

IMPACT OF COVID-19 ON THE PROVISION OF PHARMACEUTICAL CARE IN COMMUNITY PHARMACIES IN LAGOS STATE, NIGERIA

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Abstract

Background: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) originated in Wuhan, China, in December 2019. By March 2020, the World Health Organization declared the virus and pandemic due to the thousands of deaths caused by the Coronavirus (COVID-19) recorded worldwide.

Objectives: This study provides information on the effect of services provided by Community pharmacists for limiting transmission, safety measures, pharmaceutical care and its effect during the pandemic. The study focuses on the impacts of the pandemic on pharmaceutical care provided by Community pharmacists using community pharmacies in Lagos, Nigeria, as a case study.

Method: The study was a cross-sectional descriptive study carried out using questionnaires. One hundred twenty questionnaires were administered to pharmacists in community pharmacies in 10 of the 20 Local Government Areas in Lagos. Data was gathered on socio-demographics, the Impact of COVID-19 on general working conditions, an assessment of the economic impact and the level of implementation of pharmaceutical care in the community pharmacy using a 31-item Likert scale questionnaire. Descriptive statistics (frequency, mean and percentages) were computed on the questionnaire items. The data collected were analysed using the Statistical Package for Social Sciences Version 21 (SPSS 21).

Results: The study's response rate was 82.19%, with 60.83% of participants being male and 35.83% female. The result of this study showed that 60.5% of the respondents reported an impact of COVID-19 on general working conditions, 83.8% reported that COVID-19 guidelines were implemented, 79% agreed that COVID-19 had an economic impact on the community pharmacy and 74.5% reported implementation of pharmaceutical care practices in the community pharmacies during the COVID-19 pandemic.

Conclusion: The result of this study has shown that the COVID-19 pandemic negatively affected community practice significantly in the areas of implementation of pharmaceutical care and the general working conditions in community pharmacies across Lagos State. In contrast, Community pharmacies across Lagos state recorded high patronage, with Community Pharmacies being the first point of call due to easy accessibility for clients seeking advice or having clinical complaints and hence, an increase in income.

Keywords: Pandemic, Pharmaceutical care, Community Pharmacy

Introduction

The Epidemiology dictionary defines a pandemic as an epidemic affecting people globally (Porta, 2018), and over time, the incidence of pandemics has increased exponentially. The first recorded pandemic took place in 430 BC. It started during the Peloponnesian war, ravaging lives from Athens through Libya, Ethiopia and Egypt, killing two-thirds population in its wake. The incidence and dangers of a pandemic became an optimum issue worldwide (Bryce, 2008). Over the years, the world has been rocked with different pandemics with different severity, from leprosy (11th century) to the Black Death (1350), to Asian flu (1957), to HIV/AIDS (1981), and finally the COVID-19 (2019) (Cartwright, 2014). Though most of these outbreaks have ravaged Africa, Nigeria to be specific, none can be compared to the Coronavirus, also known as COVID-19.

The first outbreak of this pandemic started in December 2019 in Wuhan, China. The Coronavirus Disease 2019 has spread exponentially, and within the first three months of the outbreak, a total of a million people were infected, and 60,000 people were killed by the disease (Yang et al., 2020; Worldometer, 2020). This rapid spread of the disease led to the declaration of the disease as a global emergency by the World Health Organization in February 2020 and then as a pandemic later on March 2020 (Euro surveillance Editorial Team, 2020; WHO, 2020). The COVID-19 pandemic has been the most crucial global health calamity of the century and the most

critical challenge humankind has faced since the 2nd World War (Chakraborty, 2020). This novel virus infection which started as a chain reaction from Wuhan, China, has spread internationally, becoming the most impactful global disruption in living memory. Sadly, in mid-February 2020, the lives of virtually every Nigerian and the practices within every community pharmacy across the country changed overnight. After the declaration of the outbreak as a global pandemic by the World Health Organization (WHO) in March 2020, a global population-wide lockdown affecting billions of people ensued (WHO, 2020).

