ORIGINAL RESEARCH ARTICLE

Provision and uptake of sexual and reproductive health services during the COVID-19 pandemic: The case of Mali

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Fadima C. Haidara[1], Adama M. Keita[1], Camilla Ducker[1], Kounandji Diarra[1], Mahamane Djiteye[1], Heather Marlow[2], Emily Goodwin[3], Owen Martell[3], Chimaraoke Izugbara[2], Samba Sow[1]*

Center for Vaccine Development, Mali (CVD-Mali)[1]; International Center for Research on Women, USA (ICRW)[2]; Tro Da Ltd, UK[3]

***For Correspondence:** Email: *ssow@cvd-mali.org*

Abstract

A qualitative study assessed the effects of the COVID-19 epidemic on Malian sexual and reproductive health services. Sexual and reproductive health (SRHR) providers in 25 purposively selected public health facilities in urban Bamako, rural Kita (western Mali) and Koutiala (southeast Mali) were interviewed. Disruptions within SRH supply, staffing, the prioritization of SRHR services, and patients' ability to seek, obtain and pay for services were reported across urban and rural settings at all levels of public health care, and by all cadres of SRHR providers. Most facilities in the study areas sustained some SRHR services at the height of the COVID-19 epidemic through innovative outreach and phone-based consultations. This study offers critical lessons for SRHR service provision during future waves of the pandemic or during periods of comparable emergency. *(Afr J Reprod Health 2022; 26[12s]: 169-179).*

Keywords: Sexual reproductive health, COVID-19 disruption, essential services, Mali

Résumé

Une étude qualitative a évalué les effets de l'épidémie de COVID-19 sur les services maliens de santé sexuelle et reproductive. Des prestataires de santé sexuelle et reproductive (SRHR) dans 25 établissements de santé publique sélectionnés à dessein dans les zones urbaines de Bamako, Kita rurale (ouest du Mali) et Koutiala (sud-est du Mali) ont été interrogés. Les perturbations au sein de l'offre de SSR, du personnel, de la hiérarchisation des services de SDSR et de la capacité des patients à rechercher, obtenir et payer des services ont été signalées dans les milieux urbains et ruraux à tous les niveaux des soins de santé publics et par tous les cadres de prestataires de SDSR. La plupart des établissements dans les zones d'étude ont maintenu certains services de SDSR au plus fort de l'épidémie de COVID-19 grâce à des consultations innovantes et par téléphone. Cette étude offre des leçons essentielles pour la prestation de services de SDSR lors des futures vagues de la pandémie ou pendant des périodes d'urgence comparables. *(Afr J Reprod Health 2022; 26[12s]: 169-179).*

Mots-clés: Santé sexuelle et reproductive, perturbation du COVID-19, services essentiels, Mali

Introduction

Public health service provision in Mali is constrained by a high disease burden, frequent national-level insecurity, a high fertility rate, low expenditure on health, mistrust of government services, ineffective private sector engagement, and weak national economic performance. Though the Global Burden of Disease Study 2019 highlights an overall improvement in Mali's provision of effective essential health services, with a Universal Health Care Index increase from 20.9% in 1990 to 40.6% in 2019, critical disparities in service performance levels remain[1] In 2020, as was the case in many other contexts, the COVID-19 pandemic wrought additional unexpected havoc on Mali's public health system.

Sexual and reproductive health (SRHR) indices show underperformance in Mali. Currently, only 39% of the need for modern family planning is met[1]. Further, antenatal, postpartum, and postnatal care use stand only at 6%[1]. Even while acknowledging the country's progress in sexual and reproductive health services indicators, preventable maternal and infant mortality remains persistently high. With a current maternal mortality ratio of 562

per 100,000 births and an infant mortality rate of 63.5 per 1,000 births, Mali ranks among Africa's riskiest countries for women during pregnancy and the period immediately after it, as well as for infants during the first five years of their lives[2]. Mali's fertility rate, currently at 6%, is higher than the average for West Africa (4.9%) and the global average (2.4%)[3]. The country is also experiencing protracted humanitarian difficulties, which increase women's SRHR risks and exacerbate unmet need for SRHR services[3,4].

