attending health facilities, as many people believed the lockdown

Figure 7. During COVID-19 there was nowhere I could keep my baby due to the fact that all the creches were locked down and it is not easy carrying a baby that was less than a year to work because she could crawl and put harmful things in her mouth. It was not easy to back a baby and attend to patients. Since all the creches were on locked down, where would I take her to? I had no choice than to take her to work with me which was not convenient for me and the child. If it was in a creche, she will play how she likes and eat at the right time. (Adejobi Esther, CHW, female, Ogun).

Figure 9. The price of goods went high due to restrictions, and this had a lot of negative impact on some families who can only afford little. Not everybody can store food like the Federal Government stated before the restriction was imposed, and this made me sad because we could not afford to eat the food we loved to eat. (Yusuf Kabirat, CDD, male, Kwara).

Figure 8. This is a picture of my daughter learning how to sew/ make dresses. As a mother and a health worker, I would not like my children to stay idle since lockdown also affected schools and they stay home all day. I encouraged my children to acquire new skills while they are at home because their future is more important to me. (Dupe, CHV, female, Kwara).

Figure 10. After some time, those that were under lockdown were being robbed at night with their food and belongings carted away. We decided in my community to create security by dividing ourselves to keep watch ringing the bell so people will know that security are truly outside. (Saburi Adeniji, male, CDD, Ogun).

Figure 11. This woman with her son came over to my house for medical help because her son was ill. She came to my house because she knows I am a health worker and she told me she was unable to withdraw money from the bank due to the pandemic and crowd at the bank. **I was not able to help her out because I did not have enough fund on me to assist her with. This made me unhappy because I don't like a situation whereby I am unable to help people out in any situation within my capacity.** (Fatimah Atanda, CHW, female, Kwara).

Figure 12. During COVID-19, my sister was stressed and depressed because she could not go to the shop where she sells...It got to the point that she had to go and see a doctor and she was placed on medication because she was depressed and have started having strange dreams and hallucinations. It affected me because she is the only family member I have in Abeokuta and I was always visiting her to remind her to take her medication. (Adejobi Esther, CHW, female, Kwara).

meant they could not access medical care, as well as their fear of contracting COVID-19. This resulted in challenges in providing routine care. For example, providing immunization was challenging, as many parents did not attend and CHWs expressed their concerns that this could compromise immunity within the community (Figure 13). Furthermore, many CHWs mentioned that the focus on COVID-19 overshadowed training and services for other medical conditions (Figure 14). Due to the lockdown, mass administration of medicine campaigns to control NTDs, such as schistosomiasis, were halted due to the closure of schools, thus many CDDs were unable to provide their routine care (Figure 15).

Stigma and misinformation

Health workers experienced stigma from their community members, meaning many did not want to interact with them or utilise their health services. Many mentioned their sadness, as this was from the people they serve. Some community members perceived health workers as people who spread the disease rather than being there to help them. This was described as disheartening, despite the effort and risk health workers face to serve their community. Many CHWs, CHVs and CDDs reported that community members refused to accept medicines from them for fear they had been exposed to COVID-19 (Figure 16).

Figure 13. The child of the woman in this picture is 9 month old and was yet to take any vaccines...I asked her why she did not bring her child for immunization? She answered that she was scared of coming to the hospital that was why she did not bring her child. The child is already 9 months old and has missed many ...It affected me because our job is to give immunization and a child that is not immunized can pass diseases to others which can affect the community. (Esther, CHW, female, Ogun).

Figure 14. As COVID-19 set in, different workshops and training on COVID-19 overtook other sectors of health training which were in session before the advent of COVID-19. As a result, the usual updating of knowledge in other health related issues that would have been beneficial were side-lined as all the training is now centred on COVID-19. This has an impact on the broad knowledge that can be accrued to health workers in other aspects of health. (Oriola Kuburat Temitope, CHWs, female, Ogun).

