

ORIGINAL RESEARCH

The Early Impact of COVID-19 on a Cardiovascular Disease Prevention Program in Mukono and Buikwe Districts in Uganda: A Qualitative Study

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Background: In 2011, the United Nations set out an ambitious plan to dramatically reduce the effect of non-communicable diseases (NCDs) including cardiovascular diseases (CVD) in all regions of the world. However, the outbreak of Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-Cov-2) is slowing current efforts and the set targets may not be achieved, yet NCDs have been associated with the risk of more severe COVID-19 disease. In the current study, we explore the early impact of the COVID-19 pandemic on a CVD prevention program in Mukono and Buikwe districts in Uganda.

Methods: We collected qualitative data through interviews and mini focus group discussions (FGDs) in the months of May and June 2020. A total of 39 community health workers (CHWs) and 10 healthcare workers (HCW) participated in the study. The data were transcribed verbatim and analysed with the help of the ATLAS.ti software following a content analysis approach. Emerging themes and sub themes were generated and these exemplified with quotations from the transcripts.

Results: Negative and positive impact themes were observed. The negative observations were: (1) Disruption of CVD prevention services including halting screening for CVD risk factors at the community and health facility, halting sensitisation and health promotion activities at the community; (2) Reduction in patient health seeking behaviours; (3) Acute health facility staff absenteeism (4) Disruption in reporting and referral mechanisms; and (5) Disruption in supply chain. On the other hand, two positive attributes were observed: (1) Perceived reduction in alcohol consumption; and (2) perceived reduction in crime related psychosocial stress.

Conclusion: COVID-19 disrupted the implementation of CVD prevention activities in this low-income context. Screening programs and CVD prevention activities at the community and health facility levels were literally halted mainly due to fear, the non-discriminatory lockdown measures and a lack of medicines and supplies – including personal protective equipment. There is need for a balance in measures to sustain CVDs interventions while controlling the COVID-19 pandemic.

Keywords: Cardiovascular disease prevention; COVID-19; SARS COV-2; impact; disruption of health care services; implementation; Sub-Saharan Africa

Background

In 2011, the United Nations set an ambitious plan to dramatically reduce the burden of NCDs including cardiovascular diseases (CVDs) in all regions of the world [1]. To actualise the UN commitment, the World Health Assembly in 2013 endorsed the World Health Organization (WHO) Global Action Plan for the Prevention and Control of NCDs 2013–2020 [2]. The Global Action Plan provides a road map with a set of nine targets prescribed in the Global Monitoring Framework (GMF). The nine targets are to reduce: (1) premature

mortality due to NCDs by 25%; (2) harmful use of alcohol by 10%; (3) prevalence of insufficient physical activity by 10%; (4) mean population intake of salt/sodium by 30%; (5) prevalence of current tobacco use in persons aged 15+ years by 30%; (6) prevalence of raised blood pressure by 25%; and attain; (7) 0% increase in the rise in diabetes and obesity; (8) 50% coverage in drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes; & (9) 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities [2]. To-date, mixed achievements have been reported regarding progress towards attainment of these targets. The risk of dying from any one of the major four main NCDs for those aged 30–69 years, decreased from 22% in 2000 to 18% in 2016 worldwide [3]. Alcohol consumption levels decreased in the European Region by 12%, and increased by almost 30% in South-East Asia during the same period. The global prevalence of tobacco smoking in individuals aged 15 years and older decreased from 27% in 2000 to 20% in 2016. Overall, reduction in high blood pressure were registered in the Americas, and the European region; but were reportedly on the rise in sub-Saharan Africa and other regions [3].