In 2020, COVID-19 created a global health crisis. Mali recorded its first case of COVID-19 on 25th March 2020, against a backdrop of political instability, persistent insecurity, and a strained health system. While opinions vary on the reliability of Malian COVID-19 statistics, official figures put COVID-19 cases at 16,716 and associated deaths at 589[5,6], as of 17 November 2021. Limited funding, health workforce, diagnostic capacity, medical supplies and equipment (vaccines, drugs, oxygen, PPE), and isolation facilities have hindered pandemic responses, while pre-existing health service provision has been strained. Budgets, health staff, ambulances, and facilities have been reallocated for COVID-19, while misinformation and movement restrictions have exacerbated poverty, government mistrust, and gender disparities.

Study purpose

Mali offers a particularly interesting context for understanding the impacts of COVID-19 on health service delivery. The pandemic's effects on health provision in West African countries have been the subject of few studies, with only two published to date including Malian data[7,8]. Further, documentation on the pandemic's effect on SRHR service delivery and uptake, as well as on how health systems are responding, are scarce, particularly in Mali. This study provides important insights on COVID-19's impact on Mali's extremely fragile health system. Evidence from the study can contribute to current and future planning, preparedness, and response. The study's findings also have relevance for health systems in West African countries faced with multiple crises, from inequality to poor governance, militancy, and political instability.

SRHR services are essential for improved health outcomes and for maintaining community wellbeing during shock periods. Therefore, research on current SRHR services in resource-constrained and fragile contexts such as Mali, offers an important opportunity for addressing current as well as future pandemics in the face of rising environmental emergencies and political instability.

Against this backdrop, we sought to understand how COVID-19 affected health providers' ability to offer quality SRHR services, exploring both supply-side and demand-side barriers, as well as innovations and adaptations. Our research questions were: What are the immediate impacts of the COVID-19 pandemic on the provision of SRHR services in Mali? How is the provision of SRHR services changing because of the COVID-19 pandemic? What challenges are SRHR providers facing and how are they responding to them? What innovations are emerging among SRHR providers as they provide services in a rapidly evolving context?

Methods

Study sites

The study took place in three regions of Mali: Kita in western Mali, Koutiala in the southeast, and the capital district of Bamako. Bamako provided the urban settings, while the other two regions are mostly rural (see Figure 1). The regions, study sites, and facilities were purposively selected by rural and urban area, by adequacy of safety and security provision for clients accessing health facilities, and by recommendations from District Chief Medical Officers ('Médecins Chefs') based on facility services and client volume. Public state funded facilities were eligible for inclusion. These included community-based Community Health Centres (CSComs), district-level Referral Health Centres (CSRefs) and hospitals.

Respondents

Fifty healthcare workers (HWs) including nurses, midwives, doctors, pharmacists, and community health workers (CHWs) were recruited into the study. These were primarily providers of contraception, post-abortion care (PAC), prevention of sexually transmitted infections and perinatal care. From each cadre, ten respondents were purposively selected with near-even distribution