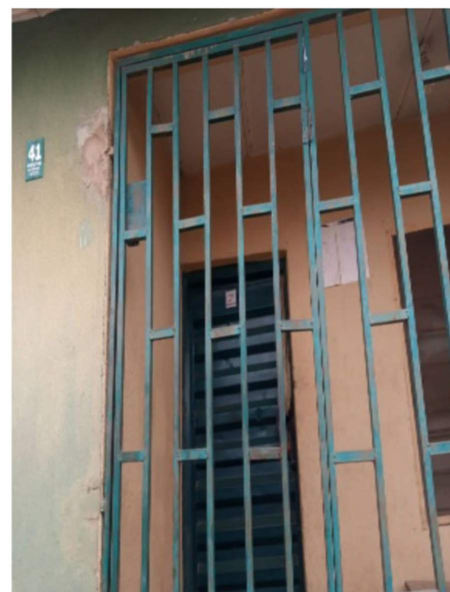

Figure 16. A neighbour of mine tested positive to COVID-19 after returning from a burial and people stigmatised me when distributing medicine because I lived close to the woman who was positive, and this affected my work as I could not distribute medicines during this period and some community members refused to collect the medicines from me, I felt sad about this and saw that COVID-19 affected my work as a CDD in distributing medicines. (Yusuf Kabirat, CDD, male, Kwara).

Figure 15. As a CDD School closure caused by the pandemic hindered the annual distribution of drugs like Mectizan, Melbendazole and Praziquantel in schools because the target children who are to be given are not available in school. (Babatunde Sarafadeen, CDD, Kwara).

Figure 17. Due to the false rumour spreading around the society that chloroquine is a cure for COVID-19, the drug became scarce and this caused an increment in prices of drugs especially those that are COVID 19 related such as the cough drugs and malaria drugs. This really affected my patients because they had less income as they couldn't afford to buy drugs or even pay their full hospital bills. This worries me as I am to always proffer solutions to my patients' concerns but I always advise them on what to do and to also keep safe. (Ibrahim Shaibu, CDD, male, Kaduna).

Misinformation related to cures for COVID-19 also hindered the ability of some CDDs to provide care for community members as there were subsequent medicine shortages and price increases (Figure 17). CHVs also mentioned that initially many community members did not believe in COVID-19. However, awareness campaigns were successful in dispelling myths through different platforms, including megaphones and radio campaigns, resulting in behaviour changes as many community members started to

Figure 18. This is my radio. When the COVID-19 started in March, 2020 and government announced lockdown, people in the community didn't actually believe it, they thought it was a joke until there was awareness on the radios about covid-19 guidelines … I am happy with the Ministry of Health for giving us megaphones to announce all over the community that the disease is real and has no cure yet but can be prevented by maintaining good hygiene wearing nose masks and washing our hands. (Saburi Adeniji, CDD, male, Ogun).

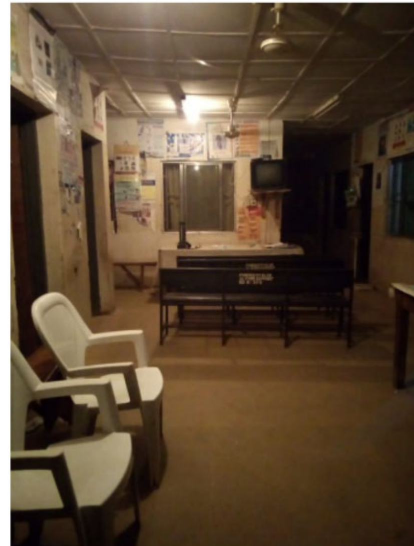

Figure 19. This is the clinic where I work and it was quiet during the first COVID 19 lockdown. Due to the news of COVID, people are afraid to come to the clinic most especially in the day and also at night. This made my work less stressful but as soon as the lockdown was eased, so many patients came to the clinic and the workload doubled. (Jumoke, CHW, male, Kwara).

Figure 20. COVID 19 has increased our workload and during lockdown and even now we were not given any additional allowance to buy the necessary tools for protection as a Frontline health worker. So I always use my money to buy hand sanitizer, gloves and nose masks to protect myself against COVID 19. This should not be the case at all. I believe health workers should be encouraged with allowances. (Jumoke, CHW, male, Kwara).

follow COVID-19 protocols (Figure 18). Gradual behaviour changes improved relationships with community members and CHWs and supported routine service delivery.

Increased workload

Increased workload among CHWs, CHVs and CDDs was widely experienced due to staff shortages. Workload stress heightened after the lockdown was lifted, as many patients began to reattend clinics, resulting in increased pressure on staff (Figure 19). Once the lockdown was lifted, many CDDs mentioned having to resume mass administration of medicines while also working on COVID-19 awareness campaigns.