Whereas the global community has responded in unprecedented manner to address the challenge of NCDs, the new comer to the table – the severe acute respiratory syndrome (SARS-Cov_2), also known as corona virus disease-19 (COVID-19) and related pandemic mitigation measures have severely disrupted all sectors of development and particularly disrupts efforts at CVD prevention [4]. Since the declaration of the novel corona virus pandemic, more than three quarters of the world population experienced a lockdown to prevent the spread of the pandemic [5]. The health sector was not spared. Prevention and treatment services for NCDs were grossly affected across the globe [4]. The reason is that resources were drawn from other programs in the health sector to respond to the global mayhem. In 94% of countries responding, ministry of health NCD staff were partially or fully re-assigned to support the COVID-19 response [6]. COVID-19 and NCDs are connected and act synergistically to accelerate morbidity and mortality and particularly strike in areas of deprivation [4]. Neglecting NCDs has counter effects which must be avoided. Therefore, measures that address the dual burden of COVID-19 and NCDs will be the mainstay in navigating the current unprecedented challenge that the world is facing.

Since 2017, Makerere University School of Public Health in partnership with six universities; the University of Antwerp in Belgium, University of Sussex and Nottingham Trent University, both in the United Kingdom, Brest University in France and University of Limpopo in South Africa embarked on a five year North-South collaborative CVD prevention program. The Scaling up packages of interventions for cardiovascular diseases prevention in selected sites in Europe and sub-Saharan Africa (SPICES) funded by the European Union [Grant number 733356] aims to scale up a comprehensive package of CVD prevention activities and understand barriers and facilitators. In Uganda, the program is implemented in the districts of Mukono and Buikwe at the community and health facility levels [7]. Before COVID-19 was reported in Uganda, the program had reached 13 primary healthcare facilities (one hospital, two Health Centre [HC] IVs and 10 HCIIIs) and 40 villages in the study area [8–9]. At the onset of the pandemic and subsequent lockdown measures in March 2020, preparation were underway to scale the CVD prevention program to an additional five health facilities and an additional 20 villages in Mukono and Buikwe districts. However, these activities were disrupted by the restrictive policies and COVID-19 counter measures that were introduced to curtail the spread of the corona virus disease [10]. Studies exploring systematically the impact of COVID-19 on CVD programming in sub-Saharan Africa are important to inform strategies to counter the dual burden of CVDs and COVID-19 disease given their cumulative effects in propelling morbidity and mortality, over and above deprivation. The aim of the current study was therefore to explore the early impact of COVID-19 on a CVD prevention program in a low-income context.

Methods

Study area

The study was conducted at the community and health facility levels in the districts of Mukono and Buikwe in Uganda. Uganda has six levels of the healthcare delivery system [11]. The CVD program is operating at three of the six levels; at the community which is level (level I), Health Centre (HC) level III, and Level IV (HCIV)/District Hospital. Together, Mukono and Buikwe districts have: five hospitals (one public), four health Centre IVs (three public) and 23 HCIIIs (20 public).

Context

The current study was nested in a type 2-hybrid stepped-wedge (SW) design implemented in 80 randomly selected villages drawn from 20 parishes and in 23 health facilities in Mukono and Buikwe. The primary aim

of the stepped wedge study is to measure the barriers and facilitators of scaling up a cardiovascular disease prevention program in the two districts in Uganda. The detailed description of the stepped wedge study is reported elsewhere [7]. In brief, the design employs mixed methods with iterative improvement cycles; and data collection entailing repeated measures at the community, household, health facility and patient levels using both quantitative and qualitative data collection approaches. The qualitative interviews explore barriers and facilitators. In March 2020, Uganda declared COVID-19 pandemic in the country and decisively responded by closing airports, quarantining travellers, testing at boarder points and instituting a general lockdown across the country. Total lockdown lasted for about two and a half months. The quick and decisive measures succeeded in preventing community transmission of COVID-19 including in the districts of Mukono and Buikwe. However, these measures severely impact on the delivery of health services. Therefore, to understand the impact of the pandemic and related measures on the CVD prevention program in the two districts, we explored provider experiences.

Study design

The study employed a descriptive qualitative research design. The study enrolled health care workers (HCW) and community health workers (CHW) who are implementing the cardiovascular disease prevention program.

Selection of study participants

Prior to the declaration of the pandemic in Uganda, 10 HCIII level facilities and 40 villages were in the intervention arm of the stepped wedge design and were actively implementing the CVD prevention program. From each health facility, a healthcare worker who was also the facility in-charge or designee was purposively selected to participate in the study. At the community level, 40 CHWs who were also program interventionists at the village level were invited to participate in mini focus group discussions (FGD). Each mini FGD was composed of four members drawn from villages within the same parish [12].

