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The impact of COVID-19 on HIV care: a comprehensive analysis of patient and healthcare providers experiences at the largest HIV treatment center in Ghana

Peter Puplambu^{1,2}, Justice K. Baah¹, Karl Osei Afoduo¹, Bright A. Adjei¹, Araba Abaidoo-Myles¹, Victor G. Davila-Roman³, George B. Kyei^{1,3,5*} and Collins S. Ahorlu^{4*}

Abstract

Background We sought to determine how the COVID-19 pandemic affected care delivery for HIV patients in Ghana.

Methods Guided by the Consolidated Framework for Implementation Research (CFIR), we performed a cross-sectional study between May and July 2021 among 40 people living with HIV and 19 healthcare providers caring for HIV patients. In-depth interviews and focus group discussions were done with HIV patients, doctors, nurses, pharmacists, laboratory scientists, data scientists, administrators, and counselors to ascertain barriers and facilitators to HIV care during the pandemic. We asked for their input on removing barriers to care during this and future pandemics. Data was analyzed thematically with the help of the qualitative software MAXQDA.

Results Pre-pandemic practices, such as using cards for appointments and making phone calls to patients, and intra-pandemic measures, such as re-arranging the clinic setup for patient safety, contributed to clinic attendance. However, the fear of infection, transportation costs, and fear of stigma impeded clinic attendance. Patients spent less time in the clinic because stable patients received medication refills without seeing the doctor. This meant many patients with chronic diseases like hypertension, diabetes, and hyperlipidemia did not get the necessary physician review during the pandemic's peak. Due to pervasive stigma, patients were cautious about home delivery of medications and telemedicine solutions.

Conclusion While solutions like telemedicine and home visits may work for primary care or other chronic conditions during pandemics, stigma makes these interventions unattractive options for many HIV patients.

Keywords HIV, COVID-19, Patient, Impact, PLWH

*Correspondence:

George B. Kyei
g.kyei@wustl.edu
Collins S. Ahorlu
cahorlu@noguchi.ug.edu.gh

¹ Medical and Scientific Research Centre, the University of Ghana Medical Center, Accra, Ghana

² Department of Medicine and Therapeutics, University of Ghana Medical School, Accra, Ghana

³ Department of Medicine, Washington University School of Medicine in St. Louis, St. Louis, MO, USA

⁴ Department of Epidemiology, College of Health Sciences, Noguchi Memorial Institute for Medical Research, University of Ghana, Accra, Ghana

⁵ Department of Virology Noguchi Memorial Institute for Medical Research, College of Health Sciences, University of Ghana, Accra, Ghana



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Introduction

The Coronavirus disease (COVID-19) pandemic caused by the SARS-CoV-2 virus put enormous strain on healthcare systems worldwide, especially in developing countries where systems were already fragile before the pandemic [1–3]. In low- and middle-income countries (LMIC), preparations for COVID-19 diverted scarce resources needed for chronic non-communicable diseases (NCDs) such as hypertension and diabetes. It also affected resources for endemic infectious diseases such as malaria, tuberculosis, and the human immunodeficiency virus (HIV) [2, 4]. More people in Africa were expected to die from the neglect of HIV and NCDs than COVID-19 during the pandemic, presenting a significant public health challenge [5].

For instance, when Ghana had its first case of COVID-19 on March 12, 2020, the government mobilized massive resources for testing and contact tracing and designated treatment/isolation centers to contain the spread [6]. This resulted in a resource diversion that significantly strained a fragile healthcare system. The few physicians who spent most of their time on HIV care were now occupied with SARS-CoV-2 infected individuals, leaving a vacuum in HIV care. People living with HIV (PLWH) missed appointments at their HIV care clinics, likely because they feared getting infected with COVID-19 while seeking care [7]. There was also the lockdown from March 30 to April 19, 2020, which prevented many patients from traveling to the clinic [8, 9]. At the largest HIV treatment center in Ghana, a portion of the clinic space was appropriated for COVID-19 care. There is evidence that at the pandemic's peak, there was a decrease in the number of patients presenting to hospitals due to emergency conditions such as acute myocardial infarction [10–12]. Failure to obtain follow-up at the clinic puts PLWH at high risk of developing HIV drug resistance that could increase morbidity and mortality. In addition, neglecting their co-morbid NCDs puts them at high risk for stroke, heart attacks, and kidney and heart failure [13, 14]. Therefore, it is critical to determine patient and provider barriers and facilitators for clinic follow-up visits during epidemic outbreaks like COVID-19.