> As a CDD, I am overworking myself and I am tired, the workload is too large for me to finish and there isn't any transportation support. (Abdulbasid, 26 y, CDD, Kaduna)

Lack of resources

A major challenge faced by CHWs, CDDs and CHVs was the lack of availability of transport, PPE, lights and lab equipment. Several health workers mentioned having to buy their own PPE, which is expensive (Figure 20). They also reported the difficulty they experienced getting to their places of work, particularly during the lockdown, as there was no means of transportation. CHWs mentioned sometimes spending more than half of their working hours trying to get to places of work and others could not go to work at all because transportation was not available (Figure 21). Inadequate bed spaces, ambulances and other related equipment to attend to patients added to health worker pressures and maintaining physical distancing was not possible.

Theme 3: motivation and support from the community

Pride in role

Despite the stress and challenges exacerbated by the pandemic, pride and feeling joy in their roles was expressed among the

Figure 21. I am a health worker and I need to report to work every day but most times during the lockdown I do trek long distances before I could get someone to assist me to my work place because I am not mobile. Many times I had to trek for miles which led to my lateness to work and my patients often complain about it but I do not have any other choice. It will be a nice idea if the government give health workers cars and they pay back in instalment or possibly provide staff bus to help health workers when there are restrictions. (Fatimah, CHW, female, Kwara).

Figure 22. This is my community where I work. During the lockdown, our clients couldn't make it to the clinic for their children's immunization, so we had to go to the community and follow them house to house to immunize their children. I am happy with my community because they give me 100% support. I also give them health talks on hand washing and wearing of face masks to prevent them from contracting covid-19. (Katumi, CHV, female, Kaduna).

CHWs, CHVs and CDDs across all states. This was particularly the case when they could see patients listen and adhere to their advice (Figure 22). CDDs also mentioned viewing their role as their way to give back to the community (Figure 23). A CDD in Kwara mentioned being regarded with respect in the community and the importance of leading by example. For example, he described ensuring that he and his family adhered to COVID-19 protocols, such as wearing masks and using hand sanitisers, despite the added financial cost (Figure 24).

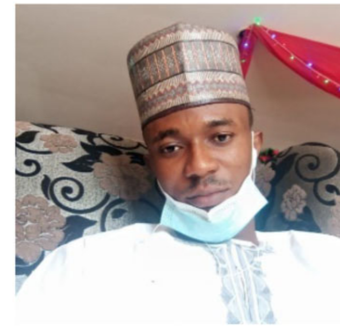

Figure 23. I volunteered myself to be a drug distributor to help the young ones in my community get the drugs that can prevent them from getting the diseases that are common in our environment. This is my little way of giving back to my community. When I distribute drugs, I first educate them on the importance of the drugs to their body system and when the drugs are administered, I keep my records. (Babatunde Sikinillahi, CDD, male, Ogun).

Figure 24. These are my children and I always buy them nose masks and sanitizers. People in the community know my role in the health sector and as such I always lead by example by ensuring that I and my children use face mask. I know it's a good thing to protect them but it's also affected my finances as this was not planned for. (Ibrahim Rauf Atata, CDD, male, Kwara).

Community support

Support from community leaders was highlighted as being key to building community awareness and acceptance of COVID-19 guidelines, motivating CHWs to continue in their work. Many CHWs conducted training and held sensitisation meetings with community leaders and wanted to continue to engage with them, as they hold positions of trust and respect within communities (Figure 25). CHWs also mentioned being grateful to the Ministry of Health for providing information, education and communication (IEC) materials, such as posters, as these were effective in promoting health messaging within the community and reducing the burden on health workers (Figure 26).

Discussion

CHWs, CHVs and CDDs have been at the forefront of the COVID-19 pandemic response, often at high risk of exposure to the virus

Figure 25. During the COVID-19 pandemic, village heads supported the PHC to maintain the COVID-19 rules and regulations in the hospital and assure to help the community, this was a great support to us and made me happy as this makes my work easier as a health worker. You can see us observing social distancing and wearing nose masks. We were sensitizing them about COVID-19 and on how they should go back to the community to enlighten their people about COVID-19. (Ummulkahir, CHW, male, Kaduna).

