

Pharmacy Practice in COVID-19 from a Middle Eastern and African Perspective: A Narrative Review

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Abstract

The coronavirus disease 2019 (COVID-19) had a worldwide impact on all aspects of life and primarily on clinical practice involving all health-care professionals. Pharmacists are at the forefront of all clinical facilities in hospitals and the community. We aimed to provide a narrative overview of the global literature on the impact of COVID-19 changing roles and pharmacists' contribution to the overall clinical care during the COVID-19 pandemic. We conducted a narrative, nonsystematic review of the international literature from a single major medical online database, PubMed, between February 1, 2020, and June 30, 2021. The relevant articles were narrated in a concise thematic account. During the COVID-19 pandemic, pharmacists had to serve their responsibilities alongside other activities while the entire world was fighting an invisible virus. However, it was much more complicated than before because the novel coronavirus is intractable. There was no vaccine or established therapeutic guidelines when it manifested suddenly. As part of an interdisciplinary team, community pharmacists may carry out their responsibilities and play an essential role in disease control and management. However, they may need to be appropriately prepared, trained, and equipped to deal with pandemic and postpandemic situations.

Keywords: Community pharmacists, COVID-19, cross-sectional survey, education, extended roles, health care, health-care roles, hospital pharmacists, pandemic, pharmacy practice, prevention, surveys

INTRODUCTION

The coronavirus disease 2019 (COVID-19), this pandemic affected people from all walks of life, dramatically changing practices, having a far-reaching impact on health-care systems worldwide, and putting health-care workers under enormous physiological and social pressures.^[1-3]

Every day, pharmacists are on the front lines of health care, delivering critical and essential

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health-care services throughout the pandemic. Pharmacists are pharmaceutical specialists that provide patient care in various settings such as hospitals, clinics, community pharmacies, general practice surgeries, and national and public health organizations.^[4] According to the International Pharmaceutical Federation (IPF), community pharmacists play a vital public health role during the COVID-19 public health emergency.^[5]

Sharing pharmacists' experiences globally is critical for furthering the cause of the fight against the COVID-19 pandemic and avoiding the need to reinvent the wheel. The Middle East and North Africa (MENA) had previously experienced multiple pandemics,^[6] and lessons from prior experiences must have been acquired in coping with the COVID-19 pandemic. As a result, we conducted this narrative of the international literature to scope the interaction between COVID-19 and pharmacy practice, with a particular focus on the Middle East and Africa, and the impact of clinical care on these regions, intending to provide a comprehensive thematic account of where we stand.

MATERIALS AND METHODS

This is a nonsystematic narrative review of the literature. Records were found in a single major online resource, PubMed, between February 1, 2020, and June 30, 2021. The database was searched using the search term ([("Pharmacists") AND (COVID-19 OR coronavirus)] AND [Middle East OR Africa]). Fifty-seven records were found, and the retrieved articles were reviewed to ensure their relevancy. Relevant publications ($n = 23$) were read and thematically narrated to give a reasonably concise yet adequately representative narration of the global literature on the impact of COVID-19 on all the elements of pharmacy practice. The data in the original publications were not statistically analyzed, and extensive numerical presentations were avoided. The original articles of all kinds were featured. Several multilateral rounds of the debate were held to fine-tune the final result.

RESULTS

Table 1 summarizes the emerging themes from our literature assessment. They are described and addressed more below.

Table 1: The themes that emerged from the review of the literature

Evolving clinical roles in the COVID-19 era, including classical and new roles for pharmacists
Risk to pharmacists from involvement in COVID-19 care in hospitals and the community
Willingness and preparedness of pharmacists to undertake an extended role in COVID-19 management
Knowledge, attitudes, and practices of pharmacists toward COVID-19
Real-world experience of pharmacists in COVID-19 care in the region and at national levels, Lessons to the future
COVID-19: Coronavirus disease-2019

EVOLVING CLINICAL ROLES IN THE COVID-19 ERA, INCLUDING CLASSICAL AND NEW ROLES FOR PHARMACISTS DURING THE COVID-19 PANDEMIC