Data collection

Interviews were held separately with each of the 10 HCWs and mini FGDs with 39 CHWs. Each mini FGD had four participants (except one, whose fourth participant couldn't attend due to sickness). The interviews and the mini FGDs were conducted with the aid of an interview guide drawn from the main study with modification to include probes assessing the impact of covid-19 on the CVD program [13]. The mini FGDs were held in *Luganda*, the local language of the area. The discussions lasted for an hour. Both the CHWs and the study team were fluent in local language. Interviews with HCWs were held in English. All data were collected by the community-based graduate research assistants that were trained in conducting qualitative interviews. Interviews and FGDs were audio recorded with the consent of participants.

Data management and analysis

We transcribed verbatim All audio recorded data and concurrently translated FGD data from *Luganda* to English. Both transcription and transcribing were conducted by the research assistants. GM and RN reviewed the transcripts for completeness and quality and subsequently asked for improvements where it was deemed necessary. Upon completeness and quality check, GM exported the data to ATLAS.ti for further management. GM and RN read the transcripts and notes several times and independently developed the initial codebooks which were discussed and merged with consensus, especially where views were divergent. The analysis entailed axial coding in order to generate codes, categories, and subcategories. Axial coding is a qualitative research technique which helps to generate relationships in participant's voices in a dataset in order to reveal categories, and subcategories [14]. At the end of the coding process, similar codes, subcategories and categories were merged into sub-themes and these into themes to generate the study findings and using linkage functions in ATLAS.ti, we developed the thematic layout (**Figure 1**) which illustrates the linkages across themes. To exemplify the generated themes and sub themes, quotations from the transcripts are included.

Results

Characteristics of studied participants

A total of 39 CHWs, about half females and ten HCWs participated in the current study. All respondents were at the time of the study involved in the implementation of the SPICES CVD prevention program in the selected districts.

Impact of the pandemic response on the program

Drawing from the data, the overall impact is summarised in **Figure 1**. As shown, social distancing (characterised by stay-at-home orders) and fear (perceived) were reported as the most impactful on the program when the pandemic was declared in March 2020 in Uganda. To enforce social distancing and minimise crowding, the government imposed a non-discriminatory stay-at-home order, instituted curfew hours, and banned both public and private transport. A combination of these measures and the fear of contracting the disease as well as the fear of the law enforcers impacted program progress. Both negative and positive aspects were observed, with the former dominating.

The negative impact themes observed were: (1) Disruption of CVD prevention services including halting screening for CVD risk factors at the community and health facility, halting sensitisation and health promotion activities at the community; (2) Reduction in patient health seeking behaviours; (3) Acute health facility staff absenteeism; (4) Disruption in reporting and referral mechanisms; and (5) Disruption in supply chain. On the other hand, two positive attributes were noticed. (1) Perceived reduction in alcohol consumption practices; and (2) perceived reduction in crime related attributable psychosocial stress. The details of each of these themes and their sub-themes are expounded.

(1) Disruption of CVD prevention services

Several of the CVD prevention activities of the program were disrupted. Prior to the pandemic, the program entailed delivery of community and health facility packages. The cascaded package included conducting house-to-house visits by community health workers who carried out routine CVD risk factors profiling, health education, sensitisation, & promotion of recommended healthy lifestyle behaviours, referral of high-risk individual to primary healthcare facilities and follow-up. At the facility, health workers conducted routine screening at the outpatient for every adult patient, sensitised and managed high-risk profile patients. However, at the onset of the pandemic and the mitigation measures especially a ban on transportation, lockdown and curfew, the interventions were immediately affected. The related subthemes to this theme follow:

(i) Suspension of activities. *'This Covid affected our work, we were carrying on smoothly to see that there is a reduction in CVD risk in our communities,' (FGD, Katoogo).* CHWs reported that it was very difficult for them to continue with the community CVD prevention activities. Prior to the pandemic, CHW were visiting homes where they would sensitise, advice on diet, physical activities and other lifestyles. Moreover, the CHW conducted basic profiling of community members to characterise their risk of developing CVDs in the future. They also supported the high risk with referral to primary healthcare facilities and with supportive counselling. All these efforts were stopped when COVID-19 was declared in the country. CHWs alluded that