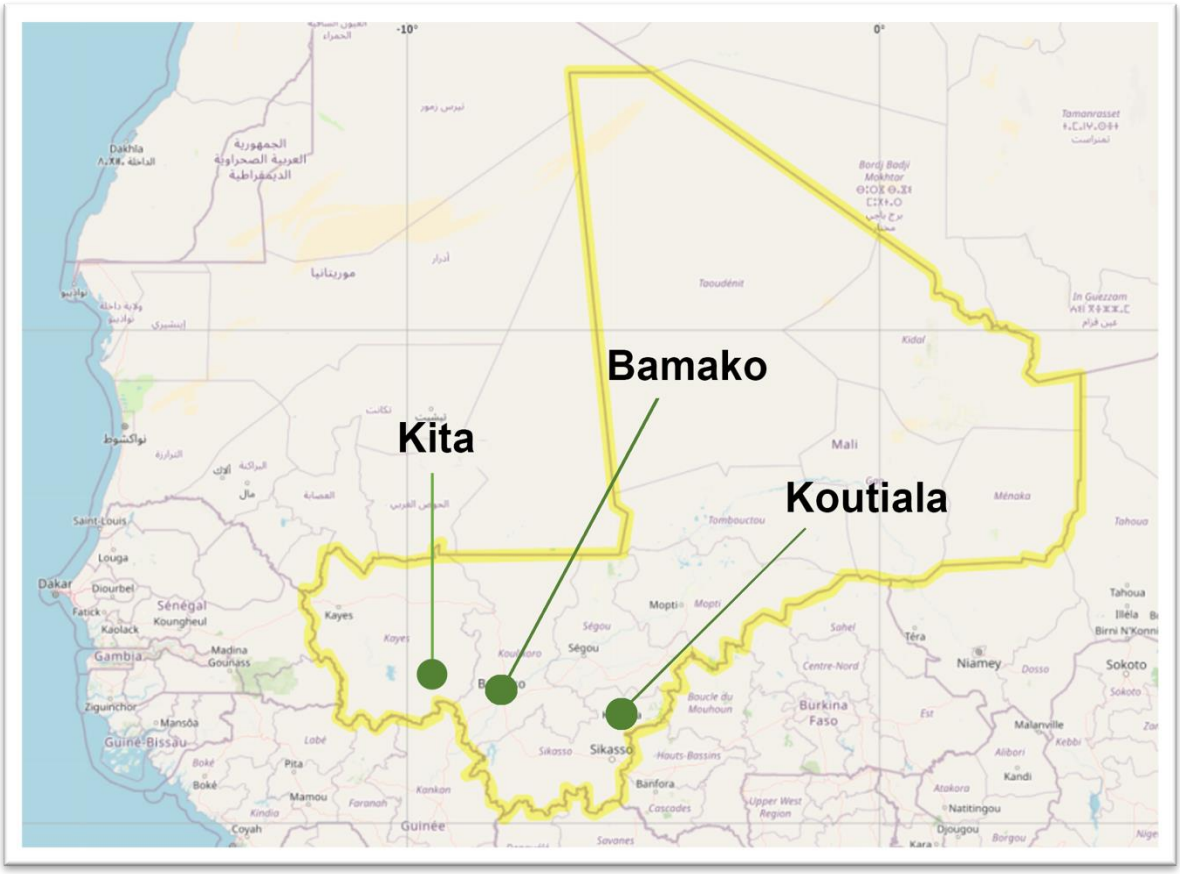

Figure 1: Study sites

Table 1: Sample of SRHR service providers by location, post and facility type

	Rural Community Health Centres (CSComs)	Referral Health Centres (CSRef)	Hospital	Urban Community Health Centres (CSComs)	Referral Health Centres (CSRef)	Hospital	
Nurse	2	3	0	1	2	2	10
Midwife	2	3	0	1	2	2	10
Doctor	2	3	0	1	2	2	10
Pharmacist	2	3	0	1	2	2	10
Community Health Worker	5	0	0	1	2	2	10
	13	12	0	5	10	10	50

between rural and urban settings. In the rural settings, 13 staff were from CSComs and 12 from CSRefs. In urban settings, 5 were from CSComs, 10 from CSRefs and 10 from hospitals. This reflects the greater presence of higher-level facilities within urban settings (there are no dedicated hospital facilities in Mali outside of Bamako). In smaller facilities, the sample included all available eligible personnel within their cadre, while in larger centres, participants were selected based on position, contract tenure, and willingness to take part. Table 1 shows the distribution of the responding health workers.

Data collection

Trained researchers conducted in-depth key informant interviews utilizing a semi-structured interview guide. The semi-structured interview guide encouraged respondents to speak freely and

openly while exploring provider perspectives on: SRHR service provision, the effects of COVID-19, and related work-based adaptations. Open questions were used with prompts to guide respondents towards the general topic. Interviews were phone-based, and conducted in French or Bambara, based on interviewee preference. Interviewers were experienced qualitative research staff of the Center for Vaccine Development in Mali (CVD-Mali).

Data management and analysis

Data was collected between August and November 2020. Interviews were recorded, transcribed, and translated. Interviews in Bambara were translated into French before all interviews were translated from French into English. All interviews were coded using a codebook developed by the study team using NVivo[9]. Codes were then grouped into themes. Similarities and variances along setting, health facility (HF) type and health worker cadre were investigated.

