Exploring indirect impacts of COVID-19 on local health systems from the perspectives of health workers and higher education stakeholders in the Philippines using a phenomenological approach

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Summary

Background Our study aimed to explore the experiences of stakeholders from local government units, health facilities and higher education institutions on the delivery of non-COVID-19 health services after the initial wave of the pandemic.

Methods Twenty-nine public health workers, thirteen university staff, and four hospital administrators in the Philippines participated. Using a descriptive phenomenological approach, we analysed transcripts from six focus group discussions conducted online between March and June 2021.

Findings The COVID-19 pandemic made the routine health programs inaccessible due to hesitancy among patients to visit health facilities, a shift in public health priorities, and lack of students to augment the existing workforce.

Public health workers reported stress and mental health exhaustion. Apart from fear of infection during service provision, public health workers and university staff experienced work overload, pressure to learn new technology, and webinar fatigue. Mental health problems have surfaced as health workers and young people have become more affected while support services remain insufficient.

Public health workers have reported actions to maintain service delivery in the new normal such as use of telehealth and social media. However, issues on workforce wellbeing and digital equity posed adaptation challenges. Participants suggested partnership with higher education institutions as pivotal to position local health systems towards recovery.

Interpretation The rapid change in the service landscape highlights the importance of sustainable partnerships, effective workforce management, equitable digital innovations, and promoting mental wellbeing to preserve community, school, and occupational health and rebuild resilient local health systems in low-resourced areas.

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Keywords: Local health systems; Service delivery; COVID-19; Pandemic; Philippines

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Research in context

Evidence before this study

We conducted an electronic search for published research articles using PubMed, EMBASE, MEDLINE and Google Scholar on March 30, 2022. Using the search terms 'health systems', 'health service delivery', 'health programs', 'local health systems', 'pandemic', 'COVID', 'impact', and 'effect', we did not find any publications on local health systems and service delivery impacts of the pandemic from the perspectives not only of health workers but also of stakeholders from the higher education sector. There were no studies on long-term impacts after the first wave of the pandemic in low-resourced settings such as the Philippines.

Added value of this study

Our study established empirical evidence on the indirect impacts of the pandemic on local health systems using insights from the health service and higher education sectors. Using qualitative participatory techniques, we pioneered in generating systems data at a crucial time (i.e., 12 months after the initial wave) when little is known about the long-term impacts of the pandemic. Stakeholders involved in this study provided unique local perspectives to inform pragmatic recovery strategies not only in community settings but also in schools and workplaces.

Implications of all the available evidence

Pragmatic adaptation strategies and sustainable partnerships during the pandemic are critical to rebuild resilient local health systems particularly in low- and middle-income countries. Effective workforce management, equitable implementation of digital innovations, and evidence-based promotion of mental wellbeing should be prioritised to preserve functional community, school, and occupational health systems.

Introduction

The COVID-19 pandemic has greatly impacted various aspects of health systems particularly in the delivery of routine public health services, such as immunisation, family planning, and maternal care.[1] It was anticipated that the decline in the provision of reproductive health and child health services may result into at least 12,000 increase in maternal death and 250,000 in child mortality in low- and middle-income countries (LMICs).[2]

In the Philippines, an extreme drop in prenatal visits, utilisation of treatment for tuberculosis and consultations for hypertension was observed a year after the pandemic started.[3] Social distancing restrictions resulted in fewer paediatric consults among the under-5 population.[3] Routine vaccinations for children has also been delayed due to stock issues and the inability of health workers to implement pre-pandemic strategies such as mass campaigns and home visitations.[4] Significant changes in health workforce priorities also led to a decline in the delivery of routine public health services.[5]

While the evidence pointed to reduced service delivery, current research failed to further characterise adaptive mechanisms to meet health demands of subnational or local health systems. Local health systems may not only include hospitals and primary health facilities but also higher education institutions, which have a critical role in training future health professionals and producing innovations to strengthen health systems. A recent review that focused only on hospital admissions and presentations in emergency departments[1] may not reflect the health system-wide situation. A pulse survey by the World Health Organization during the early stages of the pandemic provided details on fragmented health service delivery of routine health programs but showed limited perspectives from local or community stakeholders.[6] Considering inputs from local-level stakeholders are main paramount, especially for countries like the Philippines with devolved health systems.