Most PLWH in sub-Saharan Africa are virally suppressed on antiretroviral therapy (ART) [15]. As a result, PLWH are no longer dying from AIDS but from complications of chronic NCDs such as hypertension, diabetes, and heart disease [16]. PLWH in Ghana are becoming older, with 60% aged between 40–55 years [17]. The 2014 Ghana Demographic Health Survey showed country-wide hypertension rates of approximately 33% among 45–49-year-olds [18]. A study in Ghana showed the prevalence of diabetes, hypertension, and hypercholesterolemia among PLWH were 5%, 9%, and 29%, respectively,

much higher than the comparative group [19]. PLWH may choose to default clinic visits for fear of contracting COVID-19 [20]. These fears are not unwarranted because the crowded nature of the clinics and the long waiting times are important factors that increase the chances of COVID-19 transmission. We focused on HIV as a model system because, unlike other infectious diseases, HIV requires lifelong medications to suppress the virus, just like NCDs often need daily medications for management. In addition, PLWH may have concomitant NCDs such as diabetes, hypertension, and dyslipidemia, which place them at an additional high risk for morbidity and mortality [21]. Furthermore, PLWH are often marginalized, and their needs and concerns are likely to be ignored in times of stress to the healthcare system [22]. Therefore, HIV is an excellent model to study both infectious disease and co-morbidities care in the setting of a pandemic. In this study, we adapted the Consolidated Framework for Implementation Research (CFIR) to determine how the COVID-19 pandemic affected care at the largest HIV treatment center in Ghana. The CFIR has thirty-nine constructs grouped into five domains consisting of intervention characteristics, outer setting, inner setting, characteristics of the individuals involved, and the processes of implementation [23, 24]. The framework has been used to compare results across cultural contexts, including multiple HIV research studies in Africa [25, 26]. The CFIR is an excellent conceptual framework for this study because it is flexible and can be tailored to analyze issues like service provision and the barriers and facilitators to care evaluated in this work.

Methods

Study design

This cross-sectional study used semi-structured, in-depth qualitative interviews and focus group discussions (FGD). The Consolidated Framework for Implementation Research (CFIR) guided the development of the data collection tools. The interviews and FGDs were conducted among 40 PLWH and 19 healthcare providers, defined broadly to include doctors, nurses, counselors, pharmacists, laboratory scientists, data officers, and administrators caring for HIV patients. The semi-structured, in-depth interviews were to identify factors that promote or impede clinic attendance during the COVID-19 pandemic. The FGDs were used to provide potential implementation strategies to preserve care during this and future pandemics. The interview guide was prepared explicitly for this study and is available in Supplementary Files. The tools were pretested in a similar setting, and the result was used to refine tools before the commencement of the actual study. We chose the qualitative approach because in-depth with patients and

healthcare workers to discuss their opinions and feelings would likely reveal more profound insights and yield new research questions.

Study site

The study was based at the Fevers Unit of the Korle-Bu Teaching Hospital (KBTH), University of Ghana Medical School. This houses the largest HIV care center in Ghana, providing care to approximately 26,000 PLWH, the majority of whom are females. The data was collected from May to July 2021.

Sampling

The study used purposive sampling, in which healthcare providers and patients coming to the clinic were approached individually and asked if they wanted to participate. Those who agreed underwent written informed consent in a private area, where individual interviews were performed for forty to sixty minutes. The Fevers Unit operates three weekly clinics on Monday, Wednesday, and Friday. Patients visit approximately every three months. Individual interviews were performed for 40 PLWH, and 19 healthcare providers (1 doctor, 5 nurses, 4 counselors, 3 Pharmacists, 2 laboratory scientists and 4 data officers and administrators). Two focus group discussions, each lasting about 90 min, were held for 20 participants who did not participate in the individual interviews. This comprised ten PLWH in one group and ten healthcare providers in another group. The ten healthcare providers for the FGD included three males (a physician specialist, a health educator, and a research officer) and seven females (three nurses and one each a pharmacist, biomedical scientist, data analyst, and administrator). The common factor that brought the healthcare providers of varied categories together was that they all cared for HIV patients. We purposefully chose the healthcare provider participants to ensure diversity in opinion. For patients, the ten included six females and four males in keeping with the clinic female-to-male ratio of 2:1. During the focus group discussions, participants were asked to list and prioritize potential implementation strategies to increase clinic attendance based on perceived importance and feasibility. Doctors, nurses, counselors, and administrators working in the Fevers Unit were eligible for the non-patients. For patients to be eligible, they had to be eighteen years or older and able to give informed consent. Patients under 18 were excluded due to the challenge of getting parental consent, as some come to the clinic unaccompanied.

