



# Challenges in Implementing the National Health Response to COVID-19 in Senegal

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## Abstract

Since the beginning of the COVID-19 pandemic in Africa, many epidemiological or anthropological studies have been published. However, few studies have yet been conducted to understand the implementation of State interventions to fight the COVID-19 pandemic. In Senegal, the national response plan was planned before the country experienced its first official case of COVID-19 on 2 March 2020. This qualitative study, conducted in March and April 2021, based on 189 interviews, aims to understand how the national response has been implemented in several regions of Senegal. Implementation of the response to the pandemic was favoured by good preparation, capacity to adapt, responsiveness of health actors, and commitment for both the political and religious authorities. The implementation response was confronted by several constraining factors such as the coercive approach, the challenges of coordinating actors, and the lack of intersectoral response. The central level has sometimes used reflexivity processes to adapt its response, but it has remained highly politicized, centralized, directive, and with little involvement of civil society. In Senegal, the response to the pandemic has been implemented in a relatively political and directive, even coercive manner, without necessarily considering prior knowledge and the need to adapt it to local contexts and to involve civil society and community actors in the process.

**Keywords** COVID-19 · Senegal · Response · Implementation · Policy

In 2021, seroprevalence studies of SARS-CoV-2 (COVID-19) in Africa began to be published. These studies show the percentage of exposed population (seroprevalence) to SARS-CoV-2 and illustrate how COVID-19 is circulating on the continent. The results range from 0.4% in Cape Verde in June 2020 to 49% for antenatal care (prenatal) users in Kenya in December 2020 (Tessema & Nkengasong, 2021), to 73.4% in a neighbourhood in the capital of Mali in January 2021 (Sagara et al., 2021). Virus circulation has continued despite rapidly implemented government measures in most African countries (Van Damme et al., 2020), particularly in francophone West Africa (Bonnet et al., 2021). Yet, the evolution of the COVID-19 epidemic and government actions do not seem to be correlated, or it is simply impossible, given the current state of knowledge and methods, to test

the hypothesis in a natural experiment setting (Petticrew et al., 2005). For example, border closures do not appear to have dramatically affected the spread of the virus in Senegal (Emeto et al., 2021).

The majority of African states realized the magnitude of the pandemic early on. Senegal, which recorded its first case of COVID-19 on 2 March 2020, held meetings to plan its response as early as January 2020 (Diouf et al., 2020). Around the world, multiple forms of governmental responses to the pandemic have emerged. Numerous studies have previously modelled their potential effects and the reality of their effectiveness (Cabore et al., 2020; Li et al., 2020). Other studies have then attempted to measure and understand the social acceptability of these measures in Senegal (Ridde et al., 2022) and worldwide (Lazarus et al., 2020). Understanding effectiveness and acceptability requires understanding how these measures were implemented. The study of public policy and public health research has shown the importance of implementation analysis. Yet, this type of analysis is still rare globally, particularly in Francophone Africa regarding health policies (Saetren, 2005; Olivier de Sardan & Ridde, 2015; Gilson

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et al., 2018). In addition, a recent synthesis confirmed the limited use of theories and conceptual frameworks from public policy implementation studies conducted in Africa (Jones et al., 2021).

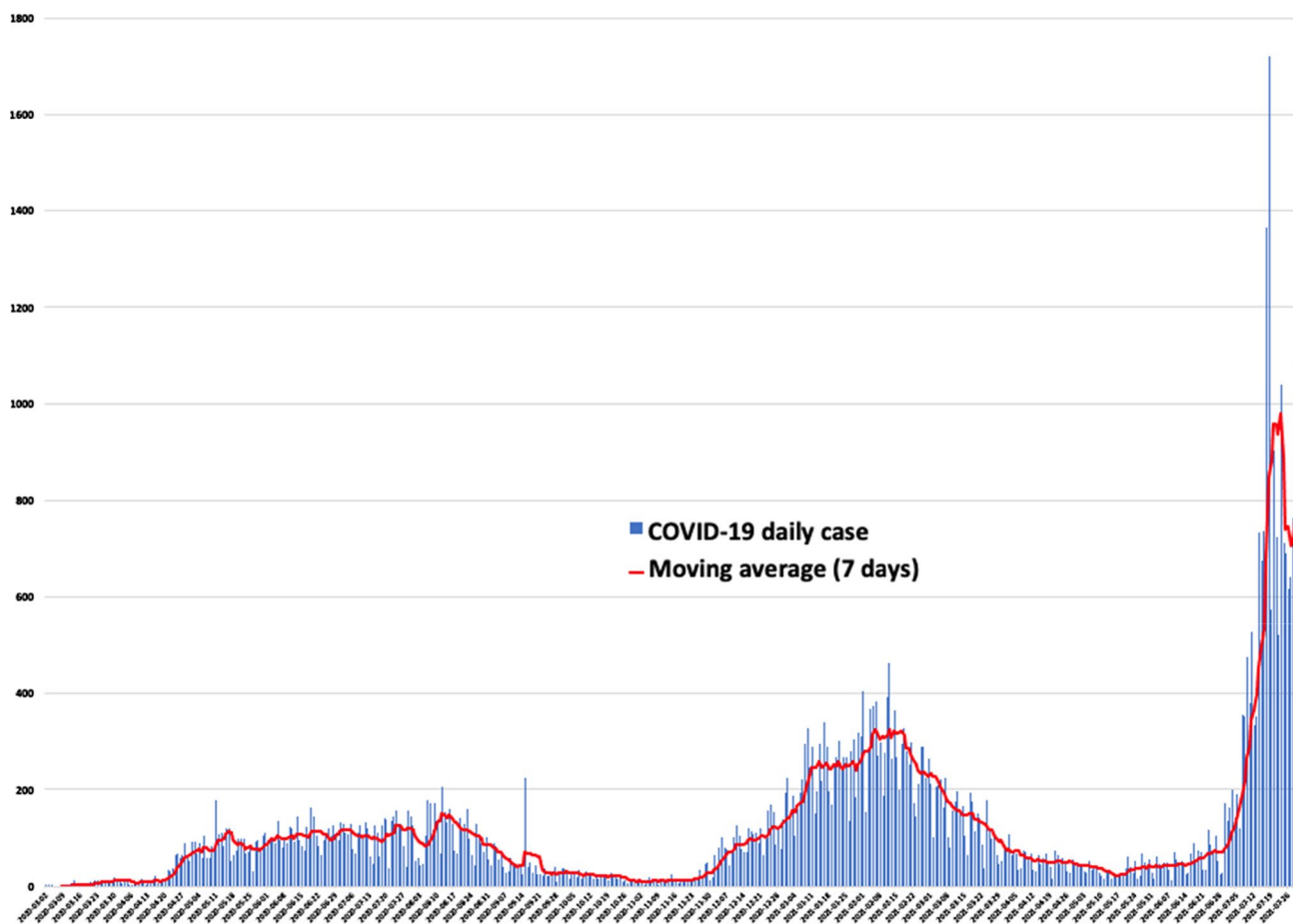
Several authors have highlighted the importance of developing health policy analyses in Africa in the context of the COVID-19 pandemic (Gilson et al., 2020). In March 2020, the World Health Organization (WHO) suggested a roadmap for pandemic research. It emphasized the importance of understanding the implementation of public actions, the perspective of stakeholders, and not only focussing on their impacts (WHO & GOLPID-R, 2020). Indeed, the history of public policy studies shows that frontline actors are the actual policymakers (Lipsky, 2010). This broad understanding has been demonstrated in Africa (Erasmus, 2014) and more recently regarding the measures implemented against the COVID-19 pandemic in Tanzania (Carlitz et al., 2021; Yamanis et al., 2021). Taking into account the views of these actors (in terms of their understanding, but also their acceptance Hill & Hupe, 2014), especially at the local level, is an important element in understanding and planning the pandemic response (Semaanet et al., 2020).