Results

COVID-19 in Mali

No participants in the study were untouched by the COVID-19 pandemic. SRHR service providers' general sense of the pandemic, and their experience of it, were characterized by a determination to do the best they could, in very difficult circumstances, as well as a devotion to their patients, jobs and communities. They did so in a context in which they often felt peripheral to central government actions, and often found themselves facing a population torn between fear of COVID-19 and suspicion about the disease's origin and spread. Several service providers spoke of being tired or stressed by the new pandemic context and about how the pandemic worsened the circumstances in which they conducted their duties. Data from the interviews generally suggested that COVID-19 primarily affected SRHR service provision by disrupting medical supply chains, triggering staffing shortages and prompting the de-prioritization of SRHR services.

Service delivery

While a few respondents noted that COVID-19 had no major impact on SRHR service delivery in their facilities, a dominant theme in the narrative data was the array of negative impacts of the pandemic on the ability of facilities and providers to offer the usual package of sexual and reproductive health services. Among the words commonly used by respondents to describe the impact of COVID-19 on SRHR provision in Mali were "disruption", "slowdown", "stoppage", "suspension" and "unavailability". In the view of one Bamako-based hospital doctor, COVID-19 slowed down all SRHR service activities and resulted in a complete stoppage of some key activities. The same doctor noted that, "at one point, we stopped screening for precancerous lesions. The [number of] consultations also declined at the beginning ... At one point we even stopped the Operating Theatre, except for emergencies".

Using the case of family planning (FP) services to illustrate the impact of the pandemic, one interviewee noted that pre-COVID-19 contraceptive services and product shortages were exacerbated during the pandemic. "We ran out of some contraceptive products, which did pose a bit [of a problem] here, at our level", reported a midwife from a Bamako CSRef. Further highlighting this point, a rural CSRef midwife also noted that during the early periods of the pandemic, only childbirth or delivery services went on uninterrupted. "Nothing [else] worked anymore", she asserted.

Many respondents described how Mali's already unreliable medical supply chain (including SRHR supplies) worsened during COVID-19. In several interviews, providers reported that facilities relied on international non-governmental organisation (NGO) SRHR support, especially for family planning supplies, much of which stopped during COVID-19. In the words of a nurse from one rural facility in the Koutiala region, "Previously there was an NGO that gave medicines to pregnant women every Wednesday. But this stopped with COVID-19". NGO dependence was described more in the context of rural CSComs than higher level or urban health facilities.

i) Staff

Most respondents mentioned COVID-19 having a significant impact in terms of staff. A high dependency on local and locally available SRHR staff and initiatives was cited across locations, health facility structures and personnel.

Respondents noted the change in staffing rotations and tasks, both to mitigate potential COVID-19 transmission and to ensure service continuity.

Staff numbers reduced in many facilities and, according to a Bamako CSCom midwife, *"*that […] affected the work […] Everyone has had time off except me. As the matron midwife, I'm here at the centre every day, even if I have just been on call." This inevitably led to additional stresses on health centre staff. A pharmacist at a Bamako hospital reported that, "The staff have been very stressed. The number of hospital staff is limited … particularly the nursing staff and the workload is enormous. […] I think this has created a lot of concerns about motivation especially amongst the specialist staff. Hospitals are very short of staff."

A number of SRHR personnel also reported having to buy their own masks and equipment to protect themselves against COVID-19 infection or being dependent on NGO support for personal protective equipment. Staff also found themselves working in a context where clear information was not forthcoming and were often dependent on the same sources of information as the general population. A nurse in a Bamako hospital stated that, "We heard on the news that the government was providing masks to people. We got masks at the last minute, otherwise we were paying for masks with our own money." Another respondent – a CSCom doctor in Bamako – said, "We did not have gloves for consultations. The [local patients' association] paid for gloves, otherwise we used gloves that we had ourselves from [work with] other partners."

Healthcare workers in the study acknowledged that during the early days of COVID-19, they were afraid of contracting the disease. "At the beginning we were really afraid of this pandemic, that was our challenge," noted a midwife at the Kita CSRef. Also, according to a pharmacist at a Bamako CSRef, "[T]he virus is very dangerous. And I think that the staff, like the patients, were all afraid of catching it. That's why we observed all the guidelines."