Data collection and analysis

Trained qualitative research assistants conducted in-depth interviews in participants' preferred language

(i.e., English, Twi, Ga, etc.) in designated private rooms. Notes were taken during data collection to complement the audio recording. The audio-recorded interviews were transcribed directly into English. Quality was ensured by having two persons perform the direct transcription independently. The two transcribers then compared notes to agree on any differences between them under the supervision of the last author. There were very few discrepancies between the two trained qualitative research staff. A systematic debriefing with the research assistants, a review of their field notes, and a reading of transcripts were done as they became available. A qualitative analysis software (i.e., MAXQDA) was used to facilitate the organization of transcripts for coding using deductive and inductive approaches in line with the CFIR adapted for this study. The inductive analysis was done by performing content analysis on the dataset to observe specific concepts and patterns and develop thematic areas of interest. In contrast, deductive analysis starts with predetermined themes and concepts that were looked for while performing content analysis on the dataset. We primarily did free format coding within the data set and prepared no code book beyond using the question numbers as the initial thematic codes. The coding framework was refined through team-wide review to group codes into categories and develop themes. A narrative content analysis that involves reading each interview without regard to individual codes was also done to look for patterns and emerging themes. Content analysis was done on emerging themes, considering the divergent views, and then selected the most representative quotes, representing both majority and minority positions for presentation.

Results

Participant characteristics

Participants' characteristics are presented in Table 1 below. Briefly, there were more women (42) in the study than men (17), comprising of 40 PLWH and 19 health caregivers. The age of PLWH participants ranged between 34 and 70 years (mean age 49.1, SD \pm 5.89). They were diagnosed with HIV for an average of 11.5 years, ranging between 18 months and 19 years, and have been receiving ART treatment for about 9 years on average. The health caregivers were aged between 27 and 52 years (mean = 35.9; SD = \pm 7.33) and had been working at the

Table 1 Characteristics of participants in individual interviews

Type of respondent	Female	Male	Total	Mean age
PLWH	29	11	40	49.1(\pm 5.89)
Healthcare providers	13	6	19	35.9(\pm 7.33)
Total	42	17	59	

HIV clinic for an average of 7.6 years, ranging between 1 to 23 years.

Services provided at the Fevers Unit (FU) before and during COVID-19

In accordance with the CFIR components of intervention/service characteristics and process, we asked healthcare providers about the services offered at the FU and other related service delivery characteristics. According to the healthcare providers interviewed, the Fevers Unit provides ART and related services to patients, including serving as their primary care for comorbidities like hypertension and diabetes. The clinic also has a laboratory to perform blood tests such as full blood count, chemistries, and viral load testing. Clinics are held on Mondays, Wednesdays, and Fridays starting at 8 am. Patients are given appointments for the visit dates but no time slots. As a result, many patients show up early in the morning to join the queue to be seen by their healthcare providers. If patients cannot make their appointments, they call the clinic secretary to reschedule. Upon arrival, patients have their vitals taken, see the doctor for evaluation, and are referred to the laboratory, counseling, or other services as needed. There were a few differences in service organization during the pandemic. First, the space available for patient evaluation was reduced as part of the clinic space was cordoned off to see COVID-19 patients. Second, standard COVID-19 prevention measures were instituted. Finally, priority was given to medication refills at the Pharmacy instead of in-depth physician review. The following representative quotations from healthcare providers aptly represent the services being offered at the FU to HIV patients:

“So, the services provided for people living with HIV is adherence counseling, before initiation counseling, disclosure counseling, and monitoring. [...], dispensing of antiretroviral drugs [...] PMTC, that’s the prevention of mother to child transmission counseling to the pregnant mothers who visit our unit” (40-year-old female healthcare provider).

“Well, for persons living with HIV, we give them comprehensive HIV care and management, which comprises of HIV testing and counseling, [...]. We give them adherence counseling and follow-ups with what we may call ‘reinforcement counseling’ or ‘enhancement adherence counseling’ [...]. We have a laboratory that conducts viral load and other tests. If they have any other conditions requiring specialists’ attention, they are referred to them. We also give psychosocial and spiritual support [...]. Those with psychiatry challenges are referred to the psychia-

trist” (37-year-old female Healthcare provider).

Booking appointment for treatment

Healthcare providers reported that the length of a patient’s appointment time hinges primarily on how well the patient is doing with their HIV treatment. Patients with four-month appointment schedules pick their medications three times a year, while those with six-month appointments pick their medicines only twice a year. A critical consideration for this is the viral loads of the individual patient. The following narratives captured these views adequately:

“[...] So, a patient who is not sick just picks up medication three times a year from the unit [...] four-monthly appointment. Some people have a six-month appointment twice a year. However, all patients must take lab tests once every year [...]. So, you come and pick the medication on your appointment day and see the doctor, but for those who are sick or not doing well on the medications, they come regularly, even monthly” (36-year-old female healthcare provider).