The severity of the COVID-19 crisis exceeded all imagination or preplanning. Despite the scale and impact of the situation, community pharmacies across Nigeria remained open and continued to provide service and care to their clients in all capacities and much more. Following the first outbreak in December 2019 in Wuhan, China, the Coronavirus Disease 2019 (COVID-19) spread. Within the first three months of the outbreak, a total of a million people were infected, and 60,000 died due to the disease (Yang et al., 2020; Worldometer, 2020). Sadly, as this study will point out, several vaccines have been invented and used, but the virus has "imprinted several changes in the world" in many different ways. The COVID-19 pandemic affected many sectors worldwide the country, and the pharmaceutical sector was not exempted (Legido-Quigley et al., 2020). During the pandemic, all health workers joined hands in saving lives and preventing the spread of disease in their capacity, playing the role of essential workers. Usually, in health-related issues, after proper diagnosis of health conditions, the next step would be the treatment which in most cases involves using drugs.

For effective use of drugs without contraindications and severe adverse effects, patients must be appropriately counselled on proper medication use and lifestyle changes (Gordon 2007). This is where community pharmacists come in, acting as an intermediary between the doctor and the patient by providing medicines and free medical advice without needing an appointment.

This study brings to the fore the effect of the COVID-19 pandemic on pharmaceutical care provided by community pharmacists in Lagos, Nigeria. Moreso, it assesses the impact of the COVID-19 pandemic on the care proffered by Pharmacists in the community pharmacy practice in Lagos, Nigeria, as well as the roles of community pharmacists during the COVID-19 pandemic.

Methodology

Study setting

This study was carried out in Lagos state, Nigeria. It has 20 local government areas with over 1,193 registered community pharmacies (Aniekan, 2020). It focused on ten community pharmacies in 10 of the 20 local government areas in Lagos State. These local government areas were Ikeja, Alimosho, Surulere, Agege, Mushin, Amuwo-odofin, Oshodi-Isolo, Shomolu, Kosofe, and Ifako-ijaiye. The locations were chosen because of their dense number of community pharmacies.

Study design

A cross-sectional study was carried out with data collected using a validated questionnaire. The questionnaire was administered to pharmacists in systematically selected community pharmacies in Lagos metropolitan.

Study population

Registered community pharmacies in metropolitan Lagos formed the population from which the respondents were recruited.

Sampling method

A systematic sampling method was used to determine the respondents to be approached to complete the study questionnaire. First, the whole population of community pharmacies in the 20 LGAs was divided by the desired sample size to generate 'n'. Then, first 'n' (pharmacy) was picked and randomly selected using the table of random numbers, and every nth pharmacy was selected systematically and included in the study. Therefore, the sample size used in this study was calculated to be 145.5.

Ethical considerations

Ethical approval was obtained from LUTH Ethical Committee. Informed consent was obtained from each respondent after explaining the nature, purpose and extent of the study, assuring them of the strictest confidentiality. The questionnaires were designed to be anonymous. Therefore, only those willing to be involved in the study were included.

Data analysis

The sample size was calculated using the Raosoft sample size calculator (Raosoft, 2011). Data from the filled questionnaire was entered and analysed using Statistical Package for the Social Sciences (SPSS Inc. Chicago, IL) version 21. Descriptive statistics and various statistical methods, such as tables, were used to analyse the data. The tables assessed the respondent's knowledge and involvement in pharmaceutical care.

Results

A total of 120 questionnaires of the 146 administered were filled correctly, retrieved and analysed, giving a response rate of 82.19%.

Sociodemographic Characteristics

Table 1.1: The most significant respondents were between 30-39 years, and 45% of the sample. The respondents were mostly male, denoted by the 60.83% score, and mostly superintendent pharmacists, denoted by the 44.17% score.

SOCIODEMOGRAPHIC CHARACTERISTICS	FREQUENCY (n)	PERCENTAGE (%)
AGE (years)		
20– 29	43	35.8
30 – 39	54	45
40 – 49	15	12.5
50 – 59	6	5
60 and above	2	1.6
SEX		
Male	73	60.8
Female	43	35.8
MARITAL STATUS		
Single	78	65.0
Married	42	35.0
LEVEL OF PRACTICE		
Intern Pharmacist	22	18.3
Superintendent Pharmacist	53	44.2
Locum pharmacist	27	22.5
Pharmacy Manager	10	8.3
Pharmacy Student	5	4.2

Table 1.2: Percentage Number of Perceptions of Workload, Workflow, Interactions with Clients and Availability of Protection Equipment during the COVID-19 Pandemic among Community Pharmacists.