Global analyses highlighted country-level strategic initiatives and modifications to service delivery to address the immediate effects of COVID-19-associated disruptions in health service.[7,8] However, it is not clear how these innovations align with the maintenance of non-COVID-19 health services at subnational or local levels. The underrepresentation of LMICs in these reports skews the findings to countries with good access to resources and technology.[7,8] Investigating social landscapes and experiences of LMICs such the Philippines without existing mechanisms for ensuring continuity of non-COVID-19 primary health services may provide insights on how current innovations can be best adapted in these challenging environments.[9]

This study aimed to explore the perspectives of local health service providers and managers on the indirect impacts of the pandemic on health systems to maintain the delivery of routine public health services. We also investigated viewpoints from health professional education institutions (i.e., universities) with existing partnerships with local government units, which allowed us to integrate experiences from the poorly studied areas of occupational health during the pandemic.

Methods

Study design and participants

The study applied a descriptive phenomenology which is widely used in areas where there is little existing research. This approach allowed narration of participants' experiences independent of researchers' presumptions to enable objectivity of the interpretation and improve the validity of the themes identified.[10] Thus,

this design was used to explore the experiences of local stakeholders and their perspectives about local health systems. We also used a participatory approach by involving selected participants in sample recruitment, analysis, and translation during program design.

This phenomenological research was a sub-study of a participatory action research (PAR) by the Filipino Nursing Diaspora Network, an international professional organisation of Filipino nurses. This PAR aimed to design, implement, and evaluate a virtual capacity-building program to assist local health systems in the Philippines.[11]

Using purposive and snowball sampling,[12] we recruited five health professional education institutions (i.e., nursing, and public health schools) with an existing partnership with at least one local government unit (LGU) (i.e., city or municipality). These partnerships were considered as university-LGU dyads. Five university-LGU dyads were spread out across the Philippines' main island groups (or regions): three dyads from Luzon, one dyad from Visayas, and one dyad from Mindanao.

Managers and staff involved in program implementation and service provision such as physician, nurses, and midwives, were invited to participate. Apart from their respective deans or heads of nursing schools, universities were asked to delegate at least two academic staff involved in community extension activities and/or student clinical placements.

Data collection

Semi-structured focus group discussions (n=6) were conducted online between March 2021 and June 2021. Generally, one group session was allocated for each dyad except for Mindanao. Participants from the Mindanao dyad were divided into two groups to maintain a manageable group size. We held one focus group per dyad to gain multiple perspectives on discussion questions by allowing exchanges of thoughts, ideas, and personal realities[13] within and between participants from education institutions and public health offices.

Each focus group (with 6 − 10 participants) was run by one skilled facilitator and two note-takers between 74 − 90 minutes. Facilitators (JM and JB) asked questions and primarily engaged in the dialogue with the group while note-ta
kers (JC, RG, and JFY) documented important verbal and non-verbal (if any) cues and video recorded each focus group. All focus group discussions were conducted in English or in Filipino language. Open-ended questions were asked such as "what are the health challenges that your community has encountered in light of the COVID-19"; "what common/usual health programs implemented were affected during the pandemic"; "what new strategies did you implement to cope with

these impacts". Probing questions were used to explore in-depth issues that were highlighted by the majority of the participants or were unique.

With participants' consent, all sessions were video recorded and stored in a password-protected cloud. Stored in the same cloud, participant name, main affiliation, role and designation and contact number were asked to facilitate reimbursements. Only four investigators (JM, JC, RG, and JFY) have access to the cloud.

Analysis

Note-takers transcribed the discussions verbatim and de-identified each session. All investigators are fluent in English and Filipino language; hence, transcripts were not translated during analysis.

Using an inductive analytical approach, we identified patterns or themes within the data without researchers' preconceptions or *a priori* coding framework.[14] After each session, assigned facilitator and note-takers discussed initial codes that emerged from the discussion. Four coders (JM, RB, JFY and VL) independently coded the transcripts for recurring themes. We did not use any qualitative analysis software but only relied on manual coding and consensus among coders. The lead investigator (JM) resolved coding biases and discussed the identified themes and clusters with all investigators for consensus. Themes in the study reflected summative perspectives rather than unique themes for each dyad and region.

Quotes highlighted in the results section were agreed by all investigators and translated to English by RG and back-translated by JFY. The role and location of the participants were shown for each quote. The actual wordings were presented in the Supplemental Material 1 to provide readers better context, enable cross-cultural understanding of the results, and demonstrate the analytical rigour of this study.[15]

Role of the funding source

The Australia-ASEAN Council and the Australian Government Foreign Affairs and Trade have no role in the study design, data collection, data analysis and interpretation, writing, and/or submission of the report.