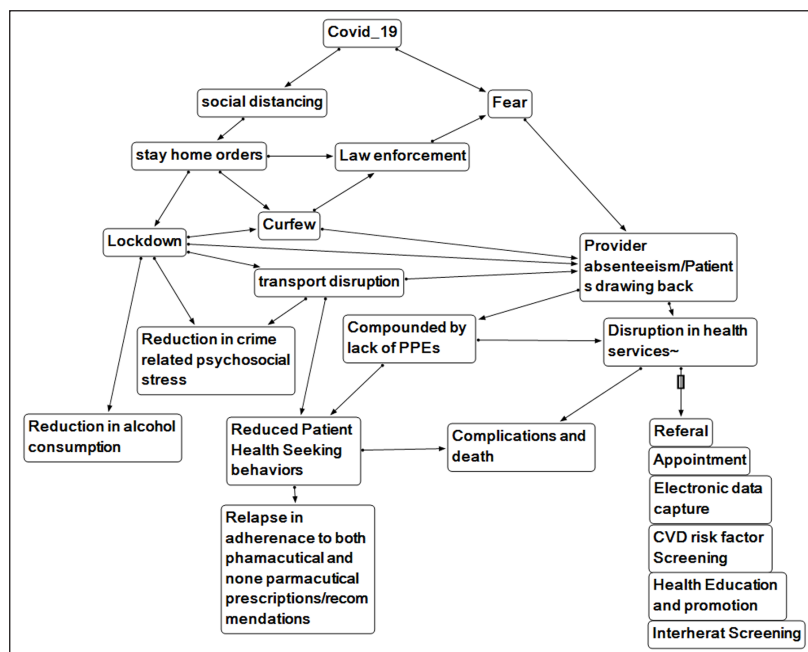


Figure 1: Illustration of the impact of covid-19 on a CVD prevention program in Mukono and Buikwe district in Uganda.

it was not possible for them to continue with household visits as this contravened the stay at home orders. Respondents narrated:

In Mpunge parish,

'...We could not carry out our activities because we were stopped from visiting people whatsoever, we were supposed to keep home.' ... Since March when the lockdown was effected...' (FGD Mpunge).

In Goma,

'... Every activity stopped...you could not go anywhere ... I did not move at all.' (FGD Goma).

In Buikwe,

'... We used to meet ...we are unable to meet anymore.' (FGD Buikwe).

And in Busabaga,

'...There are some of our activities which became paralyzed like the measurements requiring the use of tape measures ... it reached a time when it was impossible to carry on with this.' (FGD Busabaga).

Similarly, some health facilities also suspended planned community outreach activities.

'...in fact, we had planned to hold health talks but we couldn't hold them because of the social restrictions.' (Buikwe HCIII).

(ii) Fear of the disease as a contributing factor and in the context of lack of PPEs. Besides the COVID prevention restrictions, respondents also mentioned the 'fear factor.' They noted that they were scared of the disease and so were the community members whom they served. Moreover, they lacked personal protective equipment (PPEs). Indeed, they expressed that community members as well as the patients were uncomfortable to be attended to by healthcare workers and CHWs without PPEs. The participants' narrative follow:

In Buikwe,

'... The people fear us and we also fear meeting them...' (FGD Buikwe).

In Goma,

'...even people feared "you" as "you" feared them.' (FGD Goma).

In Busabaga,

'...I had the fear that I could go to the community and end up infecting myself and then spread it to my friends and family.' (Busabaga FGD).

And in Lugala,

'...they directed us to ... follow for instance; social distancing ...we have not been doing SPICES work ... requires direct contact with the person... we don't even have protective measures like gloves, masks.' (FGD Lugala).

Similarly, HCW at healthcare facilities narrated their fears.