WORKLOAD	FREQUENCY(N)	PERCENTAGE (%)
Increase	62	51.67
Decrease	31	25.83
No Change	7	5.83
WORKFLOW	FREQUENCY	PERCENTAGE (%)
Increased	32	26.67
Decreased	78	65
Unchanged	10	8.3
Table 1.2 continued		
INTERACTION WITH CLIENTS	FREQUENCY	PERCENTAGE (%)
Pleasant	13	10.83
Unpleasant	51	42.50
Unchanged	56	46.67
AVAILABILITY OF EQUIPMENT	FREQUENCY	PERCENTAGE (%)

Always available	80	66.67
Not always available	40	33.33

Table 1.3: Assessing the Overall Impact of Covid-19 on Community Pharmacy Practice

Table 1.3 summarises the respondents' opinions on the pandemic's impact on the community pharmacy practice and the care proffered to their patients. It shows the pandemic's negative impact (in percentage) on the practice 94.17% to be greater than the 2.5% and 3.3% positive and unchanged impact (in percentage).

OVERALL IMPACT OF THE COVID-19 PANDEMIC ON THE COMMUNITY PHARMACY PRACTICE	FREQUENCY (N)	PERCENTAGE (%)
The COVID-19 pandemic had a negative impact on pharmaceutical care.	113	94.17
The COVID-19 pandemic had a positive impact on pharmaceutical care.	3	2.5
The COVID-19 pandemic had a negligible impact on pharmaceutical care.	4	3.3

Table 1.4: This shows the grand mean score and their percentage values on the rating of the responses on the impact of the COVID-19 pandemic on Pharmaceutical care provided by community Pharmacists.***Pharmaceutical care steps carried out in community practices.***

- Developing a professional relationship with the process.
- Collect patient-specific medical information.
- Evaluate patient-specific medical information and mutually develop a drug therapy plan with the patient.

ITEMS	GRAND MEAN SCORE	PERCENTAGE SCORE (%)
Impact of COVID-19 on General Working Conditions in the Community Pharmacy.	2545/840 = 3.03	60.5
Availability And Level Of Implementation Of COVID-19 Guidelines.	3916/960 = 4.08	83.8
Assessing The Economic Impact Of COVID-19	3796/960 = 3.95	79
Implementation of Pharmaceutical Care	3576/960 = 3.73	74.5

- Ensure the patient has all supplies, information, and knowledge necessary to carry out the drug therapy plan.
- Review, monitor, and modify the therapeutic plan as necessary and appropriate, in concert with the patient and health care team.

Roles of the Community Pharmacist during the Covid-19 pandemic

Community pharmacists, as medication experts, played an essential role in providing pharmaceutical care to ensure medicines were used effectively and safely. Community pharmacists and their teams are usually accessible healthcare providers with an essential role in primary care. In the face of public health emergencies, domestic and foreign clinical pharmacists collaborated to take advantage of their pharmacology and therapeutics expertise to participate in the medical activities of COVID-19 actively and to maximise pharmacists' value and responsibility. The extent of community pharmacy practice varies considerably across countries (Hughes, 2010). In some

instances, pharmacists' expertise is undoubtedly underutilised, as it is in most African countries. With the increased pressure on the health system, pharmacists were called upon as critical members of the healthcare team to support and alleviate the burden on the healthcare system. At the start of the COVID-19 pandemic, community pharmacists played the role of essential workers. Not only helping people diagnose their symptoms, putting paranoia and panic attacks at bay, running the rapid COVID-19 tests, and educating people on how to be safe, but also treating mild symptoms of the outbreak. They remain on the frontline of public health by serving as direct access points for their patients (Rutar et al., 2018).

The pharmacist can play wide-ranging roles in disaster management across four critical phases: 1) prevention, 2) preparedness, 3) response, and 4) recovery. In community pharmacies, providing accurate public health education and knowledge on infection control and disease transmission are important across these four phases during an infectious disease outbreak (Ung, 2020). As highly assessable healthcare professionals, the community pharmacist will often be the first point of contact within the health system for individuals who require advice on COVID-19-related information, health advice and medication access during the current pandemic (Ayati N et al., 2020). Early accounts from Chinese community pharmacists showed that pharmacists played significant roles in educating the public on personal and environmental hygiene during COVID-19 (Zheng et al., 2020).