Ethics Approval

This study was approved by Holy Angel University's Institutional Ethics Review Board (Reference: 2020-054). Written informed consent and/or recorded verbal consent were obtained from the participants before each focus group discussion. Transcripts and quotes were de-identified by showing their role (e.g., nurse, physician, program officer, academic faculty, academic manager), main affiliation (i.e., LGU, university), and location (i.e., Luzon, Visayas, Mindanao).

Results

Participant characteristics

We have a total of 42 participants, primarily from universities, and Luzon and Mindanao regions (refer to Table 1). Four participants (i.e., nursing directors and public health officers) from hospitals were snowballed and provided perspectives as referral centres for more advanced care and outpatient services.

Apart from academic managers (e.g., deans, academic/clinical placement coordinators) and staff (e.g., clinical preceptors, teaching academics), community engagement/extension officers from three universities across all locations also participated in the interviews. Community engagement officers both coordinate community and clinical placement for students and assist in providing services in the community. Participants from LGUs included public health managers and officers who are responsible in the development and monitoring of implementation strategies for routine health programs. Service providers included rural health physicians, public health nurses, community health workers, and primarily represented two Luzon LGUs.

Emerging themes

After rigorous analyses, four major themes were identified to describe the indirect impacts of the pandemic on local health systems, including school health systems.

Characteristics	n (%)
Total	**42 (100%)**
Main Affiliation	
University	25 (59.5%)
LGU – Public health office	13 (31.0%)
Hospital	4 (9.5%)
Role	
Academic manager	11 (26.2%)
Community engagement officer (university)	5 (11.9%)
Academic staff	8 (19%)
Public health manager	3 (7.1%)
Public health officer	2 (4.8%)
Rural health physician	4 (9.5%)
Public health nurse/midwife	2 (4.8%)
Community health worker	3 (7.1%)
Nursing director (hospital)	3 (7.1%)
Social worker (university)	1 (2.4%)
Region	
Luzon	19 (45.2%)
Visayas	5 (11.9%)
Mindanao	18 (42.9%)
Gender	
Female	29 (69.0%)
Male	13 (31.0%)

Table 1: Participant characteristics.

Themes	Clusters
Reduction in access and utilisation of routine public health programs	Hesitancy among patients to visit health facilities
	Shift in priorities to COVID-19 services
	Lack of students to augment the existing workforce
Fear and fatigue among workers	Fear of contracting COVID-19 while providing services
	Work overload due to staff shortage
	Stress related to use of technology
	Webinar fatigue
Increased awareness of mental health problems	Mental health problems among workers
	Young people being affected
Adapting to the new normal	Increasing capability to maintain service provision
	Development of innovation and new approaches
	Partnership with higher education institutions

Table 2: Indirect impacts on local health systems.

As shown in Table 2, these themes were: (1) reduction in access and utilisation of routine public health programs, (2) fear and fatigue among workers, (3) increased awareness of mental health problems, and (4) adapting to the new normal.

Theme 1: Reduction in access and utilisation of routine public health programs

Reduction in access and utilisation of routine public health programs was evident in all focus group participants. Affected programmes include, but not limited to, family planning, tuberculosis treatment, child health services, and routine immunisation programme. Public health workers specifically mentioned the disruption in conducting health education and advocacy activities in the community.

This detrimental disruption of routine services is further explained through the three distinct clusters: hesitancy among patients, shift in priorities to COVID-19 services and lack of students to augment existing workforce (see Table 2).

Hesitancy among patients to visit health facilities. Service providers who are also working as academic staff stated that community members hesitated to visit community health centres/clinics due to fear of being

exposed to COVID-19 infection and . the belief that all health facilities manage patients with COVID-19.

> "There is fear among patients... to actually go out to (visit) health facilities because of the misconception and perception that all facilities are COVID-19 referral centres..." *(Academic manager, Luzon)*

A clinical academic who is also working as a hospital nurse reported that visiting health facilities will make individuals exposed and suspected to be infected by the virus, which further discouraged patients to seek health advice.

> "If you go to hospitals, you will be considered a COVID-19 suspect. So, people don't want to go to hospitals or clinics for check-ups." *(Academic staff – clinical preceptor, Mindanao)*

Same participant also narrated that parents decided to defer seeking medical assistance due to fear of having their children exposed to the virus.

> "...We noticed that they only go to hospitals when their concern is considered an emergency. They will only bring their children with very high fever for several days, with difficulty of breathing, or when there are episodes of seizures... There is prolonged cough, but they did not go to the hospital because they are afraid of being (exposed) in the hospital." *(Academic staff – clinical preceptor, Mindanao)*

A community engagement officer who works closely with rural health centres, believed that patients preferred house visitations, but health facilities are short-staffed to deliver routine health services directly to households.