Another rural nurse from Koutiala said: "Everyone was afraid. Even I was scared, and I stayed home for a week and didn't come to the center[.] I asked myself, if I caught the disease, how would I manage, without money, because I have a baby I am breastfeeding. But, with greater awareness, I understood a lot [more] about COVID-19."

ii) A lack of coordination and low prioritization of SRHR services

Respondents also noted that issues of coordination and prioritization were having a detrimental impact on services and staff members' ability to adequately provide for patients' needs. No interviewees reported that SRHR service provision or its prioritization had improved during the COVID-19 pandemic. In the view of a pharmacist at a Bamako hospital, "Sexual and reproductive health is not being delivered in our hospitals. It doesn't have the visibility in the hospitals that it should have. The most important thing at the moment is to make the service more structured and more developed. It should be both embedded in the service and made more visible, so that its indicators can be considered and accounted for in service delivery. I don't think that indicators concerning sexual or reproductive health are at the forefront of hospital evaluations as it stands." This response, and other similar opinions, indicate that SRHR services were already a low priority within the health service and that the COVID-19 pandemic only exacerbated that situation.

Demand for services and cost barriers to SRHR access

Respondents stated almost unanimously that the number of patients visiting their health facilities had reduced significantly since the onset of COVID-19. Patients' belief that health centres were important vectors of disease transmission, a mistrust of the "official" discourse around COVID-19, and cost factors were stated as key reasons for this decline. Respondents often mentioned service uptake being reduced to urgent or non-deferrable services.

According to a doctor at a Bamako CSRef, owing to COVID, "attendance fell sharply and it was deserted [here], apart from the gynaecology service and antenatal care with the midwives. Services were deserted. People gave up, they were afraid."

i) Patients' beliefs and mistrust of government COVID-19 discourse

In a context in which SRHR services were already a low priority within the general provision of

healthcare services, the COVID-19 pandemic also made SRHR service providers' jobs more difficult inasmuch as they now had to conduct their activities in the face of widespread suspicion of the official narratives about SARS-CoV-2 and COVID-19.

Multiple study participants recounted their experiences of encountering misinformation from their patients, including rumours about the possible origins and outcomes of the COVID-19 epidemic and beliefs related to political and health structures. These translated into a widely reported refusal or reluctance to engage with health facilities, including for SRHR services. Many respondents cited the need for awareness-raising work and healthcare staff training as a means of combating mis- and disinformation, and the resultant low engagement with SRHR services.

Different rumours, hearsay and speculations about COVID-19 circulated widely among rural and urban health centres and respondents. A Bamako hospital midwife summarised things succinctly, stating that there are, "those who believe in the disease and others who do not. There are all sorts of 'apparently' theories that we heard[.] [E]veryone was afraid but there were others who did not believe in the disease. They believed that it's all state-sponsored stuff, to get money and so on."

The various tropes at work in the narratives people shared with each other were also eloquently recounted by a Bamako hospital pharmacist:

> *They talk about [COVID-19] as a curse, a punishment from God for bad lifestyles, many sins have been committed and God is correcting us. Or it's state-run robbery. Or God has come up with this [to show up the miscreants]. Only the robbers, the rich will catch it. It's not a disease of the poor. We hear all kinds of things, I must say. Often, it's understandable because it's an illness that was discovered elsewhere and has been imported here. Therefore, if it's imported it can only be imported by people who travel in far off countries, and those people must be of a certain social class. Those are roughly the connections people make.*

ii) Cost-related access barriers

As in the context of low prioritization of SRHR services, cost barriers to SRHR services during the COVID-19 pandemic also yielded testimony via what remained unsaid by participants. Given a largely poor population and the prohibitive prices of non-subsidised sexual and reproductive health products, cost barriers to SRHR services in Mali were already a significant barrier to SRHR services. Not one interviewee mentioned improvements in this regard during the COVID-19 pandemic.

Cost limitations faced by clients in accessing SRHR services were mentioned by many respondents. Clients' inability to pay for family planning products and STI treatment was mentioned, with service provision increasing when either NGOs supported free services, or suppliers had promotions. COVID-19 disruption to NGO service was mentioned often by respondents resulting in increased cost barriers for clients. Cost barriers to innovations to improve COVID-19 service disruptions were also mentioned. Telephone consultations, a common solution to pandemic-related access barriers, were described as dependent on the availability of both healthcare worker and client personal phone credit. SRHR staff also mentioned feeling additional pressure as they realized that their clients were finding it increasingly hard to access and pay for services. A pharmacist at a Bamako hospital stated that, "At one point, the prices of some products increased in some facilities, but thanks to our stocks, this was not the case with us."

