# Effects of the COVID-19 Pandemic on the Implementation of NCD Care at the Primary Care Level in the Philippines: A Qualitative Inquiry

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## ABSTRACT

**Background and Objective.** The focusing of resources to COVID-19 response hampered and disadvantaged primary care services including that for Non-Communicable Diseases (NCDs), compromising continuity of care and hence, patients' disease status. However, studies from low- and middle-income countries (LMICs) remain sparse; therefore, evidence generation on how the pandemic impacted the provision of these primary care services in LMICs will help further understand how policies can be reframed, and programs be made more efficient and effective despite similar crises. To bridge this gap, the study investigated how the pandemic affected the implementation of NCD care at the primary care level in the Philippines.

**Methods.** Thirty-one online focus group discussions via Zoom Meetings were conducted among 113 consenting physicians, nurses, midwives, and community health workers from various facilities — community health centers and stations, free-standing clinics, infirmaries, and level 1 hospitals — located within two provinces in the Philippines. All interviews were video-recorded upon participants' consent and transcribed verbatim. Inductive thematic analysis was employed through NViVo 12® to generate themes, identify categories, and describe codes.

**Results.** The impact of COVID-19 on NCD care at the primary care level revolved around heightened impediments to service delivery, alongside worsening of pre-existing challenges experienced by the healthcare workforce; subsequently compelling the public to resort to unhealthy practices. These detriments to the primary healthcare system involved resource constraints, discontinued programs, referral difficulties, infection, overburden among workers, and interrupted training activities. Citizens were also observed to adopt poor healthcare seeking behavior, thereby discontinuing treatment regimen.

**Conclusion.** Healthcare workers asserted that disadvantages caused by the pandemic in their NCD services at the primary care level possibly threaten patients' health status. Besides the necessity to address such detriments, this also emphasizes the need for quantitative studies that will aid in drawing inferences and evaluating the effect of health crises like the pandemic on such services to bridge gaps in improving quality of care.

*Keywords: COVID-19, noncommunicable diseases, primary care, qualitative research, Philippines*



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## INTRODUCTION

The onslaught of the COVID-19 has become a public health crisis when WHO declared it as a pandemic in March 2020[1], leading to an unanticipated disruption of healthcare service delivery[2] and healthcare utilization[3] all over the world. As resources and efforts center around the pandemic response, low- and middle-income countries (LMICs) disproportionately bear the burden of maintaining routine, essential and even emergency services.[4,5] In the Philippines, few studies found that the COVID-19 and the control measures employed by the government impacted the provision of and access to both emergent and non-emergent specialist care.[6-8]

Primary care, supplementarily, serves as the first contact of patients into the healthcare delivery system for numerous countries; and in the context of the COVID-19 pandemic, played a role in identification, management, and monitoring of cases.[9] Besides its function in acute care, primary care had also been the mainstay of addressing non-communicable diseases (NCD)[10], which continue to be one of the main causes of high mortality and morbidity worldwide.[11] The involvement of multiple sectors in policy making towards reduction of NCD risks at the population level, alongside efficient and effective delivery of primary care services, significantly contributes to decreasing NCD burden.[12] After all, access to these quality provisions is not just vital in preventing further illness and death, but also in equitable distribution of health across population groups within and between countries.[13]

However, the focus of countries in their respective pandemic response led to the disruption and hampering of several primary care services, specifically for people living with NCD who require continuity of care in the management of their disease.[14] A rapid assessment by the WHO (2020) on the impact of COVID-19 on NCD services and resources show that LMICs were less likely to include NCD services in their pandemic response plans and specific NCD activities such as screening, health promotion, and capacity building were disrupted. It was also observed that there is a higher likelihood of disruption in services for hypertension and diabetic management in LMICs compared to other income groups. Community lockdowns to restrict population mobility to limit COVID-19 transmission, in turn caused difficulties in accessing NCD care and this was made more difficult by transport barriers and the fear of COVD-19 infection.[2,15] Supply of maintenance medicines, and adherence to schedule of follow-up consultations were also found to suffer during the pandemic, thereby threatening the needed continuity of care when it comes to NCD management.[15,16] A study by Pati et al. in India also found that patients with multiple comorbidities had changes in their physical activity, and diet during the pandemic — all of which were also necessary in managing chronic diseases.[2] This is further backed up by Yadav et al.[17] and Palmer et al.[18], who posited that the pandemic's preventive measures may have paved way to increased exposure to risk factors of NCDs as the public become more predisposed to unhealthy lifestyle choices like tobacco, alcohol, processed food, and reduced physical activity. Beside the service delivery, the health workforce was also found to be impacted by the pandemic as disruption of such are attributed to insufficient staffing[14], burnout, anxiety, and depression[19], and even infection with COVID-19.[18] As response to these challenges in NCD care due to COVID-19, health systems were compelled to adapt in order to ensure that services were still delivered to patients. Many adopted telemedicine and conducted their consultations through non-face-to-face methods.[2,7,14,15,20] Local health systems in the Philippines were found to increase the involvement of their barangay health workers and public health nurses in providing prescription medicines and other health commodities to address patient needs, among other means to adapt to the pandemic.[7]