Shift in priorities to COVID-19 services. A shift in service delivery priorities was noted during discussions. A public health manager and rural health nurse stated that their involvement in providing COVID-19 services such as contact tracing made non-COVID-19 patients with needed care and services not prioritised.

> "How to respond to COVID-19... I became a contact tracer, which became my main role... in terms of (routine public health) programs, they were left out." *(Public health manager, Mindanao)*

The rural health physician and nurse of a municipality in Luzon also mentioned that the procurement of commodities such as contraceptives and other medicines were overlooked as their local government unit prioritised the distribution of test kits and COVID-19 vaccines, particularly in remote communities like theirs.

> "There is shift in focus... because of the emerging COVID-19 cases in *(municipality)*. And then the procurement (for other health programs was affected), ...that's why there's a big adjustment." *(Public health nurse, Luzon)*

Clinical preceptors in an outpatient hospital clinic and urban health centre in Mindanao attributed the increase in uncontrolled cases of chronic diseases such as hypertension and type II diabetes mellitus to the disruption in education and counselling programs. A clinical preceptor from Mindanao mentioned that patients who rely on free services and consultations from public health facilities were not able to get prescriptions and refill their medications to maintain normal blood pressure and blood sugar.

> "What happened is that most of the patients who rely on services or programs (non-COVID-19 services) ...if they have questions like how to administer insulin, ... diet plan...which are common for senior citizens. These services are gone. Most of them (patients) have difficulty in accessing services and most of them, when they come back (to the clinic) for check-up, they already have uncontrolled diabetes, uncontrolled hypertension..." *(Academic staff – clinical preceptor, Mindanao)*

The other clinical preceptor also highlighted that health centres needed to postpone health education/ promotion activities which were normally done in person, due to social distancing restrictions.

> "There are weekly gatherings, free BP (blood pressure) and blood sugar measurement, and then there are health education programs or health teaching programs... this is pre-COVID... but these types of services are suddenly not available." *(Academic staff – clinical preceptor, Mindanao)*

Lack of students to augment the existing workforce. Students and trainees are a large part of the health workforce both in hospital and community contexts. However, the risk of infection made universities to stop community and clinical placements for students.

> "It's impossible for students... to implement health programs due to safety concerns." *(Academic manager – academic and clinical coordinator, Luzon)*

National policies governing higher education institutions have also put strong recommendations to postpone clinical and community placements. One of the

deans mentioned that their university, in response to national recommendations, decided to delay student placements until further advise is received from the national government.

> "...the school will not take responsibility to look after the students to be deployed for (clinical placement) activities." *(Academic manager — dean, Luzon)*

Theme 2: Fear and fatigue among workers

The health workforce plays a huge part in maintaining a functional health system during the pandemic. However, the pressure to minimise service delivery disruptions and achieve program targets has caused health workers to experience mental exhaustion. This theme was further explained by four clusters shown in Table 2.

Fear of contracting COVID-19 while providing services.

Public health workers were concerned about their safety and of their families. They were fearful of contracting COVID-19 while interacting with patients and community members.

> "Of course, even health workers are afraid of contracting COVID-19... There have been a lot of healthcare workers who have already tested positive." *(Public health manager, Luzon)*

> "...it came to a point when health workers were afraid to report for work... however, we are not allowed to go on lockdown because we are frontliners." *(Public health officer, Mindanao)*

Work overload due to staff shortage.

The demand for health services while managing COVID-19-related activities has caused health workers to take on more roles beyond their capacity. A rural health physician and a public health manager highlighted that the pandemic has worsened the existing workforce issues of having multiple roles, including administrative tasks and clerical responsibilities.

> "There are overlapping responsibilities, especially on my part. There are two nurses here, and I am more senior; hence everything is my responsibility. We lack sleep and food... We are overloaded to cope with reports." *(Rural health physician, Luzon)*

> "Some of the BHWs (community health workers) became members of BHERTs (Barangay Health Emergency Response Teams for COVID-19). Some cannot cope with work. What causes the stress is (the act of) multitasking." *(Public health manager, Visayas)*

Despite the high job demands, several health workers still chose to remain working due to their unwavering commitment to serve the community. A community engagement officer at a university shared the dedication of his wife's work as a clinical nurse.

> "My wife is a frontliner. There is a huge chance that she is exposed and might cause transmission at home. When the cases increased, there was a lack of PPEs. I asked my spouse if it's possible for her to resign. But since it's her call of duty, she decided to stay to work because of lack of staff..." *(Community engagement officer, Luzon)*

Stress related to use of technology.