Many HIV patients confirmed the information provided by healthcare providers on clinic appointments. They mentioned that the FU gives them appointment dates for their next visit. Although the facility is open to receiving new patients without appointments, established patients are expected to adhere to the dates indicated on their hospital cards for their next visit. No time is indicated on the appointment card for the visit date, so most patients are seen on a first-come, first-served basis. Patients reported that when they cannot attend the clinic on the appointment date, they are expected to call the facility to explain why they will be absent and ask to be rescheduled for another date. These views were represented in the following narratives:

“What they do is that, when you come, they give you a card with your next appointment date on it, which serves as a reminder. [...], you have the card with you, so you must only make sure that you go by your date” (47-year-old female HIV patient).

Planning for clinic days with COVID-19 in mind

Healthcare providers reported that clinic days for PLWH are scheduled to address their individual needs effectively. They noted that, in addition to the usual pre-pandemic clinic day preparations, they now ensure that rooms are disinfected and that soap, running water, and hand sanitizer are readily available. These points were reflected in the following responses:

“[...] in preparing for our clinic days, we usually make sure that there are enough drugs [...]. We usually disinfect our surfaces, so we must ensure that we have enough disinfectant and hand sanitizers. We also have a Veronica bucket handwashing station outside [...], there is soap and paper towel (tissue) before the patients come in. [...], in the waiting area too, we make sure that the arrangements are made such that there is enough space for social/physical distancing, so we have extended our waiting area to the corridor so that it can accommodate more patients [...]” (28-year-old female healthcare provider).

Treatment adherence

Patients reported that it was sometimes difficult to strictly adhere to the treatment plan, especially at the initial stages, since ART needs to be taken daily. Some reported that they had overcome the initial difficulty in adhering to treatment, and taking ART has become routine. These situations had not changed with the pandemic. The following quotes represent the positions of patients on adherence:

“Taking (swallowing) drugs is not easy, especially these drugs; you know they are big. So, taking it is not easy, but you must prepare your mind if this is what you must take to live for the rest of your life, then you must do it” (47-year-old female HIV patient).

“When I first started to take the drugs, it was difficult for me, but now, I don’t think about it” (52-year-old female HIV patient).

Providers’ perspective on patients’ health-seeking behaviors

Health providers maintained that some patients are aware that defaulting on treatment may have dire consequences for their health, even death, so most of them are serious about their medications before and during the pandemic.

“I’ll say, because some of the patients understand that without the medications, they can easily die, they keep to their schedule, and when they miss a drug collection schedule, they treat it as an emergency, [...]. When they miss the drugs, they feel that something serious might happen to them” (30-year-old female healthcare provider).

“Most of them are serious, but there are one or two, you know. Sometimes, when you probe, you realize that some of them may be doing well physically but not adhering to treatment. Some may also be fine, but

they are tired of taking medicine. [...] some will tell you that they are sick and tired of swallowing more medicines, but we still need to encourage them and let them know the importance of the adherence to medication” (30-year-old female healthcare provider).

Patient satisfaction

Generally, the patients interviewed indicated they were satisfied with their care at the FU, where they received ART before and during the pandemic. The following quotes supported this position:

“Even with COVID, they still treat us very well. They are very gentle with us” (48-year-old female HIV patient)

“I like how they communicate with us, asking us about what other issues we have, and they are concerned about what they can do to help us” (55-year-old male HIV patient).

Healthcare providers supported patients’ views on treatment satisfaction, noting that the Korle Bu Fevers Unit is regarded as the best in Ghana, suggesting that patients receiving care there are likely satisfied. Our findings indicate that due to the high quality of care provided at the unit, patients often return even after being transferred to other facilities closer to their homes. However, some healthcare providers acknowledged that long waiting times on certain clinic days might cause patient dissatisfaction. These perspectives were reflected in the following narratives from healthcare providers:

“Our quality of service is good. [...], we transferred patients, and they returned that they didn’t like the other places. It is not only about medicine or collecting drugs, it involves more than that” (37-year-old female healthcare provider).

Effect of COVID-19 on clinical care and treatment

Most healthcare providers interviewed indicated that the pandemic had affected health-seeking behaviors, especially for those with chronic illnesses that need regular medical attention. Patients showed up in the clinic to pick up their medications without getting their vitals taken or getting examined by their doctors. They were worried that for patients with comorbidities such as hypertension and diabetes, this was suboptimal. Some patients missed appointments altogether, while others accepted referrals to facilities nearby. The following narratives captured these sentiments:

“Because of the COVID-19, some people [...], now visit clinics closer to their homes to restock their

drugs and are given different appointment dates. If you are unable to go to your usual clinic on the appointment date, they encourage you to take a transfer to a clinic closer to where you live" (48-year-old female HIV patient).