Gaining insight on how various countries and their service delivery for NCD were affected by the COVID-19 pandemic emphasize the need to properly and formally document the challenges encountered by that of the Philippines, which at the time, were only shared through personal accounts of healthcare workers disseminated through popular media. After all, LMICs like the Philippines were expected to disproportionately experience an array of difficulties within its service delivery approaches, its health workforce, and most of all, its people. The lack of formal evidence consolidating our own experiences emphasize the need to investigate and look for possible similarities and stark differences between countries. Understanding these will pave the way for reframing of old policies, or formulation of new ones, alongside development of more efficient and effective health programs to assure that similar crises will not hamper the continuity of care for chronic diseases. Addressing these gaps and barriers through evidence generation also aids in creating resilient health systems, and in achieving universal health coverage and the sustainable development goal of promoting health and well-being. Hence, through this study, we hope to help in bridging this gap in the field of inquiry by asking the question – 'How did the COVID-19 pandemic affect the implementation of NCD care at the primary care level in the Philippines?'

## METHODS

### Research Design

This study utilized a qualitative case study approach[21] to explore the experiences of health care workers in an in-depth manner on how COVID-19 influences NCD care delivery at the primary care level during COVID-19 pandemic. This research approach was anchored on social constructivism theory, which hypothesizes that the perceptions, knowledge, and understanding of interview participants are influenced by their interaction within their specific social context.[22] The

use of a focus group discussion (FGD) (ranging from two to 10 participants) with health care workers involved in the delivery of NCD care in both public and private primary care facilities is the main method of qualitative inquiry in this study. This was performed to assess mutual agreements and disagreements, ensure comfort, openness and trust, and higher degree of interaction among the participants.

## Study Settings

Two highly populated and economically developed provinces, particularly Tarlac and Cebu, located in separate island groups in the Philippines, were purposely selected to provide contrast on the state of the effects of COVID-19 on NCD care delivery in both areas. Tarlac and Cebu relatively experienced a lower number of COVID-19 cases compared with other areas in the country despite its high population density and huge working population that may influence mobility and contact with each other. This was attributed to its promising practices on COVID-19 such as strict border control, early implementation of lockdowns, establishment of quarantine facilities, and monitoring efforts.[23]

Moreover, the research team has existing partnerships with academic partners that are proximal to the selected provinces. These provinces also have a substantial number of primary care facilities, both at the public and private level, responsible for providing relevant NCD care services catering directly to the needs of the general population. The healthcare workers implementing NCD programs and services at the primary care level such as health centers, infirmaries, Level 1 hospitals, and free-standing private clinics from all of the cities and municipalities in each province were solicited for participation to ensure representation from both urban and rural groups or varying area income classification.

## Sampling and Recruitment

A formal approval from local government officials of both provinces was secured. This facilitated endorsement of the research team to mayors, health officers, and hospital administrators of cities and municipalities within the province to recruit staff working at the primary care level to participate in the study. The local government staff identified and recommended level 1 hospitals, infirmaries, and free-standing clinics for potential inclusion in the study. Health care workers such as physicians, nurses, midwives, and community health workers from the abovementioned facilities were recruited to participate. The research team shared through email the informed consent forms containing a short description of the study with information on what the study is all about, particularly its objectives and purpose, to prospective participants, two weeks prior to the actual date of the FGD. Approval to participate in the video-recorded discussion was sought via mobile phone or email message one week before the actual FGD to give the prospective participants ample time to decide. All FGDs were performed only upon the approval of the selected health care practitioners. The research team assured the participants that their responses were kept confidential.

## Data collection and procedure

The FGDs were conducted online using the Zoom web conferencing platform from April to August 2021. All FGDs were carried out using the local language of the community. The FGDs were primarily facilitated by three members of the research team per province, who took turns in facilitating and note-taking to ensure quality and robustness. Each interview took about 60 to 90 minutes, on the average. A semi-structured interview guide was used which focused on the assessment of experiences regarding NCD care delivery at the primary care level. The participants were also asked to complete an electronic demographic information sheet (i.e., age, gender, profession, name of facility, ownership, education, length of service, and previous training on NCD and primary health care) submitted online after agreeing to participate in the study.

## Data analysis

Interviews were transcribed verbatim in Microsoft Word Document using Express Scribe software (http://www.nch.com.au/scribe/index.html). The transcripts were read several times for data familiarization of salient points. Analysis was simultaneously conducted during data collection to determine the emerging codes and identify questions to further probe during subsequent interviews. Cross-checking of the transcripts with field interview notes and discussion among the researchers was also conducted to achieve consensus. Data management and analysis was also aided by NVivo 12® (QSR International, Burlington, MA, USA), a qualitative software package. Using Braun and Clarke's six-phase guide, an inductive thematic analysis was used to identify descriptive codes, generate emergent general themes, sub-themes, and constructs.[24] This process was repeated across all transcripts until analytical saturation was achieved.[25] The initial findings were presented and discussed with other members of the research team to facilitate refinement of results. In addition, the results were presented to a research advisory board to gain feedback and ensure trustworthiness of the findings contributing to rigor of the results.[26]

## Ethical considerations

The University of the Philippines Manila Research Ethics Board (UPMREB) approved the conduct of this study [2021-163-01]. All information collected were used for research purposes and adhered to UPMREB guidelines on human subjects particularly on "principles of transparency, legitimate purpose, and proportionality in the collection, retention, and processing of personal information."