## Background

This research aims to describe the facilitating and constraining factors of the implementation of the national response against COVID-19 in Senegal. The study took place in March and April 2021 in Senegal. The country had just experienced a second wave of COVID-19 cases (Fig. 1) that had been more severe than the first.

Before the arrival of COVID-19, Senegal had structures for responding to health disasters such as the National Epidemic Management Committee (CNGE) and its regional and local committees, and the Health Emergency Operations Centre (COUS), which coordinates the response to any health event of national or international concern. These structures were created at the time of the response to the Ebola epidemic (Ridde & Faye, 2022).

In our research, the national response is understood as the set of actions undertaken by the government to combat the COVID-19 pandemic. The aim is not to analyse each of the measures individually (Table 1), but rather to understand how the State implemented the public action



**Fig. 1** Evolution of the number of COVID-19 cases in Senegal until 31st July 2021. *Note* Adapted from <https://www.covid19afrique.com>

as a whole. This broad understanding is necessary since these measures were organized in a non-linear manner, intertwined between decision, application, and removal times (Bonnet et al., 2021; Salyer et al., 2021). In this article, these measures are equivalent to the concept of policy instruments (Howlett, 2011).

## Research Design and Methods

This research is a retrospective qualitative multiple case study design where the case is understood as the national response to the COVID-19 pandemic (Gilson et al., 2018;

Yin, 2012). As proposed by Yin (2012), a multiple case study provides a better understanding of a series of contemporary events such as the response to a pandemic over which researchers have no control. In addition, studying the same case in different and contrasting situations can be a useful source of learning about the role of context, which is known to be essential in public health intervention research (Craig et al, 2018). However, for financial and logistical reasons, it was not possible to visit all (14) regions of the country. Therefore, a reasoned selection of regions was made based on the Ministry of Health's need for information (a national point of view) and the distribution of the pandemic to have a variety of

**Table 1** Main state measures in response to COVID-19 in Senegal

Key measures	Date
Prohibition of gatherings	14/03/2020
Closure of schools and universities	14/03/2020
Quarantine (14 days) of suspected cases and contacts	15/03/2020
Closure of borders	20/03/2020
State of health emergency	23/03/2020
Curfew from 8 p.m. to 6 a.m	23/03/2020
Closing of the markets	23/03/2020
Limitation, and if necessary prohibition, of region-to-region passenger transport	23/03/2020
Mandatory wearing of masks in public places	19/04/2020
Outpatient management of asymptomatic cases in dedicated containment sites (Dakar, Thiès, Mbour)	07/05/2020
Repatriation of the bodies of our compatriots who died of COVID-19 abroad, in compliance with the required health conditions	11/05/2020
Curfew from 9 p.m. to 5 a.m	11/05/2020
Rearrangement of office hours from 9 a.m. to 4 p.m	11/05/2020
Markets and other businesses open 6 days and closed 1 day for cleaning	11/05/2020
Weekly markets ( <i>loumas</i> ) reopened within the boundaries of each Department	11/05/2020
Reopening of places of worship after the necessary consultations with spiritual guides and religious associations to agree on the terms and conditions	11/05/2020
National education: resumption of school classes on June 2 for the examination classes, i.e. 551,000 pupils, public and private, out of a total of 3,500,000	11/05/2020
Follow-up of lessons from the Learning at Home system, which is available on its television, radio, and digital platforms for pupils in other classes	11/05/2020
Distance learning arrangements for the University	11/05/2020
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Distance learning arrangements for the University	11/05/2020
National education: postponement of the resumption of classes initially scheduled for 2 June 2020 until a later date	01/06/2020
National education: postponement of the resumption of classes initially scheduled for 2 June 2020 until a later date	01/06/2020
Curfew from 11 p.m. to 5 a.m. on 7 June 2020 at 5 a.m	04/06/2020
Resumption of intercity transport on 7 June 2020 at 5 a.m	04/06/2020
National education: resumption of classes for exams on 25 June 2020	17/06/2020
State of emergency and related curfew lifted as of 30 June 2020 at 11 p.m	29/06/2020
Adjusted office hours for administration restored to the normal hours of 8 a. to 5	29/06/2020
Closing of public markets one day a week for cleaning remains in force	29/06/2020
Places hosting closed recreational activities will remain closed	29/06/2020
The air borders will be reopened as of July 15, and international flights will resume according to a defined sanitary protocol	29/06/2020
Land and sea borders remain closed until further notice	29/06/2020