Therefore community pharmacists must possess the knowledge needed to help limit the impacts of COVID-19 in the community.

Favourable effects of Covid-19 on the provision of Pharmaceutical Care in Community Pharmacies.

Pharmacists globally provide services amidst the pandemic, including TRIAGE services, seeing patients and reducing the patients' burden on healthcare facilities such as hospitals and GP practices. Pharmacists are also working to provide home deliveries and dealing with the increasing number of patients coming to pharmacies with other ailments. Though it brought destruction in its wake, few authors believe the pandemic positively influenced pharmaceutical care proffered by community pharmacies.

One of the major issues during the onset of the pandemic was self-medication. Many people tend to google symptoms and self-medicate depending on the symptoms. In his paper "Awareness of risks associated with self-medication among patients attending General outpatient department of a tertiary hospital in southwestern Nigeria", Oyediran clearly states the danger of self-medication and how it can deter one's health even during pandemics (Oyediran et al., 2019). Most of these dangers were alleviated and prevented by the community pharmacy's proper education on medication required during the pandemic. While the patients got the proper care and top-notch information regarding the pandemic, trust and reliance on community pharmacists increased compared to the belief that pharmacists were just professionals that only dispensed drugs from already written prescriptions.

The importance of the community pharmacist in the healthcare sector cannot be overemphasised, and at the onset of the outbreak, the increase in duties of the pharmacist is undeniable. Solid evidence shows that pharmacists are in a prime position to support a pandemic response (porter et al., 2018), yet their skill sets are often unrecognised and underutilised (Watson 2019). This theory of pharmacists being able to support and care for patients during a pandemic, stated by Porter and Watson, was tested and proven true as community pharmacists were one of the most accessible healthcare professionals during the lockdown. This increased people's dependence on them and the pharmacist's duties (Agomo, 2012). Apart from medication education, as earlier mentioned, these duties were carried out in different phases, such as; Prevention of the virus, preparedness and response and recovery (Ketchy et al., 2021). They also helped run rapid Covid tests, which led to early detection and appropriate referrals of the virus (Ung, 2020). Pharmacists also help with vaccination against the virus.

Unfavourable effects of Covid-19 on the provision of Pharmaceutical Care in Community Pharmacies.

As aforementioned, the pandemic had various impacts. While finding positivity in such a negative time and situation was like a needle in a haystack, the negative impact of the pandemic is quite rampant, as pointed out by several authors to be reviewed. One of the positive impacts mentioned above is the increase in the duties of pharmacists. Though Watson views this positively, Hayden, in his paper "The challenges of COVID-19 for community pharmacists and opportunities for the future", states that the recent modification of pharmacy practice from medicine-centred to patient-centred care (Hayden, 2020) might be accelerated by the pandemic and welcome, the effects of such rapid changes on the pharmaceutical workforce are still very unclear.

Ayati hypothesises that the pandemic had both long and short-term negative effects. He states the Short-term impacts include; fluctuations in medication demand, thereby leading to the expiry of medications which patients might not deem necessary in the face of the pandemic, while drugs such as Azithromycin, Chloroquine, high-strength multivitamins fly off the shelf leading to shortages, supply shortages, panic buying and stocking, regulatory changes and shift of communication and promotions to remote interactions through technology, and research and development process changes (Ayati et al., 2020).

Long-term impacts may include; approval delays, moving towards self-sufficiency in the pharmaceutical product supply chain, a slowdown in industry growth and possible changes in consumption trends (Ayati et al., 2020).

Another issue that fueled the fear of contamination was the lack of PPES worldwide and in less developed countries where PPES like face masks had to be imported. It made the situation even direr for community pharmacists who are accustomed to dealing with patients one-on-one (Austin et al., 2021). Due to the lack of PPES, most pharmacies had to create barriers between patients and pharmacists to reduce contact (Parkhurst et al., 2021). This also led to an increase in money being spent in the pharmacy.

Dealing with difficult or agitated patients was another negative impact the pharmacist witnessed during the pandemic. In the study carried out by Jelena in 2021, he points out that patients who eventually made it to the community pharmacies were either agitated due to long queues as a result of the social distancing and barriers set up to improve social distancing or were irrationally insistent on self-medicating despite the advice of the pharmacist as they already believed the pharmacist could be of little or no help since the virus had no cure (Jelena et al., 2021).