## RESULTS

A total of 16 FGDs in Tarlac and 15 in Cebu were conducted with 68 and 45 participants, respectively. Table 1 presents a summary of the demographic characteristic of the participants.

In terms of age, participants from Tarlac were mostly between 41- to 60-years-old, and those from Cebu were 21- to 40-year-old; gender-wise, female participants predominated the FGDs. Most of them are also physicians, although other health professionals — nurses, midwives, and barangay health workers (BHWs) — also participated.

Majority are currently with rural health units, while a few with infirmaries, level 1 hospitals or with their own private primary clinics. Most have rendered 1-10 years of service, while others had served for 11 to more than 20 years. Despite this, it was found that the majority have not yet received training on primary healthcare, universal healthcare, or non-communicable diseases. Table 2 presents the distribution of FGD participants according to selected work characteristics by study site.

Table 3 presents a summary of the study's identified themes that were grouped to capture the various effects of COVID-19 on NCD care at the primary care level, namely: (a) Heightened impediments to service delivery, (b) Exacerbation of pre-existing challenges on health human resource and (c) Subsequent adoption of unhealthy practices. Included also were categories defined under each theme that further highlight the impact of the pandemic on NCD care delivery. Specifically, participants noted delays and impediments with the provided resources and budget, hence consequently, provision of services and implementation of interventions were also delayed. The many shortcomings eventually affected the already anxious and overburdened health workers.

### Heightened impediments to service delivery

Participants, first and foremost, identified several impediments in the service delivery brought about by the COVID-19 pandemic, manifesting through restrictions in budget, delayed and/or discontinued service delivery and program implementation, and struggles with the service delivery network. Essentially, these drawbacks due to COVID-19 all contribute to the overall retardation of service provision to the people.

#### *Budget constraints and redirection of resources*

The interviewees from both Cebu and Tarlac recognized the increased demand for resources to sustain pandemic response through personal protective equipment for health workers, medicines, retrofitting for isolation facilities, and eventually, vaccination. With this, resources were centralized in procuring supplies like Personal Protective Equipment (PPE), gloves, and face masks.

**Table 1.** Profile of the Health Worker FGD Participants by Study Sites

| Characteristics | Tarlac (n=68) | | Cebu (n=45) | |
|---|---|---|---|---|
| | n | % | n | % |
| ***Age** (years)* | | | | |
| 21-40 | 14 | 20.6 | 25 | 55.6 |
| 41-60 | 43 | 63.2 | 17 | 37.8 |
| >60 | 11 | 16.2 | 3 | 6.7 |
| ***Gender*** | | | | |
| Female | 46 | 67.6 | 32 | 71.1 |
| Male | 22 | 32.4 | 13 | 28.9 |
| ***Occupation*** | | | | |
| Physician | 32 | 47.1 | 21 | 46.7 |
| Nurse | 23 | 33.8 | 18 | 40.0 |
| Midwife | 7 | 10.3 | 4 | 8.9 |
| Barangay health worker (BHW) | 6 | 8.8 | 2 | 4.4 |

**Table 2.** Distribution of the Health Worker FGD Participants according to Selected Work Characteristics by Study Sites

| Characteristics | Tarlac (n=68) | | Cebu (n=45) | |
|---|---|---|---|---|
| | n | % | n | % |
| ***Type of Healthcare Facility*** | | | | |
| Rural health unit (RHU) | 39 | 57.4 | 25 | 55.6 |
| Infirmary/Level 1 hospital | 19 | 27.9 | 15 | 33.3 |
| Private Primary Clinic | 10 | 14.7 | 5 | 11.1 |
| ***Ownership of Healthcare Facility*** | | | | |
| Public | 48 | 70.6 | 39 | 86.7 |
| Private | 20 | 29.4 | 6 | 13.3 |
| ***Length of Service*** | | | | |
| 1-10 | 27 | 39.7 | 34 | 75.6 |
| 11-20 | 21 | 30.9 | 8 | 17.8 |
| >20 | 20 | 29.4 | 3 | 6.7 |
| ***Training/s Received*** | | | | |
| PHC/UHC Training | 17 | 25.0 | 6 | 13.3 |
| NCD Training | 10 | 14.7 | 6 | 13.3 |
| Both | 6 | 8.8 | 7 | 15.6 |
| Others | 8 | 11.8 | 3 | 6.7 |
| None | 27 | 39.7 | 23 | 51.1 |

**Table 3.** Effects of the COVID-19 Pandemic on the Implementation of NCD Care at the Primary Care Level

| Themes | Categories |
|---|---|
| ***Heightened impediments to service delivery*** | Budget constraints and redirection of resources<br>Delayed provision of service<br>Discontinuation of programs and services<br>Difficulty in referral |
| ***Exacerbation of pre-existing challenges on health human resource*** | Infection of healthcare workers<br>Overburden and increased workload<br>Interruption of trainings |
| ***Subsequent adoption of unhealthy practices*** | Poor healthcare seeking behavior<br>Discontinued treatment and follow-up consultations |