Figure 26. This poster speaks well, the government should have them in worship places and schools so that people can see and read and be able to adhere to the covid-19 protocols this will reduce our workload as health workers. (Regina, CHW, female, Kaduna).

as well as witness to the unprecedented magnitude of COVID-19-related deaths and morbidity.[18] This study depicted the real-time experiences of CHWs, CHVs and CDDs working in Nigeria during COVID-19 from their own perspectives. Conducted at the peak of COVID-19, this was timely in order to adequately understand health worker experiences. There is now increasing recognition of the emotional and psychological well-being of health workers and studies have shown that health workers face unprecedented pressure.[19] In our study, participants' emotional responses and sense of threat arose from their concerns for their own health and that of their loved ones, employment and disruption of their children's lives. These findings are in line with those from previous studies conducted during the COVID-19 outbreak pointing to a variety of concerns among research participants, including health anxiety, personal health, the threat to loved ones, virus spread and economic and societal consequences.[20,21]

We have synthesised our findings within an adapted version of the framework of CHW performance by Kok et al.[22] They argue that in many LMICs, CHW performance is shaped by the interplay of systems hardware (e.g. human resources, financing and governance), systems software (e.g. relationships, value, power and norms) and broader contextual factors such as health systems policy. We have adapted this framework to show the alignment of our findings across core domains, illustrating a key overlap in the relationship between CHW performance and CHW well-being as presented in Figure 27. Within our adapted framework, system hardware factors that were identified as barriers to well-being by CHWs within this study were health worker shortages and gaps in resources and materials such as gloves, hand sanitizers, PPE and medicines. Gaps in resources added to the anxieties faced by CHWs, as also highlighted by Temsah et al.[23] System software factors shaping well-being were closely related to major stressors and challenges experienced during COVID-19, including fear of contracting COVID-19, food insecurity and concerns about their children's education and broader family well-being. These stressors were mediated by gender, particularly for women CHWs, who often had to balance the role of being a wife and mother with the burden of being involved in a pandemic response. Findings related to fears of contracting COVID-19 and subsequently transmitting it to family members are similar to those reflected in several studies across multiple settings,[15,24,25] and in some cases led to CHWs not being able to complete their work. Weaknesses within systems hardware and software exacerbated or created by COVID-19 presented challenges for CHWs, CHVs and CDDs in terms of their ability to provide routine care to communities, which in turn added additional stress and concern, further compromising well-being. For example, heavy workloads, a lack of necessary equipment and the stigma experienced by communities frequently led to inadequate service provision. However, some of these impacts were mediated by the existing strength of community relationships (software) and ongoing community support that kept CHWs, CHVs and CDDs motivated to continue to deliver health services, as was their 'sense of duty' to their communities.

Our findings reveal similar experiences of CHWs across Ogun, Kwara and Kaduna States, providing unique insights into how the Nigerian health system was impacted and how this closely aligns with the performance and well-being of CHWs. As Dean et al.[26] argue, the well-being of health workers and 'psychological impact cannot be reduced to personal resilience, rather it becomes linked to dynamic interactions between an individual and the structural and social circumstance within which they live and work' (p. 1). Our findings support this statement, highlighting that the experiences, performance and well-being of