Assessing the Overall Impact of Covid-19 on Community Pharmacy Practice

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In community pharmacies, it is common for pharmacotherapy study groups to be held. In most cases, it is called clinical meetings. Unfortunately, due to social distancing, most of these meetings were cancelled. These pharmacotherapy meetings are usually used to discuss new treatment guidelines and initiate multidisciplinary projects to improve care (Hazen, 2019). In addition, these meetings usually aimed to discuss and update drug knowledge, adverse effects, contraindications and regimens.

Due to the lack of medication for the virus, treating symptoms has increased the demand for drugs. This has also put a strain on the pharmacist as most imported drugs and raw materials for the production of PPES were restricted to the barest minimum (PGEU, 2020) for disseminating information on precautions related to COVID-19 spread, including hand washing techniques to availability of face masks and instructions for their proper use and disposal. USP has issued guidelines for compounding pharmacists and manufacturers to prepare hand sanitisers to cope with the stockouts (USP, 2020).

Pharmacists will always be an integral component of healthcare, performing extraordinary roles in the earlier pandemics and health crises, with some, like Ebola and Zika posing global health security risks as well (Ayoola, 2016). Likewise, by contributing to the prevention, preparedness and response to the COVID-19 pandemic, community pharmacists are delivering their role towards public health in dealing with this crisis.

Discussion

Socio-Demographics

A total of 146 questionnaires were administered, and 120 were completed correctly and retrieved, giving a response of 82.19%. Among respondents, 35.8% were between 20-29 years, 45% were between 30-39 years, 12.5% were between 40-49 years, while 5% and 1.6% were between 50-59 years and 60 years and above, respectively. A larger percentage of the respondents (60.83%) were Male, while 35.83% were Female. All the respondents and participants worked in community pharmacies that are part of large pharmacy chains and in urban areas of ten different local governments in Lagos, Nigeria; 65% were married, while only 35% were single. In addition, 18.33% of the respondents were intern pharmacists, 44.17% were superintendent pharmacists, 22.50% were Locum pharmacists, 8.3% were Pharmacy managers, and 4.16% were Pharmacy students.

Impact of the Pandemic on Workload

From the results recorded, it is clear that there were significant changes in the work environment of community pharmacists in Lagos, Nigeria, at the time of the COVID-19 pandemic. Most respondents reported a slight increase in their workload during the COVID-19 pandemic (51.67%), as shown in Table 1.2, while 25.83% reported a decrease, and 5.83% reported a negligible change in workload. During the COVID-19 pandemic, community pharmacists' workloads drastically increased worldwide (Austin et al., 2021), compared to the slight increase in pharmacists' workload in Lagos state, which is an epicentre of the COVID-19 pandemic.

From the study, the dominant reasons for the increased workload, where $N = 120$, can be attributed to higher demand for PPEs such as Face-masks, gloves, sanitisers, antiseptics and disinfectants, as shown by the 83.33% increase in demand for medications such as analgesics, antipyretics, anti-malarial, and antibiotics. On the other hand, dietary supplements such as zinc, multivitamin-multimineral, vitamin D and selenium-containing antioxidant supplements, which claimed immunomodulatory or antiviral effects, were the most sought-after globally (Adams et al., 2020). This was denoted by the 75% increased demand in community pharmacies (Table 1.4) and the increase in price and scarcity of PPEs and medications due to the pandemic.

Limited information on COVID-19 infection management presented by the health authorities, the researchers and the media (Gautret et al., 2020) was a dominant cause of high demand for specific medicines such as antibiotics and other medications. Another reason for the shortages of the products, as mentioned earlier (PPEs and medications), was the panic buying by patients, possibly out of fear and uncertainty (Cadogan, 2020).

To overcome these shortages, surveyed community pharmacists reported setting/limiting the number of product units per purchase for clients, communicating with suppliers more often and compounding solutions and gels in the form of sanitisers as recommended by WHO (WHO, 2020). In addition, to meet the increasing demand for certain medications and PPE, the wholesale community pharmacies increased their supply, leading to increased procurement and administrative work (Bresciani et al., 2009), which also led to an increase in workload. This increased workload led to a negative ripple effect of lack of time for proper education and training of employees in developed countries.

This depicts negativity as employee training, and education could be helpful strategies in increasing employees' adaptability and pharmaceutical care proffered to patients in the countries involved (Yeatts et al., 2000).