"[...], they used to check my weight, then they tie my arms (demonstrating how it was done), after which I see a doctor, who sometimes ask for a lab test, after which I go back to the doctor" (52 years old female HIV patient).

"Some patients took advantage of COVID-19 to default by missing their appointment dates, especially during the lockdown. [...], the police were checking everyone to know where they were going by asking them questions [...] and HIV patients will not want to talk about their condition" (36-year-old female healthcare provider).

"Positively, some people transferred to clinics closer to them. We have many people attending the clinic here at the fevers unit. Sometimes, we get about 150 patients on a clinic day. There are days that we are blessed to see only 70 people. [...]. Our lowest number is always above 50, so we were encouraging people to transfer to clinics that are closer to their homes, but they refused. Now COVID-19 has made it difficult for some of them to come here, so they came for transfer to clinics nearer to them" (36-year-old female healthcare provider).

Facilitators of clinic attendance before and during COVID-19

HIV patients identified various factors as promoters of their clinic attendance at the Fevers unit during the COVID-19 pandemic. These factors are presented under the appropriate subheadings below and fit into the CFIR components of inner settings, intervention characteristics, implementation, and service outcomes (See Supplementary Materials).

Availability of COVID-19 PPEs and the adherence to COVID-19 prevention protocols

When PLWH were asked why they keep coming for treatment despite the dreaded COVID-19, they indicated that they have confidence in the FU to arrange for their protection in terms of PPEs and other COVID-19 protocols. They reported the availability of handwashing stations, hand tissues and sanitizers when they visit the health

facility for their regular check-ups and medications. These views were expressed in the following narratives:

"[...], if you do not wear your nose mask and wash your hands, they (health providers) will not allow you inside. They inspect all these protocols before allowing you to go through the procedures for your care. This is the little difference between now and before covid" (44-year-old female HIV patient).

We found that HIV patients were not comfortable wearing the nose mask and considered it the most challenging aspect of adhering to COVID-19 protocols at the clinic. This view was aptly represented in the following narrative:

"[...], we are not comfortable with the nose mask, but we must wear it. We don't have any option; it is not easy wearing the nose mask. You see, before the interview, I was asking if I should remove it. But that is how we can save ourselves, so we are wearing it" (47-year-old female HIV patient).

COVID-19 protocol adherence

Healthcare providers reported they had all necessary PPEs available and ensured the COVID-19 protocols were strictly followed. They created enough additional waiting space to promote social and physical distancing, space for regular handwashing with soap under running water, and enforced the wearing of nose masks among patients and providers. This position is captured in a representative quote below:

"Now, because of COVID-19, we need to expand the place to make sure that at the waiting area, the social/physical distancing protocol is observed to avoid contact. [...]. To avoid overcrowding at the pharmacy, we make them move in batches to observe social/physical distancing. These measures were put in place for the staff too; at a point, we were working in teams on different shifts" (43-year-old female healthcare provider).

Treatment monitoring

From the health care provider's perspective, the factors that promoted clinic attendance among HIV patients during the heat of COVID-19 were measures they were already taking before and during the COVID-19 pandemic: 1. Monitoring of clinic attendance using scheduling cards that are given to patients and copies kept at the health facility. The use of the card promoted clinic attendance because most patients would not want to be reprimanded for not keeping to their schedule and making every effort to attend clinic as planned. The card has the records of when a patient is to visit the clinic either for a

checkout or to restock their drugs, and it makes it possible for providers to know when a patient has defaulted. 2. The use of a 'monitor' that every patient must bring along at the start of ART treatment. The monitor's responsibility is to ensure that the patient takes the drugs on schedule and replenishes their stocks at the right time. Patients do not want to disappoint their monitors, who are usually someone they respect and can trust. The following narratives illustrate these positions:

"Even if your condition is not critical, you must be at the clinic to determine whether your viral load is being suppressed or increasing; that is the reason why even if you are not feeling sick [...], you must still report to the clinic so that you would be monitored" (28-year-old male healthcare provider).

"[...], before any patient is put on ART, s/he must come with a monitor to attend the first adherence counseling. It could be a close relative to whom the infected person is supposed to disclose their status. That person can monitor and ensure that the patient takes the drugs; they also contact the clinic in case anything goes wrong or in case the patient cannot attend the clinic to pick medications themselves; the monitor will be able to pick the medication for them" (36-year-old female healthcare provider).