Most of the participants mentioned the need to learn how to use online platforms for videoconferences and other online events (e.g., training, workshops, meetings). Patient consultations and health education sessions were conducted remotely due to social distancing restrictions. This communication model required more frequent use of applications and devices, which not all participants were willing to be trained. An academic manager mentioned her intention to retire due to the stress of learning new technology not only for teaching but also in service provision.

> "I don't want to face technology because I am not used to it. So, it would be better for me to retire, over experiencing another crisis in my life. I am waiting for my sun to set down, and you know, here comes the virtual environment. So, we preferred retire over adjusting to the change and adapt..." *(Academic manager, Visayas)*

Another academic manager shared her experience in conducting online training programs for community leaders. She believed that use of online platforms has contributed to mental strain among health workers, especially those who perceived these platforms as 'complicated' to use.

> "We also have training programs in the community. It adds to the mental health concerns of the people (health workers), our training programs are online and not all people are techno-savvy." *(Academic manager, Mindanao)*

Webinar fatigue.

The preference to use online communication technologies also changed from face-to-face or classroom mode to using webinars as health workers were required to attend several mandatory online training and seminars during the pandemic. A public health midwife described her and her colleagues' experience

attending consecutive webinars daily in addition to her role in providing patient care, which she thought was exhausting. She also mentioned instances of attending simultaneous webinars using multiple devices to comply with training requirements and attend engagement meetings with community stakeholders.

"...frantic with webinars. There are more webinars... Webinars are being done simultaneously. So aside from health services, we are exhausted because of webinars. If we were not able to join right away, we are being called (via telephone/ mobile). Doing our work and submitting our reports are done at the same time. Basically, the health workers are tired because of the paper works and webinars." *(Public health midwife, Luzon)*

The increase in their screen time and pressure to multi-task were perceived by participants as a major factor for mental exhaustion among health workers. Two academic managers mentioned their staff experiencing burnout and difficulty managing their activities.

"...there are those who complained because they are experiencing burnout. I guess Zoom (online video conference application) fatigue is true... It is very tiring." *(Academic staff − clinical preceptor, Luzon)*

"The disadvantage (of webinars), overlapping, same schedule with classes. Then there's a meeting and a webinar at the same time. Time management is the most difficult." *(Academic manager, Luzon)*

Theme 3: Increased awareness of mental health problems

Mental health issues in the community were believed to escalate during the pandemic. A dean from a health sciences school believed that the pandemic affected the mental health of individuals who have been infected, those who have survived, and those who never acquired the virus.

"This pandemic spared no one. Even if you were spared from the physical effects ng COVID-19, you are not spared from mental health (problems) or the varying levels of emotions. Others are manifesting mental health (problems), those beyond normal manifestations. Others are coping well, but they recognise that they are also suffering. As I have said, no one is spared." *(Academic manager − dean, Luzon)*

Mental health problems have surfaced as a public health concern and are now seen as a priority in medical training according to a clinical preceptor on community medicine.

"About mental health, there is a big paradigm shift. It is only recently that it is being focused on; during my medical school days, it was not emphasised. It is only now that I encounter this that I needed to be sent for training." *(Academic staff − clinical preceptor, Luzon)*

As outlined in Table 2, participants described health workers and young people to be the most affected.

Mental health problems among health workers. Some participants, including those infected by COVID-19, reported to have a lived experience of mental health problems since the pandemic. A public health manager mentioned her experience with anxiety and depression during the pandemic.

"I, myself, I have anxiety, I suffered from depression and started treatment already. I am under treatment; I am taking medications. You will see, it's not only me but there are many... even in other companies, in other sectors... I am not giving enough time for myself. I have anxiety." *(Public health manager, Luzon)*

A community engagement officer believed that mental health problems arose from work overload and burnout.

"...because of the rising cases and being understaffed, some are overworked health care workers. This situation predisposed them to mental health issues." *(Community engagement officer, Visayas)*

Young people being affected. Participants from the university sector raised their concerns about young people's mental health, particularly among students. One academic manager noted that young people were particularly affected due to the sudden shift to online learning.

"...mental health problems among young people because of all the challenges they have; they have to adjust to so many things online ...at the same time the shift caused anxiety, the shift in the educational system, because in online education they were given more responsibility in their studies. Yes, it seems that the 'supposed to be in school feeling' is gone, because they have to proceed on their own, at their own pace, so it adds to the mental health concern." *(Academic manager, Mindanao)*

A social worker added that the abrupt changes in social environment affected students' coping, particularly during community lockdowns.

