BMJ Open

Evaluating the governance and preparedness of the Lebanese health system for the COVID-19 pandemic: a qualitative study

Marianne Moussallem,[1] Anna Zein-El-Din,[1] Rasha Hamra,[2] Alissar Rady,[2] Michèle Kosremelli Asmar,[1] Ibrahim R Bou-Orm [1,3]

¹Higher Institute of Public Health, Saint-Joseph University of Beirut, Beirut, Lebanon
²World Health Organization Country Office for Lebanon, Beirut, Lebanon
³Institute for Global Health and Development, Queen Margaret University, Edinburgh, UK

Correspondence to
Dr Ibrahim R Bou-Orm;
ibrahim.bouorm1@usj.edu.lb

ABSTRACT

Objectives This study aimed to assess the capacities and governance of Lebanon's health system throughout the response to the COVID-19 pandemic until August 2020.
Design A qualitative study based on semi-structured interviews.
Setting Lebanon, February–August 2020.
Participants Selected participants were directly or indirectly involved in the national or organisational response to the COVID-19 pandemic in Lebanon.
Results A total of 41 participants were included in the study. 'Hardware' capacities of the system were found to be responsive yet deeply influenced by the challenging national context. The health workforce showed high levels of resilience, despite the shortage of medical staff and gaps in training at the early stages of the pandemic. The system infrastructure, medical supplies and testing capacities were sufficient, but the reluctance of the private sector in care provision and gaps in reimbursement of COVID-19 care by many health funding schemes were the main concerns. Moreover, the public health surveillance system was overwhelmed a few months after the start of the pandemic. As for the system 'software', there were attempts for a participatory governance mechanism, but the actual decision-making process was challenging with limited cooperation and strategic vision, resulting in decreased trust and increased confusion among communities. Moreover, the power imbalance between health actors and other stakeholders affected decision-making dynamics and the uptake of scientific evidence in policy-making.
Conclusions Interventions adopting a centralised and reactive approach were prominent in Lebanon's response to the COVID-19 pandemic. Better public governance and different reforms are needed to strengthen the health system preparedness and capacities to face future health security threats.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The variety of recruited participants allowed the coverage of different perspectives of the national response to the pandemic.
⇒ The use of two different conceptual frameworks in this study resulted in a thorough evaluation of various aspects of the health system response to COVID-19.
⇒ The study did not include some key decision-making stakeholders beyond the health sector (such as representatives of the economic sector).
⇒ The study timeline only captured the first phase of Lebanon's response to the pandemic.

importantly those of health systems around the world. At the strategic level, two options were possible to curtail the spread of the virus and avoid overwhelming health systems, before any vaccine or specific treatment were available: suppression and mitigation strategies.[2 3] Researchers explored the readiness and capacities of the health system to respond to emerging infectious diseases and defined several components of this response. For instance, Palagyi *et al* defined six key elements which jointly create—through their interactions—a strong preparedness and response to pandemics.[4] These elements were grouped under two main categories: the system 'hardware' such as surveillance, infrastructure and medical supplies, workforce, and communication mechanisms; and the 'software' comprising trust and governance. In fact, multilevel governance is essential for an evidence-informed policy-making: formal policy-makers, scientists, academics, local authorities and community representatives have to cooperate to provide evidence-informed policies to manage the crisis.[5] On the specific component of governance, Siddiqi *et al* compiled four different frameworks assessing governance and recognised

INTRODUCTION

COVID-19, caused by the SARS-CoV-2 and first identified in December 2019, was announced as a global pandemic by the WHO on 11 March 2020.[1] The new pandemic has put to test the capacities of all systems (including political and economic systems) and most

the core elements capable of identifying 'the ills' in health system governance and help build interventions to address them.[6]

In Lebanon, the first case of COVID-19 was confirmed on 21 February 2020 and it was an imported case from Iran, which had the highest number of deaths outside China. The pandemic put an additional burden on Lebanon, which had been under the shock of a socioeconomic crisis, antigovernment protests, and a collapse of the banking sector. Moreover, the COVID-19 pandemic came after a series of shocks that had affected and fragilised the Lebanese healthcare system, a secondary care-oriented health system that was once considered a 'prominent tertiary medical hub in the Middle East'.[7] The huge increase in demand for health services in Lebanon put considerable strain on the country's resources and public services that were already underfunded.[6] The multiple crises prompted a dilemma on how to manage the COVID-19 pandemic and maintain a balance between controlling the pandemic and surviving the severe political and economic turmoil that exacerbated in the fall of 2019 after decades of sectarianism-driven dysfunction of governance capacities.