> *"As a DOH accredited hospital and a government facility, we are bounded by laws on how to procure supplies. During pandemic, there are suppliers who raised their prices. Government facilities like ours cannot compete with the private institutions even for face masks. We have limits of our prices. We lobbied for the amendment of the procurement law until the central office granted a negotiated procurement for all the DOH hospitals. The issue was solved. Before the pandemic the face mask only cost around 45 to 60 pesos. But during the pandemic it went up to 1,500 to 2,000 pesos. COA will not allow us to buy that. It's too expensive."* (Physician, Public hospital, Cebu)

However, even with the redirection of these means to COVID-19, participants still encounter difficulties in procurement, as stated above. Furthermore, despite the participants' recognition that maintenance medication for NCD patients under monitoring must be sustained, the supply constraints experienced as healthcare units centralized efforts and resources to the pandemic exacerbated the situation of already-limited reserve of said medicines. After all, supply coming from the Department of Health (DOH) was observed to be irregular —hence insufficient — despite local government units' (LGUs) augmentation efforts. As a result, Rural Health Units (RHUs) run out of stock available for distribution for their constituents in need, especially the people laid off from their jobs who were compelled to resort to RHU to secure such. Hence, delays in medicine distribution due to the redirection of NCD resources to COVID-19 was experienced.

> *"Since the pandemic, a lot of workers have been laid-off. They don't have income, so they visit the RHU for their maintenance medicine. The DOH supply is not that continuous and then our augmentation with LGU, is also not enough."* (Nurse, RHU, Cebu)

> *"Even now, the budget which should have been allocated for medicines in the RHU were diverted to procure vaccines and sustain isolation facilities."* (Nurse, RHU, Tarlac)

### *Delayed provision of service*

The FGD participants also asserted that the COVID-19 pandemic also contributed to the delayed service delivery among the citizens of Cebu and Tarlac. They specifically noted the congestion in the RHUs due to the influx of COVID-19 cases requiring quarantine, compounded by the ongoing construction projects. This resulted in a rapid spread of the virus, as the RHUs attend to almost 50 to 70 patients per day. Accessibility challenges for Geographically Isolated and Disadvantaged Areas (GIDAs) barangays were also experienced, despite the resolve of the health system to bring provisions closer to the public. Participants claimed that the practice of visiting GIDAs used to be more efficient and convenient for doctors and nurses. However, due to the pandemic, these visits became fewer and delayed since the workforce were required to be cleared of COVID-19 before visitations, to ensure both staff and people's safety from infection. Additionally, the COVID-19 pandemic affected the economy, leading to increased transportation costs, making it difficult for workers and patients alike to visit communities and health facilities, respectively. Consequently, services such as regular checking of blood pressure and blood sugar levels among members of the community in GIDAs were stopped. Along with such services, health promotion efforts like health education classes were also hampered. Furthermore, stand-alone clinics had to cut short operating hours and resorted to employing telemedicine and online consultations. Contrarily, private physicians using such methods feel limited as check-ups only happen through computer screens, preventing full face-to-face physical assessment for first-contact patients.

> *"I started to have my online platform like doing some telehealth or tele-consultations but right now I tried it, since I'm not or I'm a little bit not so comfortable especially if I don't really examine the patient but I just go for telehealth for like some laboratory result they just show to us or send it through online and we will just try to talk, I usually done it for follow-up only but not really for virgin case or initial case to really assess."* (Physician, RHU, Cebu)

Services provided in public healthcare facilities such as RHUs and barangay health stations (BHS) were also hampered, initially due to concerns with possible COVID-19 transmission in the facilities, and later, due to COVID-19 vaccination activities. Prioritizing COVID-19 control activities sidelined other regular services of the health facilities. The FGD participants observed that staff were constantly pulled-out of the facilities to tend to immunization operations. As a result, the workforce supposed to be manning these healthcare units to deliver NCD services on risk assessment, monitoring, health promotion, and even provision of medicines was absent. In order to compensate for the delay in the delivery of such services, healthcare staff resorted to working overtime, or extending operating hours. The pre-pandemic routine of barangay visits by RHU staff to provide these services were now performed only once a week.

### *Discontinuation of programs and services*

In conjunction with the impeded service delivery, the pandemic also caused other programs and services to be discontinued. For one, health workers interviewed stated that services for NCDs, specifically risk assessment, and monitoring were stopped, further compounded by the closure of a facility for a month due to quarantine. Provisions such as free clinics, and free laboratory workups were also halted as part of the efforts to prevent crowding in these facilities. However, visiting patients who have very limited means in

settling their health expenditure were either given discounted or free services. Monthly checkups that were regularly conducted pre-pandemic were also stopped. The same happened with programs envisioned to improve NCD service such as Zumba sessions, wellness clinics, and hypertension clinics for senior citizens. Additionally, the latter did not properly kickstart as senior citizens were strictly prohibited to not go outside their houses, and even if they could, they had to struggle to comply with the schedule.