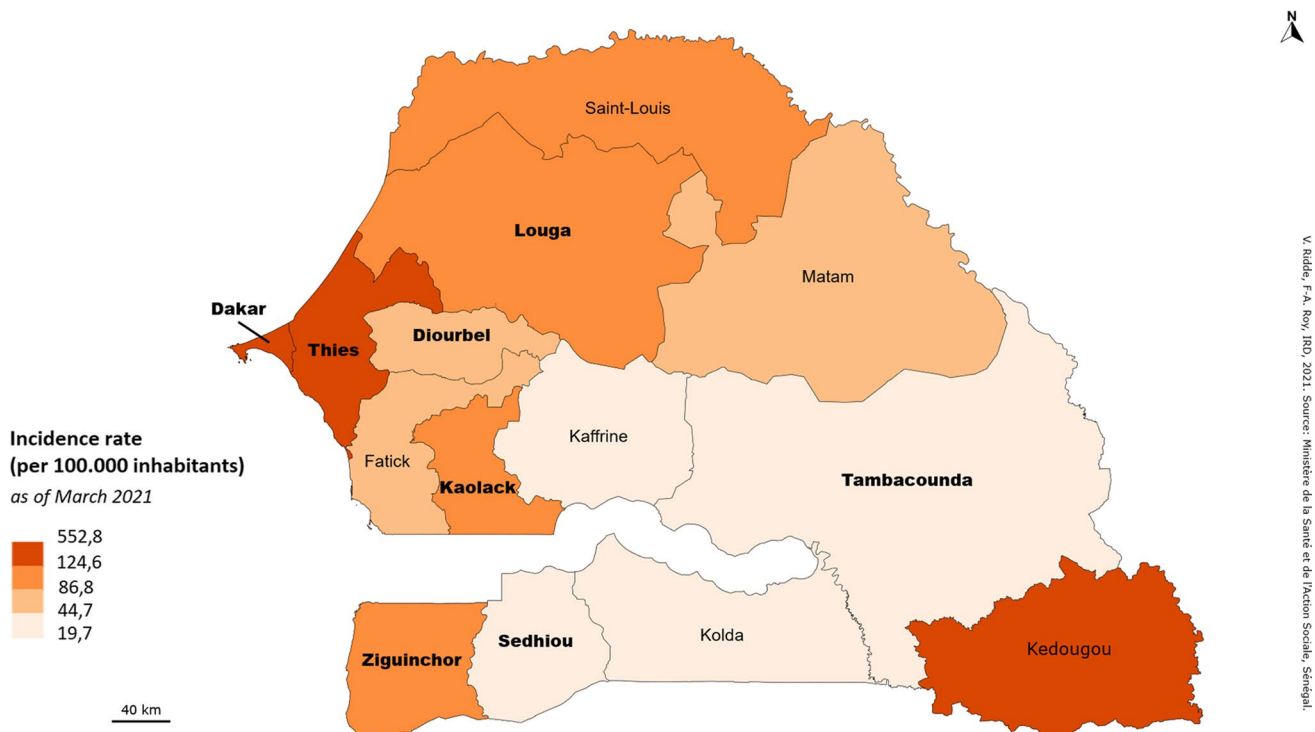
epidemic contexts. The contrasted context are eight of the 14 regions of Senegal, namely Dakar and 7 other regions (bolded and capitalized on the map, Fig. 2). Based on the incidence rate of positive cases per region (Fig. 2), we chose regions that ranged from *very* (e.g. Thies), to *moderately* (e.g. Kaolack), to *little* (e.g. Sedhiou) affected by the pandemic. The choice of this unique criterion for selecting regions representing different incident rates of the virus in different regions was to study the governmental response in different epidemiological contexts. This context is not only related to the virus and the regional situations, but also concerning the populations, their way of life, their distance from the capital, or the organization of local health systems. We will see in the results that these differences did not fundamentally cause various favourable or unfavourable factors, thus certainly showing the weight of the State and its public administration in the organization of the same policy at the country level.

### Conceptual Frameworks

The research was based on two implementation science conceptual frameworks whose contents were specifically adapted for the Senegalese context and for the intervention (see Supplementary File 1 for adaptation details).

On the one hand, data collection was based on the conceptual framework of the policy quality implementation (Meyers et al., 2012), whose adaptation to the West African context has recently been shown (Eboreime et al., 2019). Within the four main ‘phases’, the authors propose 14 steps that need to be considered to ensure quality implementation of policies (Meyers et al., 2012). In the first part of the interviews with research respondents, the wording of each of the steps (in as many questions) was adapted to the response to the COVID-19 pandemic in Senegal.

On the other hand, the second part of the interview guide was organized in such a way as to allow actors to position themselves in a reflexive perspective regarding the response about the quality implementation (Alexander et al., 2020). Prior reflections on the dimensions of implementation quality allowed the interviewees to reflect on the enabling or constraining factors. Thus, the analysis of the data and the results section of this paper are organized according to these two types of factors and with regard to the main themes that emerged during the discussions with a more inductive approach. The analysis of constraining and enabling factors is often used in the study of policies in Africa (Sakyi, 2008; Seward et al., 2021).