We found that healthcare providers have used phone calls to check on patients and remind them of upcoming clinic visits to monitor treatment compliance, both before and during the pandemic. In many cases, patients are dispensed more medication than required until their next scheduled visit and any leftover drugs are counted during the follow-up appointment. Additionally, viral load tests serve as a key tool for assessing patient compliance. These practices are illustrated in the following narratives:

"[...] we check their pills to be sure that there are no leftover pills unless we intentionally give them more pills than they need till the next appointment date. When they come, we count the remaining ones to see if the leftover is as we expected to see and if the pills are more than we expect, then we know that the person is not adhering" (40-year-old female healthcare provider).

"If they are complying with treatment, it will show, especially in their viral load test results. Anytime their viral load is going high, we engage them about what is making them non-compliant." (36-year-old female healthcare provider).

Barriers to clinic attendance during the COVID-19 pandemic

From the perspective of the PLWH, HIV clinic attendance during the pandemic was impeded by the fear of contracting COVID-19, transportation costs, especially during the lockdown, and fear of stigma.

Fear of infection

As HIV patients were informed about how COVID-19 is spread and how it could be prevented, they felt more protected against COVID-19 in their homes and feared going to the hospital or clinic. However, a few reported they were not afraid of COVID-19 infection because they followed the protective protocols. The narratives below depict their views:

"I was really scared [...], you know that my immune system is already weak. So, I can pick any disease fast. So, I was scared" (54-year-old female HIV patient).

"[...], I was not afraid because I always protect myself. I wear my nose mask, this is my sanitizer, I don't touch people or try to hug anybody, and I practice social distancing as well. We also wash our hands regularly" (51-year-old female HIV patient).

As in the case of patients, most healthcare providers also mentioned that the fear of contracting COVID-19 has been a reason for some patients to default treatment by not coming to the health facility to collect their medications. This position has been presented in the narratives below:

"I believe that some people are scared [...], they are scared to come to the hospital with the notion that when they come to the clinic, they will be suspected of having COVID-19 to detain them. All these things deter people from accessing treatment at the hospital, especially for newly diagnosed HIV patients. But for the old ones, they try as much as possible to come" (29-year-old female healthcare provider).

"At the initial stage, when COVID started [...], they were afraid to come to the hospital because they felt that they will contract the disease at the hospital. [...], but we have educated them to know that if they stay away and fall sick, their immunity will be more compromised and that will make them more vulnerable to COVID-19 infections" (37-year-old female healthcare provider).

Transportation cost

Responses from HIV patient participants revealed that they spend between Gh¢8.00 and Gh¢50.00 (about \$1 to \$6) on transportation costs, either by public transport or with their private transport, whenever they attend the clinic. Some people consider this expensive, and this contributes to people missing their clinic dates. At some point during the pandemic when social distancing was enforced in buses, the prices were even higher.

“I buy 50.00 cedis fuel which is enough for a round trip for every clinic attendance and this is costly to me” (70-year-old male HIV patient).

“[...] I spend GH¢ 4 when coming here and also GH¢ 4 when going home, and that amounts to about GH¢ 8 at the end of the day, and this can be a challenge” (43-year-old female HIV patient).

Fear of stigma

Many patients reported experiencing stigma both at home and at the health facility before and during the pandemic. They expressed fear of encountering familiar faces at the clinic, which they identified as a key reason for refusing home delivery of medications or visits from healthcare providers. This perspective was illustrated in the following narrative:

“With this kind of illness, you can't be exposing yourself because the moment people get to know your HIV status, they will be looking at you and treating you differently. So, it is better we keep it a secret. Even in your own family, people will move away from you, and some people just can't keep your secret” (52-year-old Male HIV patient).

Healthcare providers interviewed maintained that patients feel stigmatized when they come to the health facility. As a result of stigma, patients mostly refuse to seek treatment from health facilities closer to their homes to avoid being noticed or seen by people they know. This situation was the same before and during the pandemic. These positions have been represented in the narratives below:

“[...] they do not want people to see them. [...], at Korle Bu, we have COVID patients close to HIV patients, so you can see that they feel stigmatized when you talk to them. They were worried about meeting others who would ask what they were doing there. [...]” (37-year-old female healthcare provider).

Some healthcare providers reported that dedicating a special unit for HIV/AIDS (fevers' unit) is stigmatizing. This is because they feel that people will see the patients and suspect they have HIV. This view was captured in the following narrative:

“Some people wouldn't mind if you take care of them in any other department, but for you to tell them to walk to the fevers unit, [...], they assume that the moment they go there, everybody will know that they have HIV” (37 years old female healthcare provider).