Lebanon's response to COVID-19 pandemic between February and August 2020

Before summarising Lebanon's response to the COVID-19 pandemic, we briefly present the Lebanese health system. Lebanon's healthcare system is a fragmented mixed system. Six different public funds (each having its own governing body and coverage scheme) cover 43% of the Lebanese population and private insurances are available for those who can afford it. However, about 45% of the Lebanese population remain uncovered and are eligible to be covered by the Ministry of Public Health (MoPH) acting as 'payer of last resort'.[8] The MoPH has been able, despite all the faced difficulties since the crisis in Syria and the continuous influx of Syrian refugees, to cover the needs of residents in Lebanon in terms of vaccines and essential medicines with the help of international donors, and hospital care for uninsured Lebanese. Moreover, it succeeded to reduce the prices of medicines and improve access to quality health services. However, the 2019 economic crisis and the significant devaluation of the national currency negatively affected the value of government funds allocated to the health sector and subsequently put all the system under enormous strain.[9]

Lebanon's response to COVID-19 might have been affected by the political environment but had its particularities. Multiple committees were set up and designated to plan the COVID-19 response in Lebanon with an intention of having an efficient coordination of resources and a better decision-making process: an interministerial taskforce, appointed on the cabinet decision 9/2020 and presided by the secretary general of the Supreme Defense Council; a national scientific committee for COVID-19 at the MoPH presided by the general director of MoPH; and

the existing parliamentarian health committee presided by a member of the Lebanese parliament.

Despite all the challenges, the Lebanese government promptly reacted after detecting the first case and adopted precautionary measures and decisions to curtail the spread of COVID-19—with the assistance of international donors and non-governmental organisations (NGOs).[10 11] On 10 March 2020, the MoPH developed a national action plan to face the pandemic, after Lebanon moved to the third level of cluster transmission as per WHO epidemic transmission scenarios. The plan included a series of public health and social measures aiming at limiting the risk of importation of the virus, curtailing its local spread, raising awareness and reducing the burden on the health system.

To further halt the sharp increase in cases, a complete lockdown and a closure of Lebanon's borders (including the international airport) were imposed by the government from 22 March till 4 April 2020, and it succeeded to stop the spread of the virus. Lebanon was announced free of COVID-19 on 21 April 2020.[12] However, restrictions were not lifted according to the stepwise approach of the lockdown exit plan—originally planned for 27 April 2020. For instance, people were protesting due to the deterioration of the socioeconomic situation despite the public gathering ban by the Lebanese government.

The number of COVID-19 cases increased again in May and very high numbers of cases were registered in July—mainly after reopening the international airport. Thus, the government did not manage to stop the importation of COVID-19 cases from abroad. Another series of lockdowns were announced despite a disagreement between the government and communities about the reasons and responsibilities behind this exacerbation in the COVID-19 situation.[13] Later, the Beirut port explosion (on 4 August 2020) complicated the situation even more. Lebanon had to face another emergency due to the largest non-nuclear explosion in the world. Overall, 200 people were killed by the explosion, 6000 were injured, 300 000 were left homeless, 3 hospitals were destroyed, 2 other hospitals were severely damaged (500 beds were lost among which 50 were COVID-19 beds) and 17 containers of medical supplies and a shipment of personal protective equipments (PPEs) were completely damaged.[14] Following the explosion, thousands of homeless people had to be together in temporary crowded shelters and hundreds of volunteers flooded to help. Two weeks after the explosion, a spike of 456 new cases was registered and hospitals started to reach full capacity in their COVID-19 wards. By the end of August 2020, cases were sharply rising, and the health system was overwhelmed by the increasing demand for COVID-19 hospitalisations.[15]

This study aimed to explore the dynamics of this response in terms of the capacities and governance of the health system throughout Lebanon's response to COVID-19 until August 2020. The specific objectives were:

► To explore health system preparedness in relation with workforce and infrastructure as well as other system building blocks.

► To evaluate health system governance and decision-making of public policies.

► To discuss those findings with other experiences in order to generate recommendations for future decision-making, and to contribute to enhancing the learning capacity of the Lebanese health system.

METHODS

Study design

The study followed a qualitative design. Researchers conducted semi-structured interviews covering the main themes described in the frameworks guiding this study, to unpack the complexity of the decision-making process and explore the preparedness of the health system as perceived by different stakeholders.

Selection and recruitment of participants

Semi-structured interviews were conducted with key informants who were recruited using a purposive sampling approach. The inclusion criteria were the direct or indirect involvement of potential participants in the national or organisational response to the COVID-19 pandemic in Lebanon, their willingness to participate, and their ability to understand and communicate in English or in Arabic. The roles and affiliations of the study participants are shown in table 1.

The main investigator used publicly available online sources to retrieve contact details of potential participants. A total of fifty-three eligible participants were first identified as eligible participants using the previously mentioned sampling approach. The research team sent an invitation email and shared the information sheet providing details about the interview in addition to the consent form. Participants who did not reply to the email were recontacted once after 1 week of the initial invitation. Overall, 41 key informants accepted to participate in the study and were interviewed—including 24 men and 17 women. Another round of recruitment was not conducted to increase the sample size as collected information in the last interviews included no new emerging information, and data saturation was reached.