"We have students adjusting with the new normal, not having the online class, being away from their

families, being away from (city), some are not from (city)." *(Social worker, Mindanao)*

Other academic managers also highlighted the influence of adverse socioeconomic shift among students and their families on mental health.

"...their parents were not able to continue their family livelihood following the lockdowns... others are experiencing recession; their parents have to go back to their province and left with... nothing in terms of their income. That indirectly affects our students because they can no longer sustain... their studies, although we say that they are in the comforts of their home, but they do not have the (social) connection as that of before." *(Academic manager, Visayas)*

"Of course, indirectly because the loss of income adds to the mental health concerns; other members of the family lost their jobs and businesses are not earning." *(Academic manager, Mindanao)*

Some universities have initiated immediate responses due to the abrupt increase in demand for mental health services and programs for students. For example, a university in Mindanao provided remote counselling and psychological first aid.

"We have this united registered social worker (organisation) in which we provided telephone and online psychosocial first aid for those who have mental health problems because they (students and university staff) became depressed because of the pandemic." *(Social worker, Mindanao)*

The university also encouraged students to participate in different promotion activities, including digital journaling and mental health webinars. They also provided students with two- to three-day study breaks in the middle of a semester which they consider as "mental health breaks".

"We allowed our students to have some digital journaling... expressing their feelings to help them with their mental health. Apart from that, I think it was already mentioned the efforts done by the university to conduct (by conducting) webinars." *(Academic staff − clinical preceptor, Mindanao)*

"So, the whole November and December, we have a mental health break for the students." *(Academic manager, Mindanao)*

Having the abovementioned observations in the community and workplace, as well as having lived experience, participants recommended more accessible mental health services and programs.

"They need mental health programs that will provide debriefing and lessen the stress at work." *(Academic staff − clinical preceptor and practicing public health physician, Luzon)*

Themes 4: Adapting to the new normal

Increasing capability to maintain service provision. Several public health managers mentioned providing staff training on infection control to enable health workers to continue with service provision and prevent COVID-19 transmission. Other service providers with low patient loads were trained on other skills like psychological counselling. A clinical preceptor mentioned that city health dentists in some communities were trained and deployed to provide psychological counselling.

"They mobilised the city dentists to become mental health counsellors for those who are in quarantine. They don't have dental cases to manage... For them to be productive, their duties were shifted to do counselling (for) post-quarantine and post-isolation (patients)." *(Academic staff − clinical preceptor and practicing public health physician, Luzon)*

One rural health physician said that their staff who were initially deployed to provide COVID-19 services were gradually re-assigned to their usual role of providing routine public health services.

"What we did is that we deployed our staff in their (usual) area so that consultation can be done, and attention can be given to the programs." *(Rural health physician, Luzon)*

Development of innovation and new approaches.

"The important thing is that we learned, and we adapt, and we make changes or strategies in order to correct or to avoid that in the future." *(Community engagement officer, Visayas)*

The use of telehealth was noted as the most common and newly implemented service delivery approach, particularly by hospitals. For example, online consultations allowed patients to send photos to facilitate physical examination.

"What we did is that the midwife will call and inform the doctor. If there are skin lesions, they will take a picture then it will be forwarded through messenger,

then we will have telemedicine (teleconsultation)." *(Rural health physician, Luzon)*

While telehealth was deemed to be the ideal approach to facilitate access to health services, other public health units encountered issues with connectivity and access to mobile devices, especially among those in remote communities and those with low socioeconomic background.

"Regarding technology, there are problems like those who cannot afford to buy (an) Android phone. So even if we conduct this, they will not be able to get the (health) information." *(Public health manager, Visayas)*

Other public health units have maintained access to medications, including contraceptives through home deliveries, especially during community lockdown. A public health manager mentioned that they asked community health workers to deliver medications such as contraceptive pills and anti-retroviral directly to households.

"And for the family planning (program), what we did if they cannot come, especially the current users, we delivered their contraceptive pills. And even the health workers, even if they are senior citizens, they did not stop serving the community. We have like Grab (delivery company) for 6 months wherein we delivered the ARVs (anti-retroviral medicines) to our clients." *(Public health manager, Luzon)*

Others have implemented social media strategies to educate the community and disseminate health information using audio-visual materials. A city health office in Visayas created their official Facebook page to deliver health promotion activities particularly for young people.

"On our Facebook account, we posted videos, created by our academic partners here in (city), for our adolescent health development program. We did that to disseminate the message that we really wanted to tell them... They will be encouraged because the videos on teenage pregnancy and risky behaviours were mostly produced by and with high school students..." *(Public health manager, Visayas)*

A university with ongoing community engagement programs utilised traditional forms of media to disseminate health information.