**Fig. 2** Regions selected for the study (bold) and incidence rate of COVID-19 positive cases. *Note* Adapted from <https://www.covid19afrique.com>

## Study Population and Sampling

The study population was those concerned with and involved in the implementation of the response, i.e. health staff and leaders of community-based organizations and local government, as well as officials who participated in the formulation (and implementation) of the response (Table 2). The authors compiled an a priori list of stakeholders, based on the fact that they are affected by the location studied, to ensure some comparison between regions and triangulation of empirical data (Brugha & Varvasovszky, 2000). In qualitative research for implementation research, it is advisable to use a purposeful sampling approach (Palinkas et al., 2015): “selecting information-rich cases whose study will illuminate the questions under study” (Patton, 2015). Therefore, in the field and in each of the selected regions, we proceeded with qualitative, purposeful sampling by seeking internal diversity (Patton, 2002) within the groups concerned to have a plurality of perspectives. Regional empirical saturation guided the sample size and the availability of actors for interviews.

## Data Collection

Seven pairs of research assistants under the supervision of the two authors conducted data collection in regions outside Dakar in March 2021. Data collection in Dakar (the capital) then took place the following month (April 2021) to take advantage of the preliminary results from the regions to conduct the interviews at the central level with another pair of assistants. These eight pairs were composed of individuals with knowledge of the Senegalese health system and solid training in qualitative research. The two researchers and a Ministry of Health official involved in the response at the central level trained the assistants for 1 day.

The qualitative data are based primarily on individual interviews, but sometimes small group discussions were

necessary to accommodate the availability of individuals. The interviews were conducted following the two frameworks described above (i.e. quality implementation + enabling or constraining factors, see Supplementary File 1). The two authors conducted interviews in Dakar with central-level officials. All empirical data were collected according to the principle of empirical saturation to triangulate the information (Table 2). Most of the interviews were recorded digitally. Some unpublished administrative or research documents were also collected for content analysis. Where relevant, these documents are cited in the article's results section.

## Data Analysis

Empirical data analysis was conducted in several stages using the multiple case study analytical approach (Yin, 2012). As is often the case in qualitative research, the analysis of the data is concomitant with its collection. Therefore, during data collection, daily and weekly analysis reports from the research assistants and exchanges with the researchers allowed initial real-time analyses to emerge for each region. Each of the eight research assistant peers wrote an initial analysis report for each of their regions preliminary report of the assistants' analysis of the data for each case provided feedback from the researchers. A common report outline for all teams was followed to support case-by-case analysis and facilitate cross-case analysis based on enabling or constraining factors framework, following Yin's (2012) proposals for multiple case studies. In addition, the framework analysis approach guided the entire analysis of the multiple case study to compare and organize the data using the two conceptual frameworks of the study (Ritchie & Spenser, 1994) while taking into account new dimensions and emerging information from an inductive perspective. A

**Table 2** Number of interviews by stakeholder category

	Kaolack	Diourbel	Louga	Sedhiou	Tamba	Ziguin	Thies	Dakar	Total
<b>Administration</b>									
Central Administrative Authorities								13	13
Regional/departmental administrative authorities	4	6	6	4		2	2	4	28
<b>Hospital and epidemic treatment centre</b>									
Chief Medical Officers (regional, departmental)	5	6	4	5	3	7	4	7	41
Doctors, dentists, etc.			6		3		4		13
Nurses, midwives, etc	2	6		2	3	4	1	3	21
Support staff (labourers, etc.)	5	1	2	3	4	2	3	6	26
<b>Community</b>									
Experts (academics, inspectors)					1	1		3	2
Members of community organizations/NGOs	5	6	4	10	4	5	4	7	45
<b>Total</b>	<b>21</b>	<b>25</b>	<b>22</b>	<b>24</b>	<b>18</b>	<b>21</b>	<b>18</b>	<b>40</b>	<b>189</b>

half-day workshop brought together researchers (the two authors) and research assistants to discuss the study findings and lessons learned about enabling or constraining factors across regions.

Based on these three analytical processes and a literature review, the researchers carried out a general synthesis that resulted in a preliminary report with a view to analytical generalization to understand how the qualitative data from the different cases would provide a logical sequence of similar situations in other locations (Yin, 2012). We attempted to identify regularities in the processes we present around the enabling and constraining factors as implementation determinants frameworks dimension (Nilsen, 2015).

Preliminary results were first sent by e-mail to key national policymakers and then, in June 2021, presented during a half-day workshop organized by the Ministry of Health in the presence of about twenty people from the central level, academics and donors, several of whom had been met during the study. The discussions helped to strengthen the validity of the content of the analyses and to refine the results a summary of which is presented in this article. This study was authorized by the National Health Research Ethics Committee of Senegal (MSAS/CNERS/SP/043) et Ministry of Health (MSAS/DPRS/DR/00414).

## Results

The analysis of the implementation of the response identified many enabling factors in its organization, but also several constraining factors (Table 3). The analysis shows that there are few differences in implementation factors across regions. However, where this was the case, we have specified it specifically.

## Enabling Factors

One of the factors most emphasized by respondents was the upstream preparation for the arrival of the cases and, therefore, the anticipation capacity of the actors. As at the national level, where meetings were organized well before the arrival of the first case, actors at the regional and local levels also anticipated the arrival. A doctor in one region said: “As soon as COVID was declared in China, we did not sit back and watch. On the instruction of the ministry, we started to prepare”. Almost everywhere, the actors say that meetings were organized, committees (re)set up, with a large number of actors around the table most of the time. In one region, the actors emphasized the importance of creating a departmental committee that was inclusive of local actors and the community, such as young people from the neighbourhoods.

Innovation and resourcefulness were often required to adapt equipment, personnel, and infrastructure. Here, a new building that had been abandoned because of a water tightness problem was rehabilitated in a hurry; there, a health centre was transformed into an epidemic treatment centre (ETC); elsewhere, a large hospital that was not yet fully open was transformed into one of the largest ETCs in the country. This adaptation can be explained by the uncertainty surrounding the disease (“at the beginning, everyone knew everything, but no one knew anything” recalls one doctor) and the modes of transmission of the virus. This uncertainty meant that the initial treatment was only hospital-based, as the precautions and resources could only be mobilized in this type of specialized structure.