Data collection

Given the COVID-19-related public health safety measures, the interviews were conducted remotely through WhatsApp, Teams and Zoom applications, in English or in Arabic depending on the preference of the participant. One researcher (MM) with experience in qualitative data collection methods conducted all the interviews, which were recorded after obtaining the oral consent of the participants. Recordings were destroyed after the transcription of interviews. Data were accessible to the research team only. Interviews lasted for 30 min on average.

Table 1 Table showing the distribution of the study participants

Participant roles/affiliations	Number of participants
MoPH heads of departments	5
Epidemiologists and academics	4
Members of the parliamentarian health committee	3
Governor	1
Mayor	1
Representative of Internal Security Forces	1
Former minister of public health	1
NGO representatives	3
COVID-19 national committee member	1
Representative of the National social security fund	1
Head of a medical committee at the order of physicians	1
Representative of the order of nurses	1
Representative of the syndicate of hospitals	1
Representative of the syndicate of laboratory owners	1
Representative of the syndicate of biologists	1
Representative of the Lebanese pharmaceutical importers association	1
Lebanese red cross (LRC) representative	1
Public hospital representatives	3
Private hospital representatives	4
Doctors in public hospitals	2
Doctors in private hospitals	3
Nurses in public hospitals	1

MoPH, Ministry of Public Health; NGO, non-governmental organisation.

Study tool

Two topic guides for the semi-structured interviews were developed by three researchers (MM, AZ-E-D, IB-O; online supplemental file 1), based on two different yet complimentary frameworks: the health system 'software' and 'hardware' essential for emerging infectious diseases preparedness[4] and the framework for assessing governance of the health system in developing countries.[6] The topic guide included questions covering the following elements: health workforce, infrastructure and medical supplies, surveillance, governance, policy-making, use of evidence, communication approach and community trust.

Data analysis

A thematic analysis approach was used because of its flexibility to extract accounts to match different conceptual frameworks. The analysis process started with a preliminary set of codes and researchers (MM and AZ-E-D) then compiled their codes and developed one coding tree
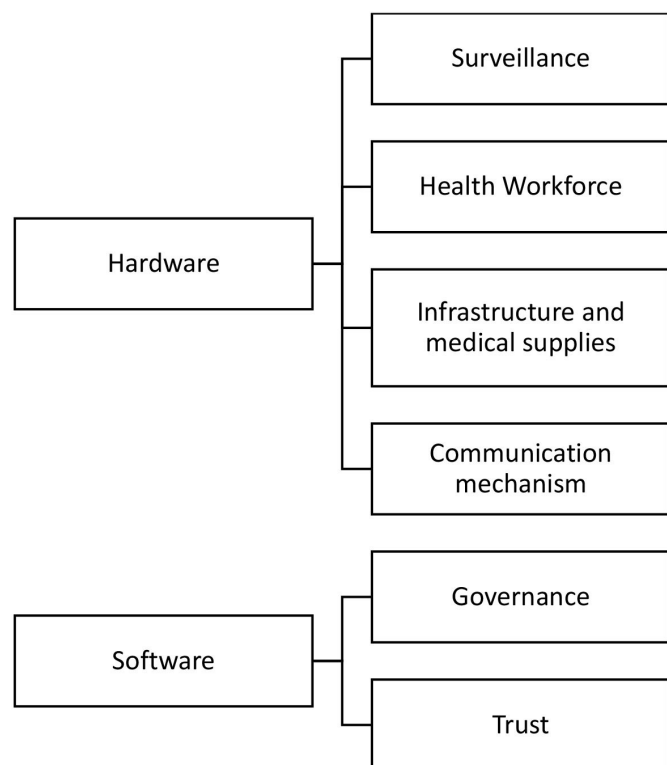
3

Figure 1 The main codes of the applied coding tree.

including all codes with their descriptions. A total of 27 codes and subcodes were created. Figure 1 only shows the main codes. The research team met several times to discuss emerging themes, to identify the overall pattern of findings and to prepare a narrative summary. In the presentation of the study findings, the frequency was reported as follows: few were used for less than 14 participants from 41, some for 14 participants and above, and majority for more than 21 participants. Dedoose software V.8.3.45_2 was used for data analysis.

Patient and public involvement

Study participants or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS
Medical workforce

Participants reflected on the situation of health workforce within the context of pre-COVID-19 strains on the health system from the political and economic situation of the country. The majority of informants highlighted the issue of immigration of competent health workers, which is expected to increase further and eventually contribute to a substantive loss of the most valuable human resources for health needed to maintain the system resilience and provide care to everyone including patients who are not infected with COVID-19 . The drivers of this problem were the current economic crisis leading to the devaluation of the Lebanese Lira and to a deterioration of the value of wages, as well as the poor remuneration of health

staff. Moreover, some participants cited that no incentives were offered to retain the front-line health workforce. The concern of immigration is even worse in the public sector where the governmental decision to limit employment of new workers in all sectors is an additional barrier to improving the situation.