Impact of the pandemic on workflow

Most community pharmacists (71.63%) considered pharmacy workflow to be affected by the COVID-19 pandemic (Table 3); 23.37% reported a decrease, while 5% recorded little change in workflow. The increase in the workflow can be attributed to the decrease in staff present daily as a safety precaution in compliance with the COVID-19 guidelines. In addition, some pharmacists stopped working out of fear and uncertainty, and the increase in the influx of patients due to fear, limited information on the virus and actual need for medications. Another group attributed the practice's negative impact to scarcity and improper use of personal protective equipment, as recommendations on the use of personal protective equipment (PPE) varied considerably across countries (Hasan et al., 2021).

Due to supply problems, personal protective equipment was not always available to pharmacists (Panthy et al., 2020). However, from the results obtained from the study, 73.76% agreed that if the PPEs were enough to go around, interaction with clients would be easier, and workflow would be better.

Impact of the pandemic on interaction with patients

The surveyed Community pharmacists rated clients' demeanours during the COVID-19 pandemic mostly as less pleasant than before, 46.67% compared to 10.83% of pleasant and unchanged demeanours (Table 1.2). This change in behavioural pattern can be attributed to anxiety, panic-buying, nonconforming to preventive measures, stress, fear and limited information (Parkhurst et al., 2020). Many people will experience anxiety, depression, stress and insomnia in the first months of a disaster or pandemic, and this behavioural pattern will affect everything in the environment (Kessler et al., 2002).

Impact of the pandemic on the demeanour of the pharmacist

Most respondents reported that their work was negatively affected by misinformation on COVID-19 circulated by the media. In various instances, inaccurate and incomplete information about Coronavirus spread rapidly, adding to the fear and anxiety of the public. Pharmacists worldwide were highly concerned for their families' health (Maaravi et al., 2020), similar to pharmacists in our study. Most respondents reported not having enough time to devote to their families and were always in a constant state of fear, as shown in Table 5 by the 37.5% who often considered not coming to work on certain days.

Impact of the pandemic on medication control

Another issue the pandemic caused was the inability to control prescriptions by the pharmacist. For example, there are essential drugs, such as hypertensive, diabetic, and psychotherapeutic drugs, which are to be taken by patients being managed on them. These drugs, though common, are supposed to be dose controlled. However, due to the pandemic, the restrictions of movement (lockdown) restrictions of patients to the hospital, except in cases of emergency, such patients with "repeat prescriptions" were deviated to the community pharmacists to relieve some of the burdens of other healthcare workers (Cadogan et al., 2021). This led to an increase in the workload of the

pharmacist and also tasking the integrity of the pharmacists, as most pharmacists had to discern by heart (seeing as they did not have the patient's file to truly determine the patient's history) if the patient truly needed to fill the prescription, especially in cases of controlled drugs.

The roles of Pharmacists in Covid-19 vaccination.

Community pharmacists present great potential in increasing the number of administered doses of vaccines and reducing the time to achieve high coverage (Schwerzmann et al., 2017). However, it is essential to note that at the time this study was carried out, the active participation of pharmacists in the administration of vaccines in advanced countries was prominent, while in Nigeria, pharmacists were not involved. This might explain the low percentage of pharmacists with positive attitudes towards active participation in administering the vaccines and a higher percentage in actively participating in education and other vaccination areas.

Conclusion

This study revealed that the COVID-19 outbreak had significantly impacted the pharmaceutical care services in the community pharmacy. The study also showed that most community pharmacies were affected in the areas of implementation of pharmaceutical care, economic impact and the general working conditions in community pharmacies across Lagos State. It also shows that community pharmacists can thrive in dire medical situations. The presented findings also highlight the opportunity for pharmacists to be recognised as healthcare providers on the frontline of the healthcare system.

Recommendations

- Community Pharmacists should be actively involved in vaccinations and not just play the role of educators.
- Patients on routine drugs should register with a specific pharmacy to refill drugs.
- Community pharmacists should be allowed privy to the files of registered patients and should be more engaged in the prevention and control of the pandemic through maintaining a stable drug supply, patient education, and applying updated strategies for the prevention and control of the COVID-19 outbreak.
- Personal Protective Equipment (PPE) should be made available for pharmacists by governments OR donors as they are at the frontline of the pandemic

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