The preparation was, of course, not always perfect. One district medical officer revealed, “even at the very beginning we were not prepared for this” and it was often necessary to make adaptations. The regions quickly organized themselves to have an *incident management* system and regional epidemic management committees.

Past experience was also useful. In one region, some doctors had experience fighting Ebola in Guinea or the Democratic Republic of Congo, and in another region

**Table 3** Enabling and constraining factors for the implementation of the response in Senegal

Enabling factors	Constraining factors
Good preparation	Coercive approach
Ability to anticipate and adapt	Uncertainty, stigma, denial of the disease
Reactivity of the actors	Lack of equipment and personnel in some medical facilities
Commitment of authorities and communities (civil and religious)	Funding problems (delay, shortfall, distribution)
Communication strategies	Specific geographical contexts (isolation, borders)
Capacity building of local actors	Coordination challenges between social actors and donors
Mobilization and motivation of health personnel	Centralization of the response and delays in decentralization
Home-based management and follow-up of contact cases	Coordination and cross-sectoralization

had exchanged Ebola equipment. A regional ETC official explains:

Me I had the chance... when I arrived here a few years after there was the Ebola epidemic and during this Ebola epidemic we were involved in the management. And so we based ourselves on this experience, the management of the Ebola epidemic to reactivate and revitalize very quickly the device that was put in place.

However, in areas far from the capital, some people complained that professionals trained in the management of Ebola were not retained in the hospital facilities. At the central level, several actors mentioned the commitment of high authorities, such as the Minister of Health, who was attending a weekly meeting to monitor the progress of the World Bank COVID-19 project. A mayor of a Dakar commune claims to have spent a budget of 100 million CFA francs on food aid at the beginning of the pandemic. In some regions, the regional authorities or local communities were mobilized significantly, such as this town hall that has mobilized 500,000 CFA francs to support “the strengthening of the capacity of community actors” says a municipal official. Moreover, with the help of the prefect, the municipal authorities organized kitchens for the Daara (*wagnou daaras*) to prevent the *talibés* (students) from having to go out to beg. These local supports have sometimes compensated for the supply challenges encountered at the central level. In addition, central-level officials often refer to the presidentialization response to the pandemic. On several occasions, the President of the Republic was clearly involved, including in micro-management processes, in defending the place of a particular doctor in the coordination bodies, or in authorizing a private laboratory to carry out tests. It so happens that “the first case was diagnosed on the day of the first Presidential Council” recalls a doctor.

Others spoke of the value of processes of reflection on the implementation of the response, and in particular of analysis along the way, otherwise known by WHO as interaction reviews (IARs), for which a 14-page guide has been proposed (WHO, 2021). The IAR took place over 5 days in September 2020, bringing together about 100 people. Senegal would be the first country in West Africa to have organized such an IAR. The opinions seem to affirm that this capitalization process was very useful to understand the implementation of the response during the first six months, particularly the challenges of coordination and intersectorality (CNGE, 2020). The IAR helped draw up a list of 15 activities to be prioritized and to better understand its past strengths and weaknesses. It was planned that regional IARs would feed the national IARs to refine its content, but this was not possible, a priori, due to lack of funding. In addition, at the end of December 2020, the multisectoral operational coordination group for the response to COVID-19, under the

leadership of Emergency Health Operations Center (COUS) and at the request of the National Epidemic Health Management Committee (CNGE), organized a 4-day workshop in a hotel in Somone (1 h from Dakar) to reflect on the adaptation of strategies in the context of the beginning of the second wave. It was essential to produce an action plan adapted to the second wave and covering, theoretically, the period from December 2020 to February 2021.

Community involvement (civil and religious) has often been critical to the quality of the implementation response (Carillon et al., 2021). In one commune in Dakar, neighbourhood delegates were mobilized to organize information meetings. In a rural region, the president of a network of community actors, such as the president of the *Badiagnou Gox*, explained how they mobilized, even without all the necessary means.

In another region, where there is a strong religious presence, the commitment of religious leaders was a key factor in the social acceptability of the measures. However, this was not so obvious at the beginning of the pandemic. Indeed, the population was relatively skeptical about the presence of an epidemic, notably because “the discourse of the religious authority (which has the value of an instruction (*Ndigël*) to be carried out by any person claiming to be a member of the Mouride brotherhood) was not sufficiently explicit in this sense” (Niang et al., 2020). In another region, mosque loudspeakers were mobilized to raise public awareness. One Iman claimed to have used his preaching to convince people to be more attentive to the contagion. In the same region, community involvement was also observed due to the support of some patients, who, once recovered, wanted to contribute to the management of the crisis. The head of the social service remembers: “It was not uncommon for a former COVID patient to decide to take charge of the food for the whole hospital during a weekend. They would send us trays. It was incredible”.

The communication strategies put in place were useful and often took the form of public awareness activities. In one region, university actors took on the role of scientific mediators by talking about the disease and the virus on the radio. In April 2020, action research was undertaken, including on prevention measures (Niang et al., 2020). Non-governmental organization (NGOs) and other local associations were thus able to draw on this knowledge to raise community awareness. Elsewhere, community radio stations have been widely used to talk about the pandemic and the measures to be taken. Nevertheless, journalists in the same region stated that “access to information has been difficult.”

Capacity-building activities for local actors have been important and useful, whether they concern health personnel or employees of local authorities and community organizations. These activities were mainly carried out in training sessions on protocols from the central level (infection

prevention and control), with a classic pyramidal training mode from central to local level. Other training sessions in at least two regions where academic institutions are present benefited from the presence of university actors specialized in health or social sciences. Sociology students were also widely mobilized in one region.

In a region that was heavily affected but had no hotel capacity, the stakeholders interviewed thought that the follow-up of contact cases and home-based care were useful in making the response effective. In another region far from Dakar, home-based care was considered a good remedy to the challenges of quarantine in ETCs and its stigmatization or denial processes. In Touba, a study confirmed the stigmatization of confined families and neighbourhoods with many cases (Niang et al., 2020).