'...At first we could not easily and freely examine our patients due to lack of adequate protective gear and there was a fear of putting our lives at risk as well and this brought about gaps in our work here at the health facility...' (Mpunge HCIII.)

(iii) Selective Screening. As a result of fear of contracting COVID-19, HCW at health facilities resorted to conducting selective screening and some completely abandoned screening patients for CVD risk factors.

This inevitably resulted in missed opportunities and scaled back the progress of the CVD prevention program as narrated by the respondent.

'... we never even used to screen people during this period [lockdown] unless when the person was a known [CVD] patient...some people were missed during that time...even now, ...screening is based on request...that is why you found that we even ... paused ... people were fearing.' (Goma HCIII).

(iv) Scared of the Law enforcement. Apart from the fear attributable to contracting the disease (COVID-19), both CHWs and HCWs were reportedly concerned about the law enforcers whom they described as ruthless in enforcing the instituted guidelines.

'...I can't tell whether he was high on what, I didn't know. I just felt from nowhere that someone had approached me ... I saw that it was the LDU (Local Defense Unit) ... who had confronted me. He man-handled me ...' (FGD Busabaga).

'... in this community, we have security people who were posted here ...The security people will ...apprehend us ...and start questioning why I have moved.' (FGD Busabaga).

'...The problem I encountered is that even the security persons do not know how to read. You can give them a document to read and they try to read it over and over without getting its meaning.' (FGD Busabaga).

(v) Transport. One of the early and severe contributing factors to disruptions and discontinuation of the CVD program was the government ban on both private and public transport. Healthcare workers had difficulties moving to health facilities and so were some of the CHWs.

'...This lockdown found me in the village, and I never worked for all those months... the guidelines that were issued could not permit us as well...' (FGD Goma).

Another also had this to say.

Transport didn't only affect HCW and CHWs, but patients too. As a result, a very low turn up of patients was reported.

'... They [patients] are not getting the service ... most people can't come to the facility...because of the transport and the stringent guidelines of getting an RDC letter [Resident District Commissioner] letter for someone to move ...' (FGD Nakifuma).

'... the movement of our clients. They cannot move from their places because of transport...and maybe secondly the staff.' (Buikwe HCIII).

'People coming to the health facility to seek medical care could be many by now ... but many have stayed back because of lack of transport means to the health facility and some of them fear because there was a time police men really beat up people if found moving on commercial motorcycles (bodabodas) and that is the only transport means.' (FGD, Katoogo).

Important to mention, some villages have access to only bodabodas as the only means of public transport. Unfortunately, these were also suspended to prevent the spread of COVID-19; making it extremely difficult for folks and patients in hard-to-reach areas to access the services. It should be noted that 'bodabodas' are also used as ambulances [Bodaboda ambulances] in these hard-to-reach settings which are sometimes characterised by extremely poor road infrastructure.

Despite all these difficulties, some CHWs did indicate that they continued to deliver some aspects of the program. Others also started to integrate COVID-19 prevention into the CVD prevention program and thus resumed work in the course of the lockdown.

'... We continued with the things which were possible... when we met people, we could maintain a social distance and be able to sensitize them. In addition, we added on sensitizing people about hand washing,

the way of maintaining social distance and also, teaching them about some of the signs and symptoms of corona virus. We added on these activities such that we keep the people motivated and continue with our work.’ (FGD Busabaga).

‘...I was able to do a follow up on some of them for example I checked on some of the respondents to see if they were following the health advice that I had given them, and also checked one of them who was diagnosed with diabetes and high blood pressure ...’ (FGD Seeta Nazigo).

Needless to say, the self-drive and innovative strategies instituted were also met with additional demands from the community members.

‘...they ask, “What have you brought for us? Like for you people who taught us about health issues; where is the sanitizer you have brought for us?”’ (FGD Busabaga).

(2) Reduction in patient health seeking behaviours

This is another major theme we observed in the study.

‘...people who had started on medication like for hypertension and diabetes have dropped off medication since they cannot access the health facility and cannot afford buying as well.’ (FGD Katoogo).