> Lebanon is witnessing huge immigration of health workforce (doctors and nurses) and will have to face a serious crisis very soon: shortage in competent health workforce. The main reason for this immigration is that they are not very well remunerated – (Governmental hospital director)

In terms of the health system response, a few interviewees mentioned that the MoPH, in collaboration with the WHO, developed guidelines and organised trainings at hospitals to address the gaps in the knowledge of workforce about COVID-19 case management. Nonetheless, they reported a limited coverage of this intervention across Lebanon's health facilities. Participants reported personal initiatives by hospital managers to mitigate this challenge and develop the skills and knowledge of their staff—especially in the situation of highly diversified medical and paramedical personnel in terms of background education and previous trainings. A few informants reported that this bottleneck of the system response should have received more investment and prioritisation by health authorities in a fair and impartial manner, in order to improve the quality of care but also the safety of the work environment, which is an essential component of staff satisfaction and therefore sustained contribution to the COVID-19 response.

Infrastructure of the health system

Participants reflected on the infrastructure of the system from various angles. While the overall capacity of Lebanon's health system in terms of hospital beds per capita is acknowledged to be high, participants identified the allocation and preparation of beds and intensive care units for COVID-19 care provision as the key challenge. Participants clearly mentioned that the major problem was not the actual numbers of beds but rather the availability of all aspects of service delivery such as technical requirements including guidelines (eg, standards operating procedures) and equipment, which were somehow insufficient at least in the early stages of the pandemic.

As an overall assessment of those technical requirements, a few informants considered that the Lebanese health sector was not in a penury of medical supplies needed to face the pandemic despite the challenges to import supplies and the never-ending increase in their prices due to the liquidity and economic crisis. Other participants acknowledged that the government put in place some measures to allow a continuous supply to the country such as the exemption of customs duties, and the decision made by the interministerial committee to forbid any export of PPEs. Nevertheless, the question of 'who should pay' was identified as a key barrier to system

preparedness—especially within the mixed health systems of Lebanon where affordability of services varies with lower rates for those provided by the private sector. Representatives from the private hospitals indicated that a minor and insufficient support was offered by the government despite their huge share in terms of workforce and bed capacity within the health system. Some public hospitals also relied on their own resources and NGOs to provide PPEs, sanitizers and other essential goods. Finally, a few participants reported that the lack of equipped human resources outweighed all the other infrastructure components in terms of severity. They noted that the insufficient numbers of well-equipped health workers affected the ability to properly use the infrastructure at hand and therefore the adequate and sufficient care provision.

> A lot of weaknesses of the system were revealed: the public institutions that are supposed to be responsible for taking the biggest responsibilities during a crisis were not ready at all – (Member of the syndicate of private hospitals)

Of major concern was the relationship between the government and the private sector in relation to empowering them to increase their capacity. The majority of participants stated that the delay in subsidising hospital bills from previous years was a key chronic financial problem that re-emerged as critical in this crisis.

Public health surveillance

Participants from the MoPH reported the long-standing experience in surveillance supporting Lebanon's response to previous pandemics. In fact, previous pandemics such as SARS, MERS and H1N1 led to investments in the epidemiological surveillance unit (ESU) and to create a well-trained team at the ESU. According to participants, Lebanon has witnessed a great performance in contact tracing and surveillance of COVID-19 cases in the early phases of the pandemic when the country had a low incidence of the disease. This situation was kept under control until the return of Beirut Airport to its full-capacity operation, overwhelming the capacities of the understaffed teams at the ESU to implement case isolation as well as test and trace. In terms of system strengthening and capacity building, representatives from the MoPH and its partners mentioned efforts led by the MoPH such as the development of guidelines on surveillance (including testing and tracing) as well as the investment in technology by creating applications for communication with the public, virtual medical consultations for symptomatic people and contact tracing.

A representative of the syndicate of owners of medical laboratories highlighted that an accreditation mechanism, quality control and continuous training of human resources were established and implemented by the syndicate and the MoPH, while the capacity grew from 4 to around 80 laboratories offering PCR testing all over the country. However, the financial affordability of tests was identified as a problem by some participants because,

despite the subsidisation of testing kits by the MoPH, the maintenance of machines became challenging due to the devaluation of the Lebanese Lira and therefore laboratories had to impose fees on individuals.

Interviewees from the academic sector questioned the accuracy and timeliness of official updates on the epidemiological situation of the COVID-19 in Lebanon (in terms of incidence and test positivity rates), and even the definition and rationale of certain indicators. Additionally, they noted that other sources were sharing different information and there was a lack of data sharing between the different committees and ministries. Some national decisions have also been criticised for the absence of an actual indicator justifying their adoption—such as local lockdowns in towns and cities based on indicators that were not clear to epidemiologists nor explained to the public. These accounts were aligned with the reflection of participants on the overall use of evidence (including public health surveillance data) in the decision-making process. Although the scientific committee at MoPH had been sharing scientific and evidence-based suggestions for national decision-making, participants noted that the final decisions prioritised other factors such as the deteriorating economic situation and the demand to open various sectors.