> *"Before, we have specific services like for the senior citizens, the hypertension clinic; we were supposed to have it. But it did not kickstart properly because certain reasons such as that of senior citizens having difficulty to have follow-up frequently on a specified date because it really depends on their schedule and also now, because of the pandemic."* (Physician, Public hospital, Cebu)

Alongside these restrictions, club group activities were also disrupted due to the pandemic. Interviewees observed that the monthly club meetings of organizations made- up of hypertensive and diabetic patients were halted, while others became non-functional. A private physician who adopted the practice attempted to establish their own health club and conducted activities such as health lectures and 'walk-with-your-doctor'; however, the pandemic stopped all these innovative undertakings, hence the participants' adoption of a holistic care delivery was no longer feasible. As response, the said physician resorted to household-wide teleconsultations, whereby family members were informed of methods to improve NCD management, emphasizing active lifestyle. Participants also claimed that people became more hesitant to visit healthcare facilities which compelled the health workers to home or barangay visits instead.

> *"So, presently, we actually did not stop our services, which before the pandemic, but we more or less cater to or decrease the services. But we did not, in any way, stop it – all of our outpatient services like the wellness program, animal bite center, the TB center, etc."* (Physician, Public hospital, Cebu)

Contrarily, other participants claimed that the pandemic only led them to decrease services, but not completely halting them. These stop-gap measures most likely resulted to reduced quality of services.

### *Difficulty in referral*

Supplemental to the impeded service delivery was the experienced struggles in referring patients. The health workers who took part in the FGDs claimed that going through the service delivery network at the time of the pandemic has been difficult as receiving hospitals become overwhelmed because of the influx of COVID-19 cases. Furthermore, patients who are monitored for their NCD status only come into primary healthcare facilities when complications have already presented (e.g., patients with diabetic foot). While primary care facilities exert efforts to manage and stabilize the condition, instances in which patients refuse to be transferred to a higher-level facility were experienced. Despite giving the patient the liberty to choose their referral hospital or convincing them of the necessity of the higher level of care, some still opt to stay in the primary care facility or to go home once the symptoms are resolved. Other circumstances, however, involve patients being advised to go to a private facility since process-wise, referrals to such are more efficient.

> *"It's really hard to refer patients to the other hospitals. When they [the hospital staff] are able to ask what the symptoms are, and they hear that these include respiratory symptoms, they seem to change their response about whether they have available beds or not. Once we mention that the patient presents with such signs, they suddenly say that there are no beds available. We cannot blame them, though, as they may not be equipped or may be maxed out of patients related to COVID-19."* (Nurse, Private hospital, Tarlac)

Other health facilities hesitate in receiving patients with COVID-19-related symptoms, which the interviewees associated with either their capacity to cater to such cases or with the full bed capacity of the hospitals. In circumstances where patients will be successfully referred to a hospital, challenges arise in the lack of back-referral, hence hampering continuous monitoring of the patient's condition.

> *"We have challenges with accepting patients and other hospitals are also not accepting because they are already full in their bed capacity. We just do everything we can for the patient."* (Physician, Private hospital, Cebu)

## Exacerbation of pre-existing challenges on health human resource

The aforementioned impact of the COVID-19 pandemic on the provision of services also trickled down to the health workforce, who explained to patients how the pandemic have caused detrimental effect on the health manpower in their facilities. Such encompasses infection among the staff, overburden and increased workload, and interruption of then ongoing training activities.

### *Infection of healthcare workers*

The health workforce of Cebu and Tarlac expressed that they were not exempted from COVID-19 infection. Nurses and doctors from the surgery department of one public hospital fell ill from COVID-19, thereby affecting overall performance of the hospital. Likewise, private facilities had to cut down services and refer their patients to other hospitals due to understaffing. As staff of rural health units of the municipalities fell sick, they resorted to screening visiting patients.

*"We really had to screen our clients because I ended up getting positive [of COVID-19]. We learned a lesson on how to receive patients. We had to separate and screen patients in the health center before they entered."* (Physician, RHU, Cebu)

### *Overburden and increased workload*

Subsequent to the infection of the workforce, and as a distinct impact in itself, overburden of the health manpower and the increased workload were also experienced due to the COVID-19 pandemic. Interviewees observed RHU congestions as most of the municipalities' COVID-positive patients were put under quarantine in the facility, further compounded by ongoing construction operations. The clinics also experienced increases in the number of patients visiting them as the public became fearful of hospitals. Exacerbated by an already-understaffed healthcare unit, the workforce also struggled with managing their time to accomplish the array of responsibilities they needed to fill in. Services were also limited or interrupted due to the lack of manpower in the health facilities. As the workforce were also focused on the delivery of COVID-19 services, provisions on NCDs such as risk assessment, monitoring, health promotion, and medicine distribution were hampered as healthcare staff were observed to be constantly pulled out of the facilities to man the pandemic response.

*"Workload is a challenge. Time management, and how you will juggle, which report to start with, especially this pandemic. One of the challenges we also face is the implementation of other health promotion activities, prevention, and treatment. How we treat patients has really changed. […] The number of face-to-face encounters was also limited, and we struggle to educate people when you're not face to face with them despite the importance of health promotion and prevention."* (Nurse, RHU, Tarlac)

In order to ensure that tasks are fulfilled, and reports filed in time, health workers resorted to working overtime or bringing their work home, like reports that need to be accomplished. Some extended operating hours to weekends to cover COVID-19 vaccination operations, to comply with an LGU directive.

Although the health workers were already saddled with multiple responsibilities even before COVID-19 pandemic, they noted that multi-tasking became even more necessary during the pandemic. Many of them found the situation 'toxic' and unmanageable.