As alluded to earlier, several factors (fear of contracting a perceived severe respiratory disease, fear of the law enforcers (police, Local defence forces and the military) who were implementing the lockdown directives, and lack of transport) birthed a patient ‘shy’ away attitude and thus resulted in an overall reduction in patient health seeking behaviours. The onset of COVID-19 was characterised by perceptions of high severity and high transmissibility. These perceptions instilled fear at the population level. As a result of fear, patients started shying away from the health facilities and taking routine CVD screening services and some abandoned their health facility appointments. At the community, some CHWs narrated experiences of community members chasing them away because they feared that the CHWs would transmit COVID-19 to them.

Besides, the data also revealed that patients were aware that the disease is transmissible from person to person and thus were concerned about sharable screening equipment such as blood pressure and waist measuring devices. They noted that taking such measurements increased risk of contagion and that the diagnostic procedures carried a risk of exposure and that they (procedures) were not in line with the government instituted social distancing guidelines; hence potentially exposing them to COVID-19. At the health facility in Goma, the healthcare worker had this to say:

‘...these patients also got scared. People started saying that “batugambye” [we have been told], this disease [corona] spreads from person to person “Musawo tubileke,” [an appeal to the healthcare worker to be exempted from CVD risk factor screening].’ (Goma HCIII).

And in Nakifuma HCIII,

‘...During the lockdown we had fewer patients that would come for screening...’ (Nakifuma HCIII).

‘... Because most of the clients are using boda-bodas now the challenge is like let me say someone is coming from Namaliiri [village] and you are going to Kayunga, you will need an RDC authorization which you will have to go for to Mukono and you have to pass through Naggalama which has a police station ...where they will ask for an RDC letter and yet you have to get an RDC letter from Mukono... So, people who couldn’t travel those long distances...they couldn’t come to the facility.’ (Nakifuma III).

In summary, patients found it very difficult to navigate the bottlenecks to access the necessary healthcare services – thus, a reduction in patient health seeking behaviours was observed.

(3) Acute health facility staff absenteeism

As a result of transport disruptions, majority of healthcare workers were absent for several days and weeks from their duty stations resulting in a record high healthcare workers absenteeism. Similarly, an array of other factors also contributed to this severe staff absenteeism reported at the health facilities. These included

fears of contracting COVID-19 compounded by the lack of PPEs, the spontaneous stay at home orders, and fear of security and law enforcement personnel.

'...the number of staff members able to come to the facility was limited, so health workers were overwhelmed with the high numbers of clients at the facility...' (Katoogo HCIII).

'...because of the lockdown, we have few staff and the person whom we had trained, was affected and is still locked up to-date.' (Buikwe HCIII).

(4) Disruption in reporting and referral mechanisms

Due to the disruptions caused by many factors, the referral and reporting mechanisms for the program were also affected. CHWs were not able to proceed with timely reporting. Similarly, at the health facility, very few patients were reportedly reaching the facility and those who reached were seldom helped. Moreover, the installed CVD electronic screening program was suspended in several of the facilities due to limited staffing.

'...I was able to meet only three people whom I had sent to the health facility but they were not worked on by the health workers due to lack of the protective equipment in the health facility, so I gave up on them.' (FGD Seeta Nazigo).

(5) Disruption in supply chain

As observed with other aspects of the program, the supply chain was also temporarily affected.

'...you realize that some of the medication supposed to be given to the clients is not here... we have had an upsurge of clients who have drained our stock, so fast that as we speak now, we have started registering drug stock outs already. The upsurge of clients is as a result of patients that used to get medication from other health facilities like Kawolo hospital and cannot travel there.' (Katoogo HCIII).

Positive attributable themes: The study also garnered two themes regarding the positive impact of the pandemic on the programme.

(1) Perceived reduction in alcohol consumption

Participants reported that due to the curfew and stay at home rules, members of the community had limited opportunities to access alcohol, effectively reducing alcohol consumption practices during the lockdown period.

'... In my community, there were those that used to drink alcohol but now that the time is limited due to curfew, they have reduced on their intake ... its evident there is change.' (FGD Mpunge).

'...What has been of help during this COVID-19 is that some people have noticed that drinking is really not useful and this has been of help that people are deliberately reducing on their alcohol intake...' (FGD Katoogo).