"We also have a local radio station and local newspaper. We also have cable (TV channel) and a partnership with (non-government organization). We used

those as venues to disseminate information; we have a radio slot monthly about health that continues." *(Academic manager, Luzon)*

Partnership with higher education institutions. Participants from universities described their current partnership with the local government to facilitate information exchange and capacity building during the pandemic. A manager from a nursing school mentioned their training initiative with a public high school which caters both students and teachers.

"We (did) it already with our public school health program where the university invites various resource persons from various schools and departments to (conduct) capacity building activities to public school teachers and students." *(Academic manager and nurse practitioner, Luzon)*

Academic participants also highlighted the importance of research to address actual practice gaps in the community. One participant also suggested partnering with local governments and service providers to analyse data collected by health facilities and produce findings to inform their programs.

"But if there's research, hopefully those practical problems will be good research (projects) for students... the results can be applied in rural health units... Although, I know it is important to have theoretical (work); it is better to research (topics)... that are practical, especially the practical problems... to improve our systems." *(Academic manager — dean, Luzon)*

"...proper linkage or (having) someone that can link academic institutions and LGUs. For us, our interest aside from teaching is research. And even rural health units, they generate a lot of data, but no one harnessed to transform (and analyse those) for research. But we cannot force the RHU to do research. It's something that we can do for them using the data that they have." *(Academic manager and nurse practitioner, Luzon)*

Discussion

Our study aimed to explore the perspectives of local health service providers and managers on the indirect impacts of the pandemic on health systems. The findings of this phenomenological study revealed complex issues faced by health service and academic stakeholders during the pandemic. The reduction in access to routine health services was attributed to community hesitancy to visit health facilities and a priority shift to COVID-19-specific services. The pandemic has also

worsened the existing lack of effective health workforce due to reallocation to focus on, acute pandemic response and inability to deploy students or trainees to support staff shortage.

Previous research in other LMICs showed comparable results.[6,16,17] Service providers across 64 countries reported patients' fear of getting infected as the main reason for the decline in service utilisation in HIV and tuberculosis primary treatment centres.[17] A national qualitative study found that the perceived risk of infection has negatively affected the health-seeking behaviour of the community to access services.[16] Social marketing could be considered as a health promotion strategy to mitigate misinformation,[18] influence positive health-seeking behaviour,[19] and increase trust among health workers.[20]

Evidence has consistently highlighted staff shortage and redeployment as contributing factors in the disruption of primary health services since the early stages of the pandemic.[6,7,16] The need for effective health workforce management has been emphasised in the global arena due to inequitable allocation to COVID-19 services, compromising the delivery of non-emergency health services and primary health programmes. Hamberger and Rhodes[21] suggested leveraging on existing skills and knowledge of health workers and involving community leaders in service planning to enhance health systems resilience and establish more appropriate service delivery strategies. An adequate health workforce has also been consistently indicated by LMICs as critical when adapting service delivery innovations, particularly in poorly resourced health systems.[22]

It has been further argued that public-private partnership approaches may lessen the pressure and augment the existing workforce in the public health system.[15] The tandem of public health agencies and higher education institutions can strengthen delivery of both COVID-19 and non-COVID-19 health services at local levels. Few countries have successfully deployed medical and nursing students from academic health institutions to perform supervised work despite safety issues.[15] However, apprenticeship in hospitals and community settings has not been encouraged in most LMICs[17,23] such as the Philippines,[24] where COVID-19 transmission remains high.

While country-level response to COVID-19 has been the priority, we found innovative efforts made at local levels to maintain delivery of routine public health services. Our study revealed the use of digital platforms such as telehealth and social media. Virtual interactions between health workers and patients have become the alternative to traditional face-to-face consultations, where social distancing directives and policies limiting local travel were widely implemented.[21]

We found that health facilities have attempted to embed telehealth platforms in their service system. However, issues on digital equity prevented the continuous implementation of these platforms. Health facilities and households from rural and remote locations were reported to have poor access to mobile devices and sufficient internet connection. Limited digital literacy among service providers and patients also became a barrier to adopt telehealth technologies. As the globe shifts to integrate remote delivery of health services,[7] digital equity increasingly becomes more critical as a social determinant of health.[25] Barriers in implementation should be rigorously identified and addressed to ensure the successful adoption of digital health interventions at policy, service, and community levels. Involving other sectors with direct and indirect influence may provide pathways to resolve socio-political and -cultural challenges affecting digital equity.[26]

The reframing of national priorities by several LMICs to address immediate impacts of COVID-19 has left the primary health workforce with a load beyond their capacity.[8] The reactive and unexpected reallocation of the existing workforce has resulted in mental strain, especially when asked to perform unfamiliar tasks and roles in a short timeframe.[8,9] Health workers in our study have reported being mentally exhausted due to high demands at work. Occupational stressors such as fear of getting infected, work burnout and experience of loss have predisposed health service providers and university staff to psychological distress.[27] Although the widespread integration of telehealth has been inevitable, we found that the rapid transition to work in a virtual environment has added pressure to fast-track digital self-learning trajectory, which negatively affected health workers' mental health.