Other respondents had direct experience of financial issues as a real barrier to women's ability to access SRHR services. One Bamako midwife, for example, said, "I mentioned that an NGO comes once a month to give free family planning, it's during those days that you see that people cannot afford contraception. We can't [meet their needs] because they have to pay for their follow-up. On the free day, we got a lot of women. If we managed to get funding, or some assistance, even if the NGOs didn't come, we could provide for the population at a lower cost."

Interview data suggested that not only did clients' ability to pay for services decline during the period, so did the capacity of the health system to get required SRHR products to patients. As one respondent said, "We regularly have meetings amongst the pharmacists at our level of health provision in Bamako, and we have noticed that family planning supplies are not bought in the required quantities. The sales representatives who

work with the family planning service come with samples of their products, [so it becomes] like a campaign with free gifts."

With the state-imposed restrictions on movement and social interaction during the pandemic, cost-related barriers to uptake of SRHR services increased significantly during the COVID-19 period in Mali.

Urban v rural provision

Both rural and urban staff mentioned problems with receiving sufficient supplies of essential products, as well as specialised SRHR products, and both rural and urban respondents specifically mentioned the reticence of their respective populations to access services at their local health centres. Whereas urban facilities in Bamako benefited from higher staffing numbers, and a more efficient supply chain, they also experienced higher incidence of COVID-19 and its related stresses.

*Innovations/***adaptations** *to services offered*

Commitments to service provision were demonstrated through health worker adaptations, undertaken in order to continue service to users. These included an increase in community-based service provision, mobilization and information by CHWs, and phone-based services, while service adaptations include increased use of infection prevention measures and staff task shifting.

One rural midwife said, "[Since COVID-19 came] we have a mobile team consisting of a midwife and a nurse who go into the community to provide family planning services, and for the prevention and treatment of STIs." A Bamako community health worker also shared that as a result of the "big reduction in attendance", they now went "out into the community to do our work." Community health workers seemed to come into their own, as "community links", "always in contact with the community". A CHW at a Bamako CSRef explained, "I am the link between the centre and the community. […] Many patients come, because we alert them before the day of the service [family planning day, health education, vaccination etc.] Respondents also spoke of being available to their clients by telephone. According to a Bamako CSCom doctor, "We told people to call us and if we didn't want to be called, we could say that such and such a person was available. We always leave instructions for the organisation of support structures. There is continuity."

Other adaptations to services were linked to COVID-19 advice given to the public, focussing as it did on handwashing and mask-wearing. One Bamako community health worker said, "[Of] course, there have been changes. Previously, we did not think about handwashing with soap, [and] wearing a mask was not obligatory." Thus, the pandemic was a means to highlight a change by commission, in this instance, rather than omission, as in the case of stock-outs or the unavailability of PPE.

Discussion

Prior to COVID-19, universal provision of a comprehensive and high-quality package of SRHR services in Mali was below optimal. This study explored how the COVID-19 pandemic influenced Malian healthcare providers' ability to provide these services. This is the first study to specifically explore this subject and it does so via SRHR provider experiences. We found that within the public health sector, COVID-19 has created service provision constraints across service areas, facility types and levels, and for a range of service providers. Almost all facilities reported experiencing negative effects due to COVID-19 and although no facility reported complete service cessation, some were reduced to offering only delivery or emergency services for the entirety or part of the COVID-19 period. Stresses on stocks and staffing as well as low prioritization of SRHR led to reduced service provision, while client willingness and ability to access these services also declined.