### Constraining Factors

Despite the relatively good preparation of the structures in several regions, some health professionals faced important challenges, taking risks, and not necessarily knowing how to organize themselves, as this doctor explained to us.

We had put in place a very important device at the hospital for suspected cases, but unfortunately the first day I saw the first COVID patient, this device had flaws, so I received the patient without a device and without a mask really. I was isolated and people were really scared and I decided not to go home until the test was positive and I had to spend the night in the hospital, I was really scared and people didn't even want to touch me or talk to me because I was a contact case.

Despite adequate preparation, many regions were surprised by the arrival of the first cases. Even at the national level, an actor at the heart of central planning told us: “we were prepared, but I had the impression that the epidemic surprised us”.

Particularly in the southern regions, but not only (in Dakar, when the first case arrived, the ETC had only 12 beds), the actors criticized the fact that the hospital structures lack health personnel and an adequate technical platform for resuscitation, for example. This situation is recurrent and well known. In some places, no building or room could be quickly mobilized as an ETC. A national tour at the beginning of the epidemic (widely reported by the media) revealed the cruel lack of qualified personnel and medical equipment in certain departments far from the capital. In a ETC close to Dakar, the lack of oxygen forced caregivers to refer patients to Dakar during the first 3 months of the epidemic, despite the presence of resuscitation services and a resuscitation doctor.

According to many actors, the implementation of the response was very centralized at the beginning; it was even

a “directive”, recalls an official. But “this centralized way of thinking about things, where even if we had a case in Thiés, we brought it to Dakar (Diamniadio) to a surveillance centre, posed a problem” says a doctor at the central level. ETCs were set up, but they were quickly “overwhelmed” said a doctor at the central level. The hotel industry, lacking tourists, offered its help to the State. This aid made it possible to create a “link”, says that same doctor, to “monitor contact cases, we put them in hotels”. But the spread of the epidemic and the centralization of its management caused the structures to be overwhelmed. In addition, some regions far from Dakar have obvious deficiencies in medical facilities, health personnel, but also in hotel facilities to accommodate contact or asymptomatic cases, as should have been the strategy at the beginning of the pandemic.

One of the reasons for this hypercentralization at the beginning of the epidemic is that “they didn't think it was going to take so long” says a doctor. Thus, the “national system that existed at the central level” was going to be able to cope because “the management of epidemics has always been centralized” says an executive of the Ministry of Health. It was, therefore, necessary to follow the same pattern. Indeed, the “COUS staff” is composed of Ebola experts, says a physician, they were trained by the Centers for Disease Control and Prevention (CDC), we made “visits to Congo, Guinea, they were trained on this model ... they have replicated what they learned. It was, therefore, the “Ebola model” that guided the actors at the beginning of the pandemic. However, unlike the Ebola response, which was centralized but only applied to certain localities, the COVID-19 response was applied nationwide. Some central coordination and decision-making challenges have emerged, such as the fact that ETC staff are managed by one directorate of the ministry, while another deals with the physical aspects. One analysis of the Ministry refers to “the lack of courage of the government in making timely decisions” (Sarret et al., 2021).

The care strategy changed over time, particularly between the first two waves. Some people felt that this change made it more difficult to respond, as the adaptations (e.g. the move to home care) were not easy to understand. Home care was often controversial. One physician wondered whether the initial strategy of hospitalizing all COVID-19 patients, regardless of their condition, was too drastic, reinforcing denial of the disease. The presence of this denial was reported in April 2020 in the Diourbel region, manifested by silence around the disease, spiritual protection of the city from the epidemic, support for conspiracy theory, misinformation, and circulation of unfounded rumours (Niang et al., 2020).

In several regions, many people found the interventions carried out in the communities, particularly for screening suspected (or diagnosed) persons, to be disproportionate and too strong. The head of a network of community actors adds:



There was poor communication from the state from the beginning. That's what caused the reluctance. For example, there were COVID patients who hid their disease. This helped the spread of the disease. This was because of the way confirmed cases were being transported to the ETCs. It was atrocious. The health staff wore overalls and held the stretchers, the ambulance was parked next to it, law enforcement was present. It was considered a humiliation for the population.

One doctor spoke of medical violence: “picking up the sick under duress in front of everyone was a very bad idea”. The military was mobilized to “access people who were positive” in one village. In another region, an entire village rebelled and refused to intervene with contact cases. According to one doctor, “We were brought out the ‘diambadon,’ which is at a higher level than the ‘Kang-kurang’ on the mystical level. This diambadon threatened the teams, who finally withdrew. We were forced to leave them with their contact case”.

Thus, several actors have questioned the contextual relevance of the measures put in place as part of the response, criticizing them for not being sufficiently adapted to the national and local socio-cultural context, as highlighted by a Ministry report (Sarret et al., 2021). Some even criticized the fact that they wanted to “do what Westerners do, even though the contexts are not the same” citing curfews, the cessation of long-distance travel, isolation in houses where there was “only one toilet for everyone” and security measures for funerals.

Some noted the sidelining of community or religious groups, especially early in the pandemic, and the difficult relationship between these groups and government officials. One academic with expertise in these approaches tried to convince ministry officials of the importance of involving his social science expertise to counteract the biomedical vision of response plans, to no avail. Communication and community engagement account for only 10% of the preparedness plan budget (Sarret et al., 2021). In one region, a *Bajen Gox* (BG: community godmother) told us that she took the initiative to meet the district team on her own to propose action: “Nobody involved us [at the beginning], honestly. I took my own initiative”.

In several regions, the question of financial motivation was a problem. It seems that the contingency plan had foreseen “50,000 CFA francs per month per agent” (Sarret et al., 2021). The young people mobilized to ensure control at the entrance to the towns were not paid afterwards, causing demotivation and the cessation of activities. The health staff did not appreciate receiving only a 50,000 F bonus, while those in the ETCs received 150,000 F for only 6 months. Moreover, within an ETC, staff did not like that the different categories of staff did not receive the same amounts, this

being justified by the different levels of responsibility and involvement. On these financial issues, it should be recalled that at the central level, “the funding that was foreseen for the contingency plan has not been mobilised... we had high hopes for the mobilisation of funds, but we saw that it was lacking”, says an official. The challenge of mobilizing funds was also present during phase 2 of the contingency plan, which, according to one person, “was not carried out... nor implemented. Furthermore, “if we take the contingency plan, the money that people were hoping to receive, they did not receive” said another official.