Many of the providers reported that to reduce stigma, before and during the pandemic, they explain to patients that the FU is not only for HIV but for other infections as well. This view is rendered in the following quote:

“[...] the fear of meeting somebody who is not going for ARVs but somebody they know but wouldn't want that person to know their status, we tell them that we don't only run HIV clinic at the unit, we do other things like counseling, so people will assume that they are coming for counseling sessions” (40-year-old female healthcare provider).

Implementation strategies to improve HIV care

Guided by the CFIR components of implementation and service outcomes, we asked both patients and providers to identify strategies that can be implemented to improve HIV care even in the face of this or future pandemics. HIV patients mentioned strategies like 'virtual patient assistance,' 'self-care training,' 'home delivery of drugs, and the establishment of a pharmacy shop within the Fevers Unit' as measures to help them receive quality care in the face of COVID-19. On the other hand, healthcare providers mentioned strategies like 'telemedicine,' 'expansion of the clinic,' and 'provision of modern equipment for the clinic' as measures to help improve care for HIV patients. These measures are briefly discussed below.

Virtual patient assistance (phone calls)

Many HIV patients believed that phone calls could be used to strengthen the relationship between them (patients) and the healthcare providers. This position was captured in the following narratives:

“I think that phone calls would be helpful, and I will be glad if something like that is started” (34-year-old female HIV patient).

“If the doctor will call me on the phone to check up

on me, that will also help” (70-year-old male HIV patient).

Self-monitoring at home

When patients were asked if they would like to be trained to check and monitor their vitals at home, most were in support. However, they would like to know if they will be provided with the equipment needed to perform those functions after the training. The following narratives represent the views of the patients:

“Yes, I would really like to be trained to do it because they all contribute to making us stay healthy” (55-year-old male HIV patient).

“[...], if we are taught how to check our blood sugar, will they provide us with the equipment to carry out this exercise? Due to the poor financial condition of some of us, even coming to the clinic on appointment days is difficult, so I will suggest that the government assist us with the equipment” (34-year-old female HIV patient).

Home delivery of medications and telemedicine

HIV patients were divided on delivering drugs to their homes. While some were in favour, others were not because they thought it might expose their HIV status to people in their homes or neighbourhoods. The following narratives represented these positions:

“Yes, that will be great because it will allow me to do other things. I must be at my shop right now, but I have closed it because I had to be here for my drugs” (35-year-old female HIV patient).

“Home visit will not help, in my opinion; when the nurses start to visit, maybe people don’t know that this is my situation (HIV patient), and when they start to come around, people will start suspecting and gossiping about your HIV status” (52-year-old female HIV patient).

“I think all over the world, there is a great shift from physical to getting things done without coming to the clinic. [...]. Assessing physical care in this time of COVID-19, I think, is not good for both patients and healthcare workers. We can work on our telemedicine, where everybody is called and interviewed over the phone to make sure everything is fine by the physician or nurses” (37-year-old female healthcare provider).

Discussion

COVID-19 has devastated the broad spectrum of human life, and healthcare service provision is not an exception. This comprehensive study provided valuable insights by leveraging all aspects of the CFIR, enabling a deep understanding of clinic conditions before and during COVID-19. The study focused on assessing the factors that promoted or impeded HIV clinic attendance during the pandemic, determining the impact of COVID-19 on HIV patient care in Ghana, and identifying novel ways to continue care for these patients. We found that factors that promoted HIV clinic attendance included the availability of PPEs and their usage at the health facility, adherence to COVID-19 prevention protocols, an appointment system, and patients feeling comfortable any time they attend the clinic. On the other hand, fear of COVID-19 infection, transportation costs, and fear of stigma were found to impede HIV clinic attendance during the initial stages of the pandemic, when there were restrictions on vehicular movement. On the positive side, COVID-19 led to reduced waiting time for patients at the clinic. It must be emphasized that the outbreak of COVID-19 led to a situation where patients were not receiving the comprehensive HIV care available before the pandemic. Implementing virtual patient assistance (phone calls), self-care training, home delivery of medications, telemedicine, and expansion of clinic area were strategies identified by both patients and healthcare providers as measures that can help improve HIV care during pandemics. However, many patients opposed home visits, fearing that visits from healthcare workers might raise suspicions among neighbours and family members about their hidden HIV status.

During the pandemic, clinic attendance was expected to reduce significantly due to the lockdown and strict implementation of the COVID-19 protocols. However, the study found that patients continued to attend clinics due to the availability of PPEs at the facility and strict adherence to the protocols at the HIV clinic. Thus, the facility made attempts to reduce the risk of exposure. A similar study in Ghana and elsewhere revealed that the health system tried to reduce the risk of exposure [27, 28]. The mode of transmission of COVID-19 made it scary for people to attend clinics for health services and even for healthcare providers to provide some healthcare services during the pandemic.