> The second gap is the multitude of sources reporting on this problem: each one having an important piece of data that they are keeping for themselves and having on their side. This means that anyone like me who understands the whole aspect of the epidemic in Lebanon, because it's my field, is keeping track on 3 to 4 different sites - (Epidemiologist)

Health system governance

Most informants discussed the multisectoral collaboration in Lebanon's response to the COVID-19 pandemic. For instance, they described the coordination between the different ministries as rather weak leading to an overall confusion among the public, a lack of transparency and an absence of a clearly structured government plan. Participants who were part of the different committees assured that decision-makers were influenced by the opinions of the powerful economic sector and other contextual and political factors rather than the recommendations of public health experts.

Participants described the plans and regulations of the government as 'reactions' made under pressure with short-term targets. Two determinants were identified to delineate the measures adopted: the national economic trends and COVID-19-specific intensive care unit beds occupancy rates. For instance, the government did not create a sustainable balance between the economic and sanitary situations through the adopted 'on–off lockdown' approach. Some informants also reported a problem of health crisis leadership. For instance, the MoPH, that is considered as the main governing body of the health system, should have been leading the national

implementation plan. The majority of participants stated that efforts were made to improve collaboration and create a well-coordinated decision-making process—through the creation of various committees including relevant stakeholders. Nonetheless, a challenging and fragmented process emerged from this first attempt of multisectoral collaboration, reducing the efficiency of the national response. For instance, many stakeholders were left out of the decision-making process—such as private providers, community members and local authorities—which negatively affected the uptake of evidence in the policy-making process and challenges in policy acceptability and implementation. Moreover, the allocation of financial resources by the MOPH was considered inefficient by participants, as it was only tailored to increase the capacity of public hospitals in terms of financing and equipment. Whereas, the healthcare system in Lebanon is dominated by the private sector as the bed capacity is at least six times higher than in the public sector. Participants noted that the pandemic revealed the chronic issue of bad investment in public hospitals affecting their preparedness and capacity to receive and cope with the number of patients, affecting the level of trust in government among communities. Thus, a better health system governance and planning is needed to be inclusive of all available health facilities.

Participants also reflected on the private–public sector collaboration. The majority of participants reported that there was a delay in the participation of the private sector in the national response to COVID-19, even though it is the main provider of health services in the country. The sharp increase in health service demands urged the government to force the private sector to be part of the response and to include it in its health plans and policies at a later stage. However, the decision faced a reluctance from the private sector due to several factors. Participants from the private sector mainly cited the existing delays in reimbursement of hospital care fees by the MoPH and other public funds and the insufficient subsidisation rates of COVID-19 services.

> It is not that the government had proposed to help out these private hospitals and they refused, which doesn't make it an ethical problem. Both sides in this problem have legitimate demands: the private and public. They need to sort it out as soon as possible.- (Public hospital director)

TRUST
Most interviewees asserted that adopted policies declined trust in government among people. The communication strategy, although stated as being good by a few informants, was seen as weak by others. For instance, no evidence on the rationale of decisions was shared with the public, and confusing and contradictive information were shared by various sources (including nongovernmental stakeholders). Many other decisions were

unclear or inapplicable. Furthermore, the statement of the MoPH revealing that donors' financial support was secured to finance the COVID-19 response, received contradictory feedback; while some participants stated that the resources were never used, others reported the use of those resources but without detailed information on resource allocation. The same was noted regarding in-kind donations such as PPEs, respirators and other medical supplies. The MoPH was the only body to occasionally publish the lists of beneficiaries of the received donations.

Participating academics and epidemiologists reported difficulties accessing the raw data in addition to potential contradictions between data published on the different public platforms, affecting their trust in the public health response. They also confirmed that the provided data are not enough to be able to understand and monitor the national epidemiological trends.

Finally, participants linked the lack of trust towards the government policies to the general mistrust towards the political system in the country—regardless of the scope of policies towards COVID-19 control. This mistrust led to issues of compliance with COVID-19 policies by the public.

> The messages that were getting to the public were ones of confusion and there was no clarity as to why decisions were being made, why they were made this way … and I think this impacts trust, a lot, within the community in regard to the government, already in a situation where there is so little trust. – (Epidemiologist)

A few participants reported a temporary trust issue among health professionals regarding the ability of health facilities to offer a safe environment to deal with patients with COVID-19. However, this issue faded with the progressive gain of knowledge, skills and confidence, especially that the MoPH guidelines had a vast outreach in the medical field.

DISCUSSION
Summary of key findings
Our study assessed health system governance with an aim to detect the strengths and weaknesses of the system preparedness and public policy-making throughout the COVID-19 pandemic. Data collected through semi-structured interviews helped evaluate the hardware and software capacities of the system—as identified by Palagyi et al[4]. The hardware capacities of the country, in relation with the medical workforce, infrastructure and surveillance systems, were responsive to the pandemic yet challenged by the current political and economic crisis. Although faced by an increasing shortage of medical staff at the national level as well as gaps in training and the absence of national clinical guidelines at the early phases, the medical workforce showed a high level of resilience.