## Discussion

This study shows how the implementation of the national response to the COVID-19 pandemic in Senegal was rapid and intense, as elsewhere in West Africa (Bonnet et al., 2021), and sometimes even highly coercive. But at the same time, as in Tanzania at the beginning of the epidemic (Carlitz et al., 2021), it was rapidly diluted in national and local contexts that shaped it according to power issues, organizational challenges, and public perceptions of the disease. Some of the facilitating factors confirm this analysis: good preparation, commitment and reactivity of the actors, and capacity building. It has thus rapidly confronted contexts whose importance in the production of public health (Craig et al., 2018) and development interventions is well known (Olivier de Sardan, 2021). The study in Senegal identified multiple enabling and disabling factors that are commonly found in frameworks analysing the determinants of implementation, as for example knowledge, skills, intentions, social influences, culture, or funding (Damschroder et al., 2009; Nilsen, 2015).

## Significance and Implications

Unlike Tanzania and its federalism, which has allowed for some local adaptations of the national response (Yamanis et al., 2021), these adaptations have remained relatively limited in Senegal. Thus, the study does not really show any regional peculiarity in terms of the influencing factors of implementation. One explanation may lie in our data collection method which was relatively short and some time after the government measures were lifted. We cannot exclude a memory bias of our participants or our challenge to have more longitudinal data given our methodological approach. The other explanation may be the fact that decentralization is still not very effective. The delegation of resources poses challenges to local adaptation when possible, as in Tanzania: “Nearly all respondents stated that decentralization of authority should be accompanied by more resources for epidemic management” (Carlitz et al., 2021). The few regional

differences we observed were mostly related to the encounter of the national response with local contexts, as seems to be the norm in the study of public policy implementation in West Africa (Belaid & Ridde, 2015; Kwamie et al., 2016; Olivier de Sardan, 2021). The main dimensions of context that appear to have most shaped the nature of responses as constraining factors, but little the spread of the pandemic (Bonnet et al., 2021), are local political and religious issues as well as the level of isolation of regions or deficiencies in local health (and hotel) systems. These contextual characteristics are essential to study according to the implementation analysis frameworks (Damschroder et al., 2009; Durlak, 2015; Durlak & DuPre, 2008; Nilsen, 2015) and further analysed by the realist studies (Greenhalgh & Manzano, 2021).

Analysis of the response in Senegal confirms the relatively coercive approach, as constraining factors, of a technocratic and biomedical francophone public health (Ridde et al., 2021). This response has also been observed in many other countries that, unlike Senegal, organized strict confinements when prior knowledge about this measure showed the need for context-specific adaptations (Campeau et al., 2018). Furthermore, studies on recent Ebola or Lassa epidemics in the region emphasized the lack of relevance of interventions that ignore local interpretations of the disease, local contexts, or participatory approaches (Hofman & Au, 2017; N'koué Sambiéni et al., 2015; Raab et al., 2021). These enabling factors have not been sufficiently present in Senegal. The Anthropology of Emerging Epidemics Network (Réseau anthropologie des épidémies émergentes: RAEE) stated at the beginning of the COVID-19 pandemic in Africa that it was important to have a social debate on these issues of managing the dead, for example; and to co-construct solutions:

The experiences of various institutions and anthropological research show the importance of strengthening the capacity of intervention teams to continuously co-construct adaptation modalities and resilience practices, without ever compromising on the respect of biosafety imperatives, the dignity of the deceased and cultural or religious requirements (Réseau anthropologie des épidémies émergentes, 2020).

Indeed, the ancient history of public health reminds us, not to mention the recent Ebola (Hofman & Au, 2017), how often force and coercion were summoned in Senegal to fight smallpox, the plague, and other infectious diseases during French colonization (Bertram, 2020). In the context of the fight against the COVID-19 pandemic, this study confirms the importance for research teams to analyse, in addition of process evaluation (McGill et al., 2020), the unexpected effects of public actions (Turcotte-Tremblay et al., 2021). In addition, a qualitative study of a few suspected Ebola cases in Senegal had already shown the near absence of communication between caregivers and these suspected individuals

(Desclaux et al., 2018), which are unfavourable factors for the implementation. The researchers had even proposed a list of operational recommendations for adapting management arrangements for suspected cases, which does not seem to have informed the implementation of the COVID-19 pandemic response. This again questions the challenges of the relationship between the world of research and that of action (Siron et al., 2015) to improve the quality of implementation. Collaboration between stakeholders is one of the keys to successful policy implementation (Durlak, 2015).

Among the constraining factors, the “violence (verbal and here physical) exerted on sufferers” had already been noted during the Ebola epidemic in Senegal, without showing the existence of rebellion in particular (Desclaux et al., 2018), contrary to some episodes of “resistance” in Guinea (Raab et al., 2021). One will recall the destruction of COVID-19 treatment centres in Côte d'Ivoire (Bonnet et al., 2021), violence against international teams during Ebola in Guinea in 2014 (Diouf & Faye, 2020), or the resistance of the population to measures perceived as too restrictive in Malawi (Mzumara et al., 2021). One study showed how Senegalese immigrants in Europe were sometimes used as scapegoats in the early stages of the COVID-19 epidemic (Onoma, 2021). Once again, the power issues surrounding the biomedical approach (Frielet et al., 2021) contribute to the explanation of these authoritarian public health approaches in which civil society and community organizations, in Senegal (Ridde & Faye, 2022) and elsewhere in the world (Cambon et al., 2021), have often been excluded from implementation. Indeed, “despite the successful response to the epidemic, the absence of a community dimension in health operations has been very detrimental to the population” (Carillon et al., 2021). It seems that in Senegal, “the communication dimension [...] was the weak link” (Ndiaye, 2021), while it is a factor improving the implementation of policies. In Senegal, community activities, particularly vaccination, suffered significant delays at the beginning of the pandemic (Dixit et al., 2021). Yet, a literature review on community engagement in the fight against the COVID-19 pandemic confirms the importance of such strategies, particularly in making implementation more effective, relevant and in building people's confidence in them (Gilmore et al., 2020).