### *Interruption of trainings*

Aside from the infection and consequent overburden and increase in workload, participants of the FGDs also complained that trainings that were supposed to be conducted were put on hold due to the pandemic. Capacity-building activities for midwives, public health officers, and barangay health workers were postponed or even canceled.

*"We have newly hired staff who are not yet trained as others have already retired. We also had new staff by the time of the pandemic, but we stopped our trainings right now."* (Physician, RHU, Tarlac)

A rural health unit in Cebu, however, envisioned to resume training activities for their barangay health workers which was regularly conducted pre-pandemic.

*"Yearly sir we have trainings, last year we had no trainings due to the lockdown. This August, our BHW training will resume."* (BHW, RHU, Cebu)

## Subsequent adoption of unhealthy practices

The impact of the COVID-19 pandemic experienced within the service delivery and by the health workforce further reflect on the health status and practices of the people they serve. Due to the mobility restrictions imposed during the early months of the pandemic, residents of many municipalities in Cebu and Tarlac were forced to adopt poorer healthcare seeking behavior and discontinuation of treatment regimens for existing health problems inclusive of follow-up consultations. As a result, the public are in an unsatisfactory state of health due to observed increased incidental findings of NCD cases and worsening pre-existing condition.

### *Poor healthcare seeking behavior*

Driven by fear of possible infection, the citizens of Cebu and Tarlac, according to the FGD participants, seldom used healthcare facilities. Those with related symptoms hesitate to visit for testing because of fear of learning that they are infected. Out-patient cases in hospitals were also observed to decrease in number, as the people only opt to visit healthcare facilities when symptoms are already extreme, or when severe complications have arisen. Others are found to be hesitant because of the requirement to undergo swab testing before receiving the needed service.

*"For OPD, most are acute. They can still be managed through early interventions/management but sometimes because of the pandemic, they are hesitant to go to a hospital due to fear. They only decide to go to a hospital when they're already having trouble breathing or when they're having severe headaches. That's when their status is worse. That's the problem, because of the pandemic they are afraid of being checked by a doctor in a hospital."* (Physician, Public hospital, Cebu)

*"But there are some patients that don't really want to go to public hospitals, I mean, public facilities because again for example, for scrotum examinations they have to be swabbed first."* (Physician, Private clinic, Cebu)

Stigma was also rampant during the pandemic, compelling many to withhold full disclosure of their signs and symptoms, specifically when they are respiratory-related, which they know are associated with COVID-19 infection. A story of a case was shared wherein an accompanying family member died of COVID-19 because of non-disclosure of a patient's current health status.

> *"There are also asthmatic patients but since the pandemic, it seems that they have been stigmatized to visit us, because if they experience difficulty in breathing, they are often associated with COVID-19."* (Nurse, RHU, Cebu)

> *"Sometimes, they do not tell you [the symptoms], especially now during the pandemic, because they are afraid to be branded as someone with COVID-19, due to fear of imprisonment, or isolation and quarantine."* (Physician, Private clinic, Tarlac)

With many patients avoiding the hospitals for fear of getting infected, some opt to visit the RHUs for healthcare. However, since RHUs still observe minimum public health protocols for protection against COVID-19 infection, patients face another layer of obstacles to access health care. Since persons with NCDs were more prone to infection, many NCD patients no longer visit for their follow-up consultations, which may eventually lead to discontinuation of their treatment. As a result, the participants encountered severe complications, which at the time, were difficult to be referred to higher-level facilities as COVID-19 cases max out hospitals' bed capacities.

The interviewed healthcare professionals also noted that the pandemic caused the emergence of new NCD cases. Particularly, the majority of these cases were only unintentionally diagnosed during COVID-19 risk assessment or vaccination efforts, not during NCD-specific consultations.

> *"During the COVID Vaccination, we have identified new NCD Cases as we assess their vital signs."* (Nurse, RHU, Cebu)

> *"We also have found out some new cases during the COVID-19 Triage upon checking their vital signs and that we do risk assessment immediately so that they can be monitored and be given medicine."* (Nurse, RHU, Cebu)

### *Discontinued treatment and follow-up consultations*

Owing to the pandemic-imposed restrictions on mobility, the FGD participants observed that the hypertensive and diabetic patients under monitoring have not continued their follow-up consultations, which resulted in the emergence of severe complications. Still others have discontinued their hypertensive or diabetic medications or seldom showed up for their insulin supply, causing more severe complications. This situation is a stark difference from the pre-pandemic set-up whereby monitored patients come regularly for follow-up consultations so that when complications arise, referrals to medical specialists could be made immediately.

> *"What happened during the pandemic, they stopped their follow-up [checkup] and stopped taking their medications because they feared going back to the center. So, this year, we saw a lot with severe complications, [like] those with elevated creatinine, who already needed referral for dialysis. Just because they stopped taking medications, especially the diabetic patient."* (Physician, RHU, Cebu)

Aside from hypertensive and diabetic patients, cancer patients who were supposed to be on regular chemotherapy were also gravely affected.