The system infrastructure was sufficient to avoid any penury of medical supplies and to increase testing capacities, but the reluctance of the private sector to contribute to care provision and the delays in taking decisions on the reimbursement of COVID-19 care by health schemes were the main gaps in the early response. In terms of public health surveillance, the system was overwhelmed a few months after the start of the pandemic, underlining the limited resources of the ESU and the MoPH in general to strategically deal with future threats and generate adequate evidence to monitor diseases and inform policy-making.

The software of the system including governance and trust was also investigated. Despite all efforts made to shape a participatory and collaborative governance mechanism through many committees, the actual decision-making process was very challenging due to conflicting agendas of participants, lack of resources to back-up an evidence-based approach, weak cooperation with academia with no unified strategic vision resulting in weakening trust and increasing confusion among communities. We also identified the existence of a centralised approach with no engagement of local authorities and therefore implementation gaps of several policies. Within those mechanisms, several factors affected the ability and willingness to use scientific evidence and academic opinions in the decision-making process such as the imbalance in power among stakeholders, issues in decision-making dynamics mainly due to the pressure of the economic crisis, and the limited uptake of available evidence in policy-making. Furthermore, both the decisions and their implementation processes lacked innovation to adapt to the diverse existing socioeconomic needs and cultures, impeding the effectiveness of the government response.

Comparison of study findings with the literature

Studies in the literature stressed on the importance of multilevel collaborative governance including highly positioned leaders from different disciplines, local authorities and communities in building effective responses to emerging critical situations when fast-paced decision-making is needed. Such process should be supported by adequate evidence, the necessary know-how, that is, public health expertise, and a community-oriented adaptation.[16] Health governance in Lebanon showed a structural capacity and a willingness to initiate a multidisciplinary interaction between relevant stakeholders through the creation of different committees; however, the ability to reach a consensus on best evidence-informed decisions was limited. Key informants highlighted that there was an absence of an analytical decision-making approach—given the limited use of data to understand the epidemiological reality of the pandemic and to assess the impact of interventions and policies at the national level—affecting the development of proactive strategies.

Experiences from other, countries such as Singapore, also showed how transparency in information sharing and accountability can lead to wider acceptance of decisions by the public, as well as increasing the reliability of the political system by the creation of strict legal frameworks to limit conflict of interest.[17] Our findings in Lebanon supported this relationship because transparent and unified communication led to increasing trust in the government response at the beginning. However, this changed over the course of the pandemic as several factors jeopardised trust levels such as the worsening epidemiology of the disease in early summer of 2020 with no clear justifications and thus accountability for it within the governance structures, leaving the government and the public blaming each other for this gap in the response to COVID-19. This distortion in public trust and acceptance of policies was also influenced by the current political environment in Lebanon. In fact, Lebanon was since October 2019 witnessing antigovernment uprisings in addition to an unprecedented socioeconomic crisis leading to the government managing the situation not being fully recognised by Lebanese citizens and not being able to be in a stronger leadership position. This issue was exacerbated by the lack of economic support to citizens and businesses that was identified as a key intervention strengthening the response and capacity of other countries in managing the pandemic.

The experience of the Lebanese health system showed that health system resilience should be based on strengthening the needed inputs of a system to address future threats and ensuring a dynamic and transformative governance. In such scenarios, the outcomes of the system would be better achieved, and community trust would increase feeding back again into better outcomes. This paradigm shift from reactive to proactive anticipatory approach also needs to engage communities in the decision-making process. The ultimate result would be a system, which is moving towards good emergency response without diverting its strategic vision from the Universal Health Coverage agenda.[18]

Another key reflection that emerged from our findings is how and from which experiences health systems should learn. The main leverage point towards learning health systems is high leadership capacities along with a clear vision and long-term planning. The remaining challenge is the limited contribution of other countries' experiences to supporting the learning process of the health system given the specificity of each country and its communities. Therefore, health systems should be able to learn from their own experiences by generating continuous data and linking them to the policy-making cycle in a timely manner. In other words, there is a need to align the learning cycle of health systems and the policy cycle as suggested elsewhere in the literature.[19] Nonetheless, this pandemic offered the opportunity to assess health system using a holistic approach and to guide future health policies and strategies to address the system

pitfalls based on empirical observations and comparison between different settings.[20] For instance, observations from high-performing countries suggest that good public governance coupled with increased health expenditures improved the preparedness to emerging infectious diseases and therefore increased health system resilience.[21]