Stock issues – whether shortages or complete absences – were attributed to insufficient government funding and/or a dependence on NGO provision, many of which ceased operation during COVID-19 waves. Reported staffing stresses stemmed from a lack of adequate staffing expertise and number. Inadequate and irregular government provision of COVID-19-related personal protective equipment (PPE) led to additional financial and mental health worries for staff already stressed by an increased workload. A 2020 USAID commodity assessment found that key Malian health supply chain issues included: erratic allocation and disbursement at distribution points (with four steps between central stores and HW level), a parallel

system of NGO supply provision (highlighted often in this study), and an uncoordinated, non-centralized supply chain decision-making process[10]. In terms of staffing, Mali's capacity to train and maintain an increased healthcare workforce is constrained. Moreover, the few available professionals – in 2017 the country had only six qualified providers per 10,000 inhabitants – are unevenly distributed throughout the country with most located within the capital[11].

In terms of client willingness and access issues, cost came out clearly as a long-standing challenge to effective SRHR coverage and provision, and in particularly for family planning services. Though healthcare workers did not clearly state that clients' ability to pay had been affected by COVID-19, it is known that Malians experienced increased financial stresses due to national movement restrictions, cost of living increases, and reductions in work opportunities. According to the World Bank, COVID-19 and the political crisis placed Mali into an economic recession, with poverty levels increasing by 5% in 2020[12,13]. In terms of price increases, we found references to cost increases for SRHR items linked to limited stock supplies, as well as reductions in the ability to offer free services due to a reduction in NGO support. This meant that many facilities stopped free service provision, or increased existing costs, at the same time as clients' ability to pay was most likely declining. NGO dependence was cited frequently in CSComs, which operate a cost recovery model. These facilities are closest to the communities and the first point of care. A reduction in cost-related access within these facilities limits choices for the most vulnerable, widening health inequity, and further reducing community resilience and development.

Challenges to the ability to finance Universal Health Care coverage are well documented across Africa[14-16]. This is even more evident within SRHR provision, which often is not prioritized within health provision. This leaves SRHR costs to be covered mainly by clients as point of service payments, and/or official development support. This is the case in Mali, where the national government's 2018 Free Maternal Healthcare for All Policy is yet to be enacted. Reducing out-of-pocket payments and enhancing financial risk protection for SRHR is ever more pertinent, considering the widening inequity due to COVID-19, the need for Universal Health Coverage and the link between improving SRHR, community development and resilience. WHO estimates a requirement of $9 per capita per head for adequate SRHR package provision[17]. This amounts to the entirety of the Malian government's health spending pre-coup and pre-COVID-19. In 2019, annual health care spending, at $39 per person, was mostly from out-of-pocket expenditure ($11) and external funding $10, with only $9 provided by the Government[3]. The recent 2020 political coup further reduced healthcare allocation, with prioritization shifting to stabilization. Increases in domestic funding, therefore, might be difficult and a request for increased and sustained external funding and implementation may provide more results. However, reductions and shifts in global development and humanitarian funding, as well as the protracted insecurity within Mali, pose challenges in this respect.

Fear and misinformation around COVID-19 were referred to both in terms of facility staff and clients. This was considered a key factor in the reduction of service provision. Our findings stress the need for appropriate communication, to mitigate some of the effects of pandemic disruption. Though appropriate methods for this were not fully explored, some study participants referred to CHWs as being key in this respect. Inadequate communication methods and measures for SRHR services within Mali have been documented, and one study highlighted that nearly a quarter of Malians had not even heard of family planning, and that those who had received their information from media or friends, rather than from healthcare workers or other credible sources[18]. This double lack of credible information can readily affect positive health choices, as the risks (COVID-19 and SRHR services themselves) are perceived to greatly outweigh SRHR benefits.

In this study, we witnessed on many occasions the resourcefulness, commitment, and adaptability of SRHR staff in trying to counter the many and increasing challenges faced. Across all settings, facilities and staff cadres, staff adapted rosters and rotations, task-shifted and shared working methods to ensure facility-based SRHR service provision. Innovations to increase health facility access for those unable or unwilling to come, or in light of facility service cessation, were also enacted, such as telephone follow-up for

clients in particular need, and an increase in community mobilization and service provision. Examples of self-funding essential items such as PPE, WASH materials and phone credit were shared with study personnel, further highlighting their depth of commitment. This highlights the importance of localized resilience and adaptation in countering COVID-19-related SRHR provision challenges, and the need for Malian government and donor support to foster these mechanisms. A pertinent, achievable, priority for the Malian Government and its external donors would be to better enable healthcare workers to conduct duties, by ensuring the safety and readiness of the available workforce. This might be in the form of vaccination, PPE provision, training on standard operating procedures (SOPs) and guidelines for essential service provision.