The study found that several strategies contributed to regular clinic attendance among patients. These included using appointment cards to schedule the next clinic visit, placing phone calls to check on patients and remind them of upcoming appointments, and involving monitors—usually close relatives—to ensure patients

attended their clinic visits and started ART on time. The use of monitors may have been particularly effective, as research from Africa and China revealed that newly diagnosed PLWH enrolled in care during the pandemic often faced delays in receiving timely healthcare services or experienced challenges adhering to therapy [29, 30]. For the Fevers Unit, these pre-pandemic strategies also helped during the pandemic.

When patients are comfortable with the hospital environment and healthcare providers, it contributes to their acceptance of treatment [31]. This assertion was confirmed in this study as it was reported that the clinic environment, especially at the Fevers Unit, was made comfortable for patients, contributing to their acceptance of treatment during the pandemic.

However, factors including the fear of infection, transportation cost, and fear of stigma were found to hinder clinic attendance during the pandemic. The patients saw the hospital environment, a COVID-19 center, as fertile ground to contract the infection. This brought about some hesitations among patients about attending clinics at the initial stages of the pandemic in Ghana. This reaction by HIV patients and healthcare providers was not far from reality, as some Ghanaian hospitals had high numbers of healthcare personnel affected. Studies elsewhere showed that patients saw hospitals as a risky place to contract COVID-19 infection and resisted the urge to receive healthcare services from the clinic during the pandemic [32, 33]. However, stigma and transportation costs were hindering factors even before the pandemic.

The point must be made that at the peak of the pandemic, some important services, such as checking of vitals, consultation with doctors, and admission of patients to wards that were previously provided to HIV patients at the clinic, were stopped. Thus, HIV patients during the pandemic did not receive the full complement of care. This can be linked to restrictions placed on non-emergency medical appointments as an attempt to observe physical distancing, leading to interruption in care services provided for HIV patients. During the pandemic, it was found that some staff of the HIV clinic were deployed to provide service at the COVID-19 clinic, which resulted in a reduction of staff strength at the HIV clinic. This was also experienced in many other hospitals where some clinical services were stopped because most resources, including staff, were shifted to COVID-19 control efforts.

The self-help strategies identified by patients and care providers may not work effectively, especially in a resource-challenged country like Ghana. Even in the United States, it was observed that, although telehealth services were arranged as an alternative to in-person medical appointments, the range of services provided by

telehealth services was limited [34]. Further, some HIV patients may be unable to access telehealth services for various reasons, including lack of access to technology, inclination to avoid stigma and limited knowledge of telehealth.

Study limitations

This was a qualitative study conducted in one teaching hospital. We cannot generalize the results beyond the studied population. However, we believe that findings could be used to guide the design and implementation of further studies across health facilities providing HIV care in Ghana. Though some of our respondents confessed to having missed treatment appointments, we did not design the study to compare treatment compliance and defaulters, and this must be considered when interpreting the results. In addition, we did not collect detailed socioeconomic statuses like income levels, religion, and educational levels. However, according to our previous study from the same clinic, most patients were poor and had minimal formal education [17].

Conclusions

The outbreak of COVID-19 had some negative and positive effects on the HIV care services provided at the Korle-Bu Teaching Hospital in Ghana. Patients were served on time compared to the pre-COVID-19 period. However, this was done at the expense of receiving the full complement of HIV care provided at the clinic. Measures were implemented at the clinic to follow COVID-19 prevention protocols and ensure patients' safety. At the initial stage of the pandemic, patients were hesitant to attend clinics because they were afraid of contracting COVID-19 infection. The implementation of telemedicine approaches and home delivery of medications were suggested by both HIV patients and healthcare providers as possible solutions during pandemics. However, many patients were worried about stigma and would prefer to go to the clinic instead.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12913-024-12193-4>.

Supplementary Material 1.

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Authors' contributions

All authors contributed significantly to the study. PP, GBK, and VDR conceptualized and designed the study. KOA, BAA, PP, and AAM collected and transcribed data. JKB, KOA, BAA, and CSA analyzed data. JKB wrote the first draft of

the manuscript, which was reviewed by GBK, CSA, and PP. All authors read and approved the final manuscript.

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki, as well as all applicable international and local guidelines and regulations. Ethical approval was obtained from the University of Ghana Medical Center Institutional Review Board (UGMC/IRB/REVIEW/004/21) and the Korle Bu Teaching Hospital Institutional Review Board (KBTH/000187/2020).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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