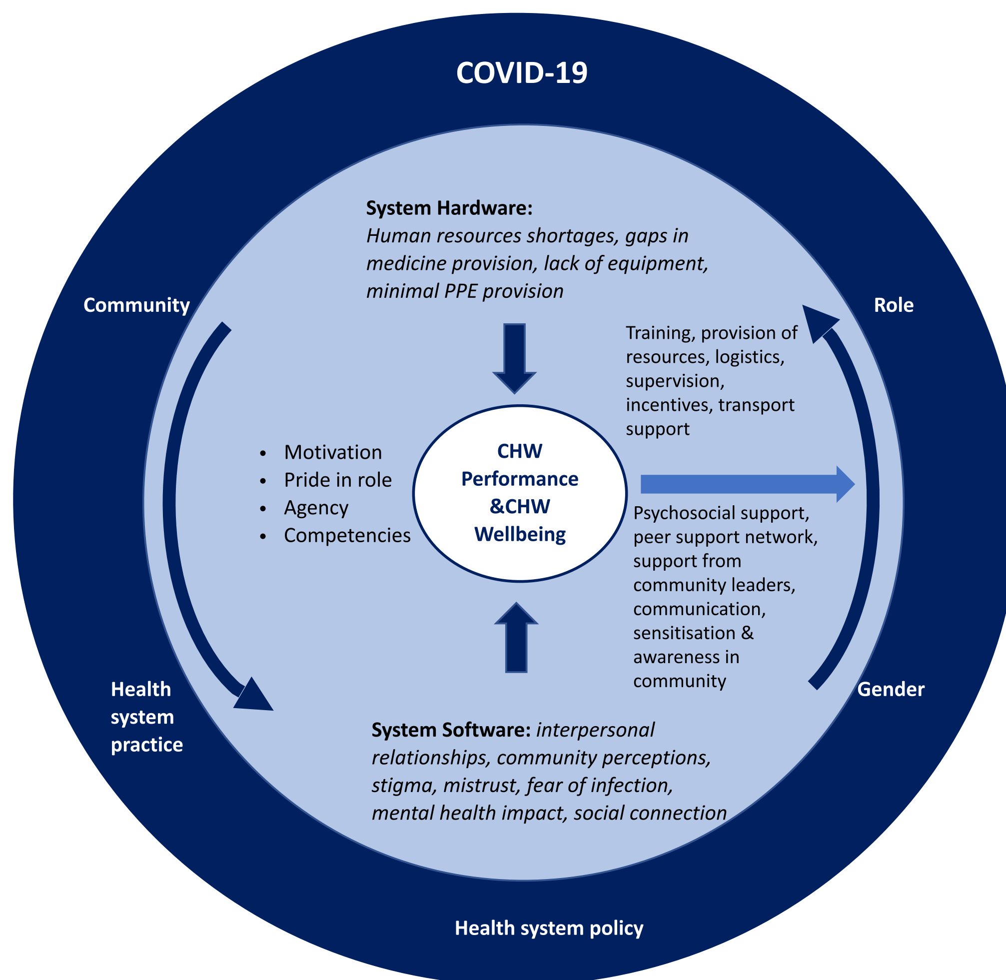

Figure 27. Framework of CHW performance and well-being during COVID-19 in Nigeria (adapted from Kok et al.[22]).

CHWs in Nigeria are intrinsically linked to broader health system structures as well as the broader social and contextual environment. For example, as highlighted in a previous study exploring factors associated with financial and food security in Nigeria during the first wave of COVID-19,[27] challenges stemming from imposed lockdowns caused social and economic disruptions that affected business and led to a lack of food as markets were closed. This broader contextual change directly impacted the well-being and performance of CHWs engaged within our study, with the ultimate consequence being health service provision. Further, the disproportionate impact on women CHWs, particularly in LMICs, has been documented in a scoping review by Morgan et al.,[28] and is largely attributed to the increased caregiving burden that was experienced by many during the pandemic. Thus, working to support all CHWs through gender-sensitive policies and processes that are responsive to changing and emerging contexts during health system shocks is essential to ensure the well-being of CHWs. Given the clear overlaps between well-being and performance presented within this study, and the key service delivery role that CHWs play, particularly during health system shocks, such support approaches must be delivered in a timely fashion to simultaneously support the emergency response and routine service delivery as far as possible.

Our findings illuminated key issues that led to inform the co-development (with participants) of recommendations and ways to support health worker well-being and motivation during COVID-19 and other health system shocks. The recommendations are structured according to the main thematic areas as documented in Table 2 and included as mitigating factors in Figure 27.

Strengths and limitations

We found photovoice to be an effective participatory methodology that enables participants to depict their conscious and unconscious views or feelings. These photos expressed more meaning than words could convey. The dynamic nature of photovoice allowed for prompting of further dialogue with the participants as the photos guided discussions. As stated by Zurba et al.[29] and Oss

Table 2. Recommendations

Theme 1: major stressors and challenges experienced due to COVID-19

- Prioritise and acknowledge the well-being of health staff. Routine supervision and peer support should be accessible.
- Provision of psychosocial support. Create a support network or forum for health workers where experiences and issues affecting each other can be shared in a safe, supportive space; this could be organised locally in person or on online platforms, such as WhatsApp groups.
- Capacity building and training on a regular basis will aid health workers with updated knowledge on COVID-19, safety precautions and routine health provision. Increase opportunities to attend health courses, seminars and workshops. Capacity building will aid in adequately preparing for future pandemics.