Strengths and limitations

This study has several strengths and limitations. In our qualitative data collection, we targeted a wide range of participants from various backgrounds and affiliations and most key informants were involved directly or indirectly in the national or organisational response to the COVID-19 pandemic in Lebanon. This recruitment process allowed us to capture the general common accounts between different participant categories—including governmental and parliamentarian, academic and health providers' perspectives—and some differences in their perceptions of the health system preparedness and governance of the COVID-19 pandemic response. Nonetheless, we identify some limitations. The first limitation is the time of the study during the pandemic and therefore its inability to capture other phases of the government response beyond the timeline of desk review and data collection, which ended in fall 2020. The second and most important limitation is related to the positionality of both researchers and interviewees and their own understanding and acceptance of the COVID-19-related response along with the needed skills and knowledge to assess such complex global public health phenomenon. However, our attempt to guide our study by literature-based frameworks in data collection and analysis contributed to decreasing the impact of such biases. Moreover, the study did not explore the impact of Lebanon's fragmented system on COVID-19 service delivery and the experiences of different communities with the services. From a theoretical perspective, the study findings could not be reported in a manner allowing the reader to identify the components of both frameworks. For instance, researchers used the Palagyi *et al* framework to structure the results to avoid redundancy of the information related to the frameworks' themes. Finally, our study has not adopted a political economy approach to depict the power dynamics of different stakeholders in detail and to examine even further the identified features of governance during the COVID-19 pandemic.

Conclusion

The assessment of governance and decision-making process of a healthcare system during health emergencies is complex and challenging. Lebanon was one example of countries under severe political and economic pressures to have received an additional public health shock to manage. This study analysed the challenges of the health system in the response to the COVID-19 pandemic and identified key issues to have sustainable management of any health security threat. Reforms and interventions

should adopt a whole system approach to address gaps in the system preparedness (eg, in terms of health financing and human resources) while improving its governance capacities. This interplay between different elements of the system can be coupled with approaches to increase the trust of communities, and ultimately improve population health outcomes during the emergencies and beyond.

Twitter Michèle Kosremelli Asmar @MicheleAsmar and Ibrahim R Bou-Orm @ IBouOrm

ORCID iD
Ibrahim R Bou-Orm http://orcid.org/0000-0003-3563-4014

REFERENCES

1 WHO. Available: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020 [Accessed 8 Jun 2020].
2 Ferguson N, Laydon D, Nedjati Gilani G. Report 9: impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. *Imperial College London* 2020.
3 Kavaliunas A, Ocaya P, Mumper J, *et al*. Swedish policy analysis for Covid-19. *Health Policy Technol* 2020;9:598–612.
4 Palagyi A, Marais BJ, Abimbola S, *et al*. Health system preparedness for emerging infectious diseases: a synthesis of the literature. *Glob Public Health* 2019;14:1847–68.
5 Lawrence RJ. Responding to COVID-19: what's the problem? *J Urban Health* 2020;97:583–7.

6 Siddiqi S, Masud TI, Nishtar S, *et al*. Framework for assessing governance of the health system in developing countries: gateway to good governance. *Health Policy* 2009;90:13–25.

7 Farha L, Abi Jaoude J. Lebanese healthcare system: how will the aftermath look? *Cureus* 2020;12:e10270.

8 Walid A. *Health beyond politics*, 2009.

9 Lebanon: hospital crisis endangering health. Available: https://www.hrw.org/news/2019/12/10/lebanon-hospital-crisis-endangering-health [Accessed 9 Mar 2022].

10 Dailystar. Available: http://www.dailystar.com.lb/Opinion/Commentary/2020/Apr-01/503673-covid-19-and-health-care-response-in-lebanon-a-lot-left-to-be-desired.ashx [Accessed 15 Jun 2020].

11 Bizri AR, Khachfe HH, Fares MY, *et al*. COVID-19 pandemic: an insult over injury for Lebanon. *J Community Health* 2021;46:487–93.

12 No new coronavirus cases recorded in Lebanon yesterday for the first time. Available: https://www.the961.com/no-coronavirus-cases-lebanon-first-time/ [Accessed 15 Jun 2020].

13 Lebanon to impose two-week coronavirus lockdown. Available: https://www.arabnews.com/node/1711026/middle-east [Accessed 5 Aug 2020].

14 Devi S. Lebanon faces humanitarian emergency after blast. *Lancet* 2020;396:456.

15 Diab J. On managing health in conflict: refugees, political will and international obligations amid coronavirus in Lebanon. *Int J Polit Sci Govern* 2021;3:24–8.

16 Chua AQ, Tan MMJ, Verma M, *et al*. Health system resilience in managing the COVID-19 pandemic: lessons from Singapore. *BMJ Glob Health* 2020;5:e003317.

17 El Bcheraoui C, Weishaar H, Pozo-Martin F, *et al*. Assessing COVID-19 through the lens of health systems' preparedness: time for a change. *Global Health* 2020;16:112.

18 Sheikh K, Agyepong I, Jhalani M, *et al*. Learning health systems: an empowering agenda for low-income and middle-income countries. *Lancet* 2020;395:476–7.