(2) Perceived reduction in crime related psychosocial stress

Community Health workers noted that after 7:00PM, people would not move. That the curfew also helped in reducing crime especially at night since people were not allowed to move.

'Due to corona virus, movements had been prohibited at night and helped to stop wrong people moving at night.' (FGD mawoto).

Discussion

This study explored the early impact of COVID-19 on a CVD prevention program at the community and health facility levels in Mukono and Buikwe districts in Uganda. The study reveals that several aspects of the CVD prevention program were disrupted. Screening, sensitisation and health promotion activities were suspended, reduction in patient health seeking behaviours was observed, acute health facility staff absenteeism was registered, reporting and referral mechanisms were disrupted and so was the supply chain. On the positive side, perceived reduction in alcohol consumption and perceived reduction in crime-related psychosocial stress was reported.

This study supports the rapid assessments conducted by the World Health Organization that established substantial disruptions of services across countries due to COVID-19 pandemic. In their rapid assessment, 53% of the countries surveyed had partially or completely disrupted services for hypertension treatment and 31% for cardiovascular emergencies [6]. In our qualitative observation, respondents both at the community level and healthcare settings reported disruptions in screening for CVD risk factors, health promotion and care & management of these conditions. In fact, in some study sites, activities were completely suspended which inevitably resulted in creating an unmet need for other previously well-established services. Disruption of health and social services is not new in the history of pandemics [15]. Throughout some of the well-known global influenza pandemics – including the H1N1 Spanish flu of 1918–1920, the H2N2 Asian flu of 1957–1958, the H2N3 Hong Kong flu of 1968–1970 and the H1N1 swine flu of 2009–2010, disruptions of social and health services were reported [15]. In the case of the 1918 Spanish flu, the health system was largely ill prepared and thus non-pharmacological measures were the mainstay in addressing the pandemic. Moreover, essential healthcare staff were switched to respond to the pandemic. A century later, similar non-pharmacological responses and disruptions as well as reassignment of healthcare workers and health units are still the backbone in addressing the pandemic. In the 2009 H1N1 influenza pandemic, albeit milder than previous pandemics in terms of overall mortality, significant strains on healthcare were reported [16]. The danger of disrupting other healthcare services is the risk of aggravating morbidity and mortality from other causes. This is even more important for NCDs since they are characterised by mild or no symptoms at all and yet they tend to play a key role in enhancing mortality in pandemics. For example, it has been reported that hypertension and diabetes are risk factors for severe COVID-19 disease characterised by hospitalisation, mechanical ventilation and death [17]. Indeed, most of the COVID-19 mortalities have been reported to occur among patients with other underlying conditions, particularly, hypertension and diabetes [4]. Therefore, re-assigning NCD/CVD staff to COVID-19 response may not be a good idea. Instead, in the context of limited human resources, integration should be considered given the vicious and exacerbation relationships between COVID-19 and CVDs [4].

Another key observation in this study was the acute health staff absenteeism that was experienced as a result of the abrupt imposition of lockdown measures without prior preparations to secure essential services. Healthcare workers were caught up in a quagmire of government restriction and some were not able to travel to their workstations hence resulting in shortages of healthcare workers at health facilities. Transport, both public and private were immediately banned. Later, intervention by government to ameliorate the crisis entailed issuing of special stickers by the government of Uganda to essential workers with private car owners. However, this remedial measure was also characterised by implementation challenges and some health workers were not able to access the special pass cards. Moreover, this intervention covered those individuals or organisation with private means of transport, hence effectively excluding hard-to-reach sections of the population, especially in rural settings where bodabodas were the main form of passenger transportation. The lack of PPEs and fear of contracting the diseases also reportedly worsened staff absenteeism. Staff absenteeism has also been reported elsewhere [18]. In their case however, most absenteeism were observed in personal care and service, healthcare support, and production occupations. Preparing for pandemics to prevent similar scenarios remains vital for the future and the current pandemic and more so in settings where the COVID-19 pandemic hasn't taken root.