Social distancing restrictions have shifted meetings and training programs online leading to webinar fatigue. Mental exhaustion due to extended screen use, i.e., long hours of webinars and online training, was highlighted by participants. In other 28 counties, four out of ten health professionals working remotely deemed teleconferences as mentally draining and reported working longer in unconventional hours.[30] Psychological harm related to 'teleworking' should be addressed as the boundaries between home and work overlap leading to a poor sense of detachment from workplace.[31] With online work becoming an occupational stressor, regulations on time allocated and spent on online activities should be developed.[32] While preventative and mitigation mechanisms have been initiated by universities represented in our study, participants have regarded these as insufficient due to the increasing number of staff needing psychological support. Provision of counselling and trauma support and activating referral pathways to basic and specialist psychological services were found beneficial.[27,28] Improving mental health literacy was a protective factor to promote positive work environment and to ensure access to initial frontline responses and specialist services.[29]

Young people, including students, primarily felt the severe health and social impacts of the pandemic. Similar to our study findings, a comprehensive multi-country review of adolescent mental health found an increase in reports of depressive symptoms and anxiety.[33] This review discussed the impact of school (and university) closures on young people's social environment leading to adverse health behaviours and outcomes.[33] Inadvertent closure of businesses and inability to work due to social distancing restrictions have led young people and their families to further social disadvantage.

The obvious lack of appropriate best practices calls for the production of evidence-based health service delivery and policy innovations, particularly in low-resourced contexts.[28] Partnership among universities, public health offices and local health units is believed by our participants as a key driver towards health system resilience and recovery. Other countries considered the higher education sector as an imperative resource to guarantee national economic and social recovery.[34] Involvement of the higher education sector offers a symbiotic relationship through a sustainable co-development processes of best practices, public health strategies and political agenda.[35] Universities' current engagement with local public health stakeholders should be leveraged to facilitate a needs-based approach and evidence translation through their community extension programmes and student placements.[34]

Limitations

The experiences of our participants in this study may or may not reflect the experiences of those who are not part of the participatory action research. Our findings may only reflect perspectives of health workers and academic staff and exclude individual experiences of the greater community. Higher education institutions recruited for this study are primarily from their respective nursing schools. Academics and students from non-health disciplines may have different stressors and working knowledge on emotional management and coping.[36] Notwithstanding these limitations, we are confident that our study established empirical evidence on the indirect impacts of the pandemic on local health systems using insights from the health service and higher education sectors. Also, some of our findings have been confirmed by other studies with community members as study participants.[16,17,22]

Conclusions

Our study provides in-depth qualitative data at a crucial time when little is known about the long-term impacts of the pandemic. The involvement of university-LGU dyads diversified viewpoints about changes in local health systems including routine health service delivery and health workforce management. Triangulating

perspectives from higher education institutions with service providers and public health officers was found to be a pioneer in local health systems research in the context of the pandemic recovery.

Our research also highlighted potential areas that can be leveraged to embed sustainable resilience plans, which several countries, especially LMICs still lack. The rapid change in social landscapes has surfaced the importance of promoting and maintaining mental health and wellbeing. The use of telehealth and other digital platforms surfaced issues on digital equity and literacy. These issues being consistently unresolved especially in LMICs such as the Philippines indicates the need for pragmatic plans and sustainable partnerships to allow local health systems to recover and endure the current and future pandemics. Community-driven priorities that emerged from our research can inform future small- and large-scale plans and strategies for recovery.

Contributors

JM, JC, JB, MCL, and VL were responsible for the conceptualisation of the manuscript. JM, JC, RG, CP, JFY, and JB were involved in data collection. JM, RG, JFY, and VL performed formal analysis. JM, RG, CP, DDO, and JDS performed data validation. JM, JC, RG, CP, DDO, and JDS wrote the original draft. All other authors contributed to the reviewing and revision of the manuscript.

Data sharing statement

Data are available on reasonable requests directed to JM, JC, and RG.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.lanwpc.2022.100585.

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