The corollary to these constraining factors is that social science and community health experts have also been forgotten in the organization of the response to the COVID-19 pandemic in Senegal (Carillon et al., 2021), as elsewhere for other epidemics (Carabali et al., 2020). However, they certainly have a role to play in the fight against the pandemic, as some have reminded us very early on (Gilson et al., 2020). In Senegal, some seem to have tried to participate in the reflection process, but to no avail. Moreover, in a country like Senegal where religion has a prominent place in the public sphere, the involvement of religious leaders has been

a key factor in the social acceptability and implementation of the response measures (Ridde et al., 2022). The importance of religion has been highlighted elsewhere in the world in the fight against the COVID-19 pandemic (Barmania & Reiss, 2020) and as a determinant of policy implementation (Nilsen, 2015).

Moreover, the research demonstrates the politicization of implementation, where political and religious leaders sometimes played a prominent role which is often a constraining factor in the implementation. On the other hand, unlike in Tanzania, where the President's downplaying of the pandemic made the process of informing communities complicated (Yamanis et al., 2021) but allowed for local adaptations (Carlitz et al., 2021), this was not the case in Senegal, where the President seems to have been in charge. The Minister of Health confirmed this perspective, in July 2021, in his speech in which he received a prize for excellence (Cauris d'Or) for his fight against the pandemic. This politicization is not specific to the COVID-19 pandemic, as in the development world, 'policy implementation is often highly political' (Brinkerhoff & Brinkerhoff, 2013). An international survey conducted in May 2020 showed that respondents in South Africa said that political issues were supportive of the response, in contrast to Europe, where respondents described it as neutral (Ahmad et al., 2021).

The presidentialization of the response, but also its centralization, as in France (Rozenblum, 2021) and Tanzania (Carlitz et al., 2021), has had an impact on the perception of implementation strategies in the country's regions, particularly in a context where the pandemic was accompanied by social movements challenging the government in power. This may have been a favourable factor in certain regions or in mobilizing certain actors. Here, we are at the heart of the "politics of policy implementation" (Campos & Reich, 2019). The politicization of certain doctors or the health administration was confirmed during the pandemic, which we already observed in Burkina Faso (Ridde, 2008). A study on scientific clientelism and the idolization of the medical profession, therefore, remains to be done in Senegal, as elsewhere in the world. Doctors are often "proclaimed heroes" or "women's favourites" in Senegal (Ndiaye, 2021). Indeed, we know that "healing needs heroes whose memory is commemorated in history, despite the ambiguities surrounding the cure" (Moulin, 2021), which is all the more true given the lack of treatment for COVID-19. However, this political presence may also have been a hindrance to the support of certain social groups and the willingness, particularly of the youngest, to participate in the efforts required to fight a pandemic from which they felt distant (because they were little or unaffected) and in a context of growing inequalities and political contestation. "Such episodes of 'resistance' should be understood against a background of historical and political inequality" (Raabet al., 2021). Indeed, other authors have

suggested that strong measures (such as restrictions) against COVID-19 may have exacerbated conflicts in Africa, as has been the case for other epidemics (Berman et al., 2020).

Challenges in implementation have been exacerbated, as is often the case in the development sector, by financial issues involving *per diem* and other compensation for volunteers or civil servants are widely known in West Africa (Ridde, 2010; Samb et al., 2020) and in Senegal in particular (Bodson, 2021). It is, therefore, not surprising that they are resurfacing at the time of the national response to the COVID-19 pandemic (Ndiaye, 2021). It is, however, surprising that these issues were not more anticipated in the formulation and implementation of this response. This issue is a known but hidden public problem (Geissler, 2013) that is not easy to talk about in public, let alone find a solution. However, the stakes are high. In a 25 July 2021 radio interview on Sud-FM, the Ministry of Health stated that bonuses to health personnel cost 8 billion CFA francs as part of the response. COVID business was analysed in the Democratic Republic of Congo (GEC, 2021) as had already been studied in the context of the Ebola epidemic (Freudenthal, 2020; Stearns, 2021).

## Limitations

This study has several limitations. Firstly, for budgetary reasons, we did not collect data in all regions of the country but in a sample representing the diversity of epidemic situations. Secondly, the number of interviews per region remains limited, but we have favoured diversity and triangulation as well as the comparison between regions. Finally, for ethical and methodological reasons (retrospective study), we did not interview patients, so the results of the research essentially reflect the views of those involved in the implementation of the response to the pandemic and not those who benefited from it.

## Conclusion

The set of challenges discussed in this article helps explain the evolution of the pandemic response in Senegal. Science shows that the quality of implementation and the acceptability of measures influence policy effectiveness (Meyers et al., 2012; Ridde et al., 2022; Sekhon et al., 2017). Could the lack of a participatory, interdisciplinary, and intersectoral approach to this biomedical public health response be part of the explanation for the sometimes virulent, if not violent, reactions of populations who lose confidence in the state and organized measures or who simply do not wish to comply with them? This reaction was the case in some countries of the region for the COVID-19 pandemic (Bonnet et al., 2021) but also during the Ebola epidemic in Guinea (Raab et al.,

2021). A third epidemic wave, far superior to the previous ones, took place in the summer of 2021 (Fig. 1). Despite this unprecedented wave, the drastic measures taken in 2020 and analysed in this article were never put back in place.

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## Declarations

**Conflict of interest** This study was conducted as part of an evaluation funded by the World Bank which did not influence the conduct of the study or the researchers' analyses.

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