In this study we also observed reduced patient health seeking behaviours. The low health seeking behaviours were attributed to fear of contracting the infections at health facilities, lack of transport, and fear of moving as this breached the government imposed stay-at-home orders. Whether the low patient health seeking behaviours resulted in morbidities and mortalities due to other causes is not yet clear.

Policy implications

Pandemics are always unprecedented and are characterised by fear, ill prepared health systems and disruptions in social and health services. Learning from past experiences may help abate unwanted non-pandemic related consequences in the future. For example, health staff absenteeism shouldn't really be a constant occurrence due to their pivotal role in addressing the pandemic but also other healthcare needs.

Given the twin relationships between COVID-19 and CVDs, it is important not to compromise measures aimed at mitigating CVDs at the community and health facility levels during this pandemic. Instead, community health and healthcare efforts should rather be integrated to address both conditions. Healthcare and community health workers should be equipped with the necessary knowledge and PPEs to continue with the war against the eminent NCD epidemic without compromising their safety and the safety of the community members regarding COVID-19.

Another critical observation requiring attention is fear which was prominently reported. Fear has also been reported elsewhere to influence healthcare services delivery during pandemics [19]. Moreover, increased workload, anxiety and a sudden change in routine procedures due to outbreaks exacerbate the situation. Therefore, measures addressing both safety and combating fear are critical. These may include: targeted education addressing infection prevention, fear and safety, robust communication devoid of ambiguities, and encouraging collegial support and government protection [20].

Abrupt disruptions of both public and private transportation was more devastating. Not only did it affect patient and providers movement but also medicines and medical logistics supplies were disrupted. Future pandemic response efforts should be measured to mitigate disruptions in supply chains and movement of essential workers and patients.

Strength and Limitations

This qualitative study highlights the early impact of COVID-19 on a CVD prevention program in Mukono and Buikwe Districts in Uganda. The strength of the study is the inclusion of both community and health facility perspectives. In the design of the CVD prevention program, the community and health facility intervention are designed to complement each other in the fight against CVDs in this setting. Therefore, accruing study participants from both the community and health facility maximised inclusiveness into our qualitative sample. The limitation of the study though is the failure to include patients to garner their experiences. Moreover, the study was conducted in only two districts in Uganda which may limit transferability of findings. Nevertheless, given that the COVID-19 preventive measures were applied across the country, the findings are of practical importance and may not deviate significantly elsewhere in the country and in other settings that instituted similar measures in response to COVID-19.

Conclusions

Covid19 disrupted the implementation of the CVD prevention program. Screening programs and CVD prevention activities at the community and health facility levels were literally halted mainly due to fear, the non-discriminatory lockdown and social distancing measures and a lack of personal protective equipment. Given the vicious and exacerbation relationships between COVID-19 and CVDs, a delicate balance in measures are needed to sustain efforts aimed at reverting CVDs during the COVID-19 pandemic.

Data Accessibility Statement

All relevant data extracts for this manuscript are included. Complete transcripts may be provided to researchers upon reasonable request from the corresponding author.

Abbreviations

COVID-19	Corona virus Disease of 2019
CHWs	Community Health Workers
CVDs	Cardiovascular diseases
SARS-COV-2	Severe Acute Respiratory Syndrome Corona Virus 2
FGD	Focus Group Discussion
NCDs	Non-Communicable Disease
SPICES	Scaling-up Packages of Interventions for Cardiovascular disease prevention in selected sites in Europe and sub-Saharan Africa

Ethics and Consent

This study obtained ethical approval from the Higher Degrees Research and Ethics Committee of Makerere University School of public Health (Protocol 624) and was registered by the Uganda National Council for Science and Technology (HS 2477). Study participation was purely voluntary and ethical principles of ensuring confidentiality and privacy were ensured. Participants provided written informed consent.

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Competing Interests

The authors have no competing interests to declare.

Author Contributions

GM contributed to the design of the study, data collection, led the analysis and drafting of the manuscript. RN, FN, RKW, HB contributed to the design of the study, analysis and critical review of the draft manuscript. NA, TS, and EB critically reviewed the manuscript. All authors read and approved the final manuscript.

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