> *"For the cancer patients, we have 302 but many of them have since died because they didn't manage to continue with chemotherapy treatment due to the fear of the pandemic."* (Physician, RHU, Cebu)

## DISCUSSION

Given the focused efforts and resources in response to the COVID-19 pandemic, this study highlighted how the COVID-19 pandemic particularly affected NCD service delivery at the primary care level. The study results emphasized that the components of the health system, and the interventions implemented to cater to other pressing health concerns of the population were sidelined rendering the whole delivery system COVID-centric. This was believed to have aggravated pre-existing challenges related to human resource for health and forcing the adoption of passive healthcare seeking behaviors among the population, negatively influencing the health and well-being of persons with NCDs (Figure 1).

Redirecting the focus and majority of health resources to the COVID-19 pandemic response were cited to result to a number of challenges in NCD service delivery including discontinuation of programs and services, inadequate supply of NCD medicines in the RHUs, budget constraints, and reprogramming of limited resources to COVID-19 response. Impediments and delays were also experienced in service provision, referral system, and overall improvement of hospitals and programs resulting in limited patient access to healthcare and additional health expenditure. These support the initially documented effects on how the COVID-19 pandemic has forcibly affected all areas of the healthcare system.[17,18,27-29] This study demonstrated how the health delivery system in the Philippines totally shifted to COVID-19 response emphasizing the importance of building resilience towards a stable future-proofed health system. Basic services and supplies for other health programs must be continuously provided, despite the presence of public health emergencies. Guidelines or criteria on recommended minimum factors in the health system to cope with these

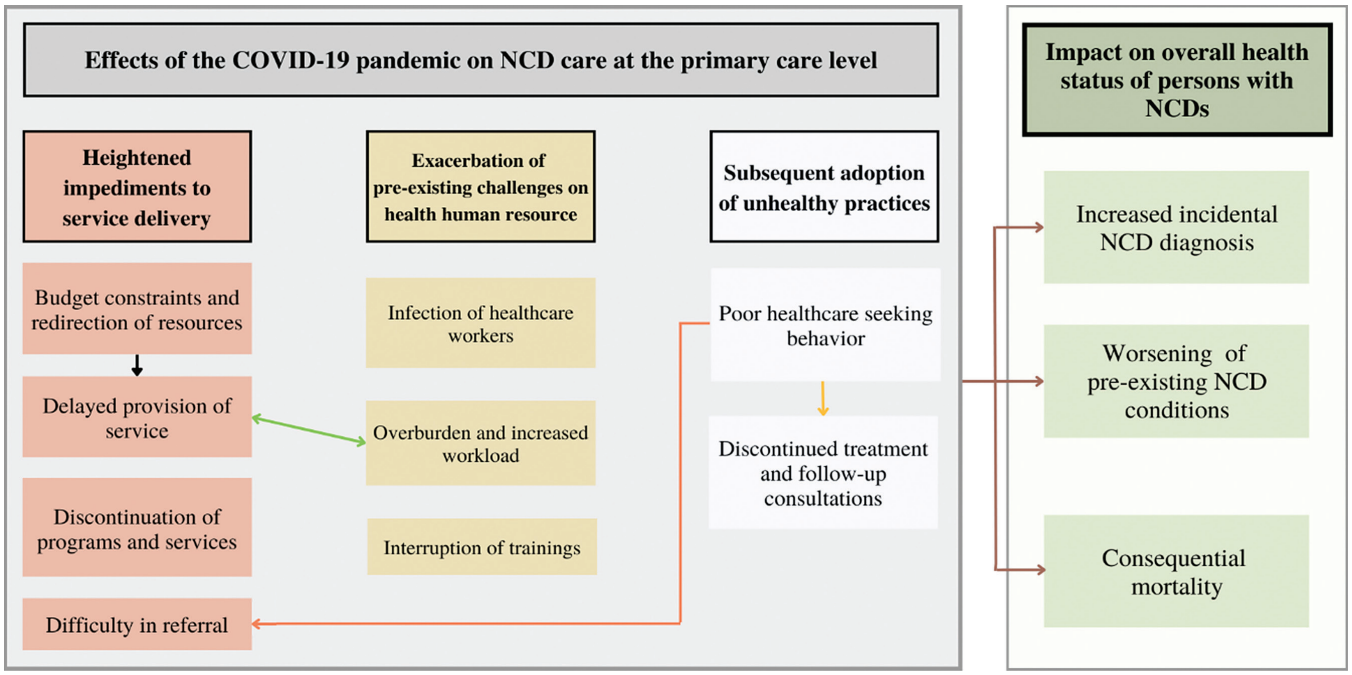


**Figure 1.** Perceived impact of COVID-19 on NCD care delivery at the primary care level.

disruptions must be in place. Therefore, it is vital to develop policies, standards, and processes on how a resilient health system will be operationalized, particularly at LGUs principally concerned in running public health programs at the primary care level to mitigate the untoward effects of the pandemic. Determining the ideal range of program implementation is necessary. However, it will be valuable to identify the factors and mechanisms that will stabilize the health system regardless of presence of emergencies.