Theme 2. Impact of COVID-19 on providing routine care

- Adequate provision of PPE as well as other necessary clinical tools and materials such as gloves, sanitizers, cotton wools and antiseptics to help ease the work of health workers.
- Support for transportation for health workers to help them access their facilities easily. In cases of curfew, staff buses and motorbikes should be made available for easy accessibility, especially to the health workers who need to travel long distances to remote areas.
- Health worker administrators should ensure that health staff are posted to clinics that are short distances from their homes for easy access to the health facility where possible.
- Recruitment of more health staff to ease the burden of workloads and fill any gaps in service delivery.
- Remuneration and adequate allowance of frontline health workers is strongly recommended in order to motivate them for efficient service delivery and, in the case of CDDs, to encourage others to join in the distribution of drugs.

Theme 3. Motivation and support from the community

- Timely awareness of disease outbreaks and its safety rules should be made known to the public to prevent rapid transmission in communities as well as for health workers. Health education and awareness on hygiene practices to patients and the public should continue after COVID-19 in collaboration with community leaders.
- The public should also be sensitised on NTDs and the drugs to use for prevention to support CDDs, as some people in the community refuse these drugs because of inadequate sensitisation and awareness.

et al.,[30] the use of photovoice has been described as the modest way of entering the space of individuals when questions are asked for more clarification of the problem of interest. This process of reflections from photovoice activity, as opined by Budig et al.,[31] triggers participants into more productive thinking, as this does not change the participants view, but broadens it. Thus participating in the whole process of photovoice gave a sense of ownership of their own stories as participants mentioned that it was the first time they had been asked, as health workers, about their own well-being. Many participants expressed that photovoice allowed them an opportunity to use photography to tell their own stories and provide a space for reflection, particularly during the height of COVID-19. The photos and findings were presented in meetings where stakeholders such as the federal Ministry of Health NTD program and state and LGA officers were present, and it sparked discussion around many of the issues raised. It provided a unique opportunity, as CHWs directly shared their experiences as co-researchers on a platform in a way they had not before, particularly among a wider audience. This active engagement of research participants in the research process demonstrates that they are valuable members of the research team.[31]

However, some of the limitations faced during the data collection process with photovoice included the inability to have frequent face-to-face contact with participants due to the need to observe strict COVID-19 protocols. We adapted to remote methods, and a consequence of this included challenges such as participants losing their phones and maintaining network signals. Working remotely also presented a limitation, as it excluded participants who did not have access to smartphones. Other limitations experienced were related to some initial drawbacks from participants due to issues relating to privacy, anonymity, cultural obligations, unfamiliarity with the photovoice process and some concerns relating to job security. Training and support were provided for participants throughout the process. Informed consent and the ability to withdraw participation if desired were upheld throughout the research process. However, no participants declined participation and the use of full and anonymised names as consented to by the participants was adopted. This enabled the photovoice data collection process to be effective, interesting and revealing.

Conclusions

COVID-19 highlighted the burden health workers often face in usual circumstances but that were exacerbated during the pandemic working in intense and unprecedented conditions. Photovoice allowed a space for frontline health workers to come together to share common experiences, particularly the psychosocial impact of working during health system shocks. Sharing stories from the perspectives of health workers provides a platform to share learning and strategies on how to best support health workers holistically. Key findings emphasise how intrinsically linked CHW well-being and performance are, revealing that CHWs and CDDs were passionate about their roles and willing to be at the forefront of the response. Despite this commitment, CHWs face many challenges, including fear of contracting COVID-19, stigma and inadequate resources, that not only impact their well-being, but, over time, shape their desire and ability to complete their roles. This study emphasises the importance

of prioritising the well-being of CHWs and the need to support them within the wider social structures in which they work.

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Ethical approval: Ethical approval was obtained from the Liverpool School of Tropical Medicine Ethics Committee (20-069) in September 2020 and the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-24/09/2020) in December 2020. Before any data collection, the study was explained to all participants in their preferred language through information sheets. If participants were willing to take part, a written consent form was obtained or verbal consent (audio recorded) was recorded. All participants were given the right to withdraw from the study at any time.

Data availability: None.

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