Another interesting aspect of this study was that COVID-19 was credited with improving infection control measures (IPC) by at least two study participants, including in one hospital. Adequate and appropriate IPC, though made paramount by COVID-19, should be in place in health facilities at all times. It would be an interesting topic for future research to determine whether infection rates for other diseases have reduced after installation and use of facility-based IPC measures.

Limitations

Responses may have been affected by participants not wanting to appear dissatisfied or critical of the system due to fear of being reprimanded by their employer and/or the state (social desirability bias). This study did not either examine the experience of the private sector. An understanding of how private healthcare provision was affected by COVID-19 would allow for a more comprehensive understanding of SRHR access and provision in the COVID-19 context and would also permit the development of holistic healthcare recommendations.

Recommendations

Below are some key recommendations for improvements of SRHR provision within Mali. They are organised by area: Funding, National Coordination, Service Provision and Population Uptake.

Funding

Lobby for optimization of the national universal health coverage plans, using evidence-based advocacy to prioritize SRHR improvements in line with Mali's key frameworks: the Health Financing Strategy for UHC, 2014-2023, as well as the Global Action Plan for Healthy Lives and Well-being for All. To achieve these priorities, funding will have to be created or reallocated for SRHR services. To enable this, development and humanitarian funding bodies must be convinced of the need to improve the realisation of promised commitments and employ funding strategies that prioritize SRHR.

National coordination

Strengthen existing decentralization of healthcare strategy with tactical support for SRHR-equipped CHWs in COVID-19. A strengthened facility-based and population surveillance would enable improved needs-based support and targeted action at all levels, as well as oversight at all levels. Improve coordination and accountability of humanitarian and development actors. Promote health system strengthening and durable solutions that allow sustainable action and transfer of competencies, rather than substitution. Also, work with NGOs to improve the ability to continue operations during disease outbreaks, such as COVID-19, to minimize disruption during times of heightened need.

Service provision

Investigate mechanisms to improve coordination between the Malian government's logistics systems and those of NGOs for improved stock visibility, quantification and forecasting, as well as streamlining data and commodity flow between major public health supply logistical hubs. Including prepositioning or reallocation during COVID-19 times. This could be achieved through maximizing inputs from USAID's 2020 Mali Health Systems Strengthening, Governance, and Financing Activity and other supply-related initiatives. Build on the willingness and commitment of the existing healthcare workforce to ensure optimization of current available resources. Protecting health workers from work-related COVID-19 transmission through: health worker COVID-19 vaccination, adequate and reliable PPE, IPC materials in health facilities, and providing

health facility-based guidelines for COVID-19 precautions along with adaptations for the safe provision of essential services, including extending community health provision. Capacity building initiatives, and non-monetary recognition could also go a long way in building and maintaining motivation and commitment.

Population uptake

Development of an information and behaviour change strategy at all levels (national – individual) could benefit both SRHR uptake and informed decision-making around COVID-19. Community or facility-based health workers could be trained to provide gender- and age-relevant behaviour change initiatives, while a campaign to counter misinformation could be conducted by mass media as well as via interpersonal mechanisms.

Ethics approval and consent

The study received ethics approval from the Institutional Review Boards (IRB) at the Faculté de Médecine, Pharmacie et Odonoto-stomologie in Mali and the International Center for Research on Women. Study structure, content and intended use were described through phone communication, and all participants provided informed consent prior to study inclusion.

Conclusions

The COVID-19 pandemic has disrupted sexual and reproductive health services in Mali. The added stresses on stocks, staffing, and ability to offer free services have reduced health workers' ability to provide the normal package of SRHR services. Demand for services also reduced mainly due to increased costs, reductions in economic capacity and misinformation around COVID-19. This has been experienced within both urban and rural settings, at all levels of public health provision and by all cadres of SRHR providers. Lessons from past COVID-19 waves are useful in directing realistic and meaningful service provision adaptations to improve care during expected future waves.

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Conflicts of interest

None of the authors of this paper have any known conflicts of interest likely to influence or otherwise impact on the outcomes of the research.

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