The disadvantages brought upon by the pandemic in service delivery were also experienced by the health workforce, whereby COVID-19 warranted the restructuring of hospitals and staffing patterns leading to delays in service delivery. The pandemic was observed to have also halted training and capacity-building activities of human resources for health. The healthcare workers conveyed that they were not exempted from the infection as isolation of sick staff was experienced, resulting in overburden and increased workload for those who remain on duty. This study reinforces the impact of pandemic on all aspects of life, particularly among health care providers, who are experiencing physical, psychological, and emotional difficulties.[30-33] This highlights the fragility experienced by healthcare workers as frontliners in addressing the COVID-19 pandemic. The number of healthcare workers are already limited and overburdened. However, these predicaments were further aggravated by the pandemic posting a huge challenge to foster a resilient healthcare system. Immediate and long-term solutions to improve retention of healthcare workers must be in place. Key stakeholders in the Philippines must determine the key factors on how to attract health care workers to support the health care system.

Above all, the patients with NCDs were perceived to take the brunt of the effects experienced by both service delivery and healthcare workers. Due to the pandemic, patients were deemed to become more fearful and passive of seeking healthcare because of the threat of infection. The symptoms associated with COVID-19 also contributed to only partially-disclosed health status. Patients under medication and treatment regimens were also unable to be monitored constantly, resulting in disease complications and worsened conditions. Additionally, the COVID-19-centric service delivery compelled patients to undergo testing before they are able to access the needed health care, resulting in lower healthcare utilization rates or NCD-specific consultations. Furthermore, the economic consequences of the pandemic resulted in a domino effect as people with no income turned to rural health units for medicines, increasing demand over a limited supply. More so, due to the movement restrictions imposed to prevent crowding, patients who rely on rural health units for medicines were unable to acquire their share, negatively affecting the supposed continuous medication of those under NCD maintenance. The pandemic also caused lifestyle changes within the public. Due to lockdowns and community quarantine restrictions that were imposed during the pandemic, people had to stay home, consequently forcing them to adopt a sedentary lifestyle due to absence of safe and healthy alternatives. Particularly, community exercise activities, which were regularly conducted pre-pandemic, were halted. Hence, people were in an 'eat-sleep routine', and were more likely predisposed to indulge in unhealthy cravings because of the popularity of food delivery applications through the internet. All of these negative healthcare practices may

have potentially contributed to an observed increased number of incidental findings of new NCD cases during vaccination activities or non-NCD-related assessment and consultations. These untoward cascading effects to the population brought about of the abrupt change to a COVID-19 centric healthcare system underpin the experiences worldwide.[17,28,34-38] These important findings support the need for people to have access to protective mechanisms, most especially during public health emergencies. A specific policy or guidelines that will be adhered only during disasters or outbreak is necessary. Given the devolved healthcare service delivery set-up in the Philippines, the LGUs will be the key actor in ensuring that health care policies to be developed and implemented are future-proofed, dynamic, active, and protective. The national government will be supporting the local government units in fulfilling the content of the policy. This also warrants a stronger health literacy of the people, as a protective factor, even without disruptions in the health system.

The results of this study must be considered in relation to its strengths and limitations. The primary strength of this study is its wide coverage of primary care facilities from Level 1 hospitals, infirmaries, rural health units, community health centers, and free-standing clinics. Health care provider types working in these primary care facilities varied from physicians, nurses, midwives, and community health workers resulting in a larger number of interviews and participants enriching the results and representation of this study. On the other hand, a particular caveat on the study results is it only included two provinces in the Philippines. The results may not be the same experience or representative for other localities within the Philippines. In addition, the shared experiences and perceptions of the interview participants may have been different if other health programs were considered.

## CONCLUSION

The study generated evidence on how COVID-19 impacted primary care services for NCD. Consequently, this emphasized the need for better responses to public health emergencies so as not to threaten the continuity of care provided for patients with chronic diseases. The impediments within the NCD service delivery at the primary care level, as perceived by the healthcare workers, zero in on resource and budget constraints. These were conjectured to cause delayed service provision, alongside other perceived impacts — discontinued programs, and referral difficulties. Moreover, the challenges experienced by the workforce even before the pandemic hit were further exacerbated, manifested by infection of workers, interruption of critical capacity-building activities, increased workload, and leading to burn-out and stress, and other mental health problems. The latter also contributes to the delayed provision of NCD services as accounts show that personnel manning the primary healthcare facilities were sometimes reassigned to respond to COVID-19-related activities. In addition to these stop-gap work assignments, the health workers were also expected to continue doing their regular workload. The confluence of these impacts within the delivery system and the workforce trickled down to the public, who were reported by the participants were forced to conform to poor health-seeking behavior, like failure to keep follow-up consultations, hence the discontinued treatment regimen.

Overall, the synergy of these effects led to a compromised quality of NCD care, therefore causing detrimental consequences to the health status of those affected. The results of the study amplify the appeal to the warranted prioritization of improving NCD services at the primary care level, requiring a strengthened financial and leadership support. With a deeper involvement among leaders, the constraints regarding human and logistical resources will eventually improve. Additionally, studies that will further document the effects of public health crises like the pandemic on NCD services will be vital as well. After all, various forms of efforts that contribute to advancing primary health care in the community will enable significant improvements in the quality of care, and in the health status of the people. Even without health crises, and most especially during similar crises, such initiatives will pave the way and gain ground for genuine universal healthcare, hand-in-hand with achieving sustainable development goals on health and well-being.

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### Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

### Author Disclosure

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