19 Akhnif E, Kiendrebeogo JA, Idrissi Azouzzi A, *et al*. Are our 'UHC systems' learning systems? Piloting an assessment tool and process in six African countries. *Health Res Policy Syst* 2018;16:78.

20 Marome W, Shaw R. COVID-19 response in Thailand and its implications on future preparedness. *Int J Environ Res Public Health* 2021;18:1089.

21 Coccia M. Preparedness of countries to face COVID-19 pandemic crisis: strategic positioning and factors supporting effective strategies of prevention of pandemic threats. *Environ Res* 2022;203:111678.

Topic Guides

Topic Guide 1

Participants: Members of the national committee for ID, public health experts working at the MoPH, academics, UN agencies and NGOs representatives and participants from other government bodies (DRM, PM office, MoSA, etc.).

Introduction

As detailed in the email you have received, the aim of our research is to assess the Lebanese experience with the COVID-19 pandemic focusing on policy making & health system preparedness and response.

Surveillance

First we would like to assess surveillance process implemented at the national level during the COVID-19 epidemic.

How do you assess national surveillance for COVID-19?

What do you think about screening; testing patterns/ capacities; isolating cases/ suspects; referring process and contact tracing? What about prediction modeling?

Health Workforce

Now we would like to move to another section: Human resources and health workforce.

How do you describe Lebanese health workforce: key skills, numbers, competencies, and deployment?

Infrastructure and Medical Supplies

Health system infrastructure is an essential pillar in the fight against emerging infectious diseases. *What did this outbreak reveal about the Lebanese health infrastructure? What is the status of required medical supplies and equipments (availability and functionality)?*

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

<u>Prompt</u>: Lebanon has not reached the expected worst case scenario yet. What is the government doing to prepare the health care system and increase its resilience? Would the government be able to secure the necessary financial resources to ensure sustainability of the response?

Communication mechanism

An adequate risk-communication strategy is needed to ensure timely and standardized information sharing on emerging infectious diseases.

What do you think about the communication strategy adopted by the government? To what extent did it affect community's behavior?

Governance and Policy making

We would like to ask you a few questions now about leadership and governance.

To what extent did the MoPH play the role of a health leader in steering the overall direction of the health response? Can you assess the multisectoral coordination?

Did the government allocate its resources to their highest and best use?

Now we would like to ask you about the different public policies (decisions and non-decisions) adopted the Lebanese government to curtail the spread of COVID-19.

What was the strategy of choice? Based on which determinants/ metrics did MoPH and the Government take decisions?

Were the community and relevant stakeholders involved in the decision-making process?

<u>Probe</u>: Assess governance using its major characteristics: participatory, accountable, transparent, responsive, effective, equitable and inclusive.

Trust

In your opinion, did the adopted strategies lead to community's trust in the transparency and capacities of the government in handling the sanitary situation?

Thank you for your time. Would you like to add anything?

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

Topic Guide 2

Participants: Health managers and care givers in the private and public sector

Introduction

As detailed in the email you have received, we would like to ask few questions related to the Lebanese experience with COVID-19 pandemic including questions about policy making, health system preparedness and service delivery.

Surveillance

First, we would like you to assess surveillance process implemented at the national level during the COVID-19 epidemic.

What do you think about screening capacities; testing patterns and capacities; isolating of suspects and cases; and referring processes?

Health Workforce

Now we would like to talk about human resources and health workforce.

Does Lebanon have sufficient, qualified and appropriately distributed at the sub-national level, health care providers to fight emerging infectious diseases?

How do you assess knowledge regarding COVID-19 screening and cases' management? Did health authorities provide capacity building trainings in line with latest guidelines and recommendations?

What are the main challenges in the management of COVID -19 patients?

<u>Prompt:</u> Can you please assess the commitment of health care workers to provide quality care in all health fields despite the fear of COVID-19.

Infrastructure and Medical Supplies

We would like to discuss the status of the health system infrastructure.

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

BMJ Open

In your opinion, did Lebanon have the required specialized equipment (testing technologies…) and medical supplies (drugs, PPEs, adequate tests…) to fight the epidemic? Did you face difficulties in securing the needed budget to face the epidemic?

Prompt: Lebanon has not reached the expected worst case scenario yet. Do you think that you are still in control and are you prepared for a worsening of the sanitary situation?

Communication mechanism

A risk-communication strategy is needed to ensure timely and standardized information sharing on emerging infectious diseases.

Did the government adopt an adequate communication strategy reflecting transparency?

Did the government succeed in spreading awareness and countering misinformation?

Governance

We would like to ask you a few questions now about leadership and governance.

To what extent did health authorities have effective leadership and management of health workers? To what extent were you involved in the policy-making process?

Prompt: Did the government provide any assurances and incentives for frontline health workers?

Trust

Did you face patient-provider trust issues? In your opinion, did the pandemic help change the opinion of the community regarding the public sector increasing the level of trust?

Prompt: Did you face institutional trust issues?

Thank you for your time.

Would you like to add anything?