During the COVID-19 pandemic, pharmacists were emphasized as one of the first lines of contact within the health-care system. In South Africa, pharmacists in the community, hospital, and other settings are given guidance on handling patients with suspected or confirmed COVID-19.^[7] The situation was quickly changing at the time, and new data were emerging nearly daily. The guideline paper contained recently emerging evidence and suggestions, notably concerning the following aspects of COVID-19. In terms of epidemiology, the guideline reviewed the known facts about the virus, its modes of transmission, and symptom identification during the incubation period, including the distinction between influenza, allergic rhinitis, sinusitis, and COVID-19. The authors emphasized the misconceptions and misinformation that came about on social media. They also provided a summary of treatment guidelines and medications that may need to be maintained on hand. They covered treatment and preventive options, including an update on vaccine development and the *pros and cons* of using nonsteroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors, and angiotensin receptor blockers in COVID-19 patients. Finally, they emphasized the pharmacist's interventions and patient counseling. Such recommendations demonstrate how important it is for pharmacists to have access to the most up-to-date and authoritative information to guide their practice as time passes and new data emerges.

RISK TO PHARMACISTS FROM INVOLVEMENT IN COVID-19 CARE IN HOSPITALS AND THE COMMUNITY

Frontline health professionals are in danger of infection because they directly contact infected individuals while doing their duties. The danger to community pharmacists and pharmacy employees in this scenario is little known and poorly described. Dzingirai *et al.* 2020^[8] studied the infection risks unique to community pharmacy employees and proposed some guidelines to lower the risk of COVID-19 infection in Zimbabwe.

They stressed that community pharmacists are vulnerable to catching the infection at work.

The proposed detailed risk-reduction recommendations and these precise guidelines were the first to be created for a low-income setting to reduce the likelihood of disease transmission through the community pharmacy.

WILLINGNESS AND PREPAREDNESS OF PHARMACISTS TO UNDERTAKE AN EXTENDED ROLE IN COVID-19 MANAGEMENT

Several groups from MENA investigated the importance of pharmacists' knowledge, awareness, readiness, and preparedness for their growing role during the region's COVID-19 outbreak. Many surveys were deployed for knowledge, attitudes, and practices or qualitative studies to assess preparedness. Table 2 summarizes these investigations, which are briefly reviewed below.

Nationwide studies of pharmacists came from Egypt, Jordan, Qatar, and Lebanon. In April 2020, Basheti *et al.* 2021^[6] did a 20-question survey cross-sectional regional study. There were 2589 participants (mean age of 29.3 years) with an almost equal sex split. Egypt had the most participation (40.8%), followed by Jordan, Algeria, and Syria. 60.8% said they acquired their COVID-19 management knowledge through social media, whereas 82.3% stated the most significant barrier to doing their work was their fear of contracting the virus while on duty. The authors concluded that pharmacists in MENA nations think they have had adequate prior education concerning pandemics. Fear has been identified as

a fundamental impediment that governments and policy-makers must address.

Kasahun *et al.* 2020^[9] used qualitative research at six pharmacies in Aksum, Ethiopia. Six in-depth interviews with carefully chosen vital informants were done. Direct observation procedures were also taken to examine the actions carried out in medicine retail. COVID-19 control and prevention procedures were implemented with great success. According to interviewees, they collaborated with key stakeholders and provided adequate patient information and assistance to battle the pandemic. The authors found that all customers received essential pharmaceutical services. However, the supply of pharmaceuticals and medical supplies was limited, which hampered the optimal delivery of pharmacy services. They advocated for the government and other responsible parties to collaborate to tackle such issues and control the pandemic.

Mukattash *et al.* 2020^[10] investigated pharmacists' willingness to test for COVID-19. Twenty community pharmacies in Jordan were interviewed with an average experience of 8.8 years. The main themes included aiding other health-care professionals, contributing to official efforts to fight COVID-19, serving as an accessible testing location, and doing home testing. The authors found that Jordanian pharmacists were willing to test patients for COVID-19 at community pharmacies, required more training and improved safety precautions.

Bahlol *et al.* 2021^[11] conducted a cross-sectional interview study of 1018 community pharmacies in four Egyptian provinces. The results highlighted that almost all pharmacies had good infection control procedures in place, hand sanitizers (62.1%), masks (86.5%), and a separate space for patients with probable COVID-19 (64%). Despite high clinical awareness (97.6%–99.2%), only 8.8% of pharmacists reported suspected COVID-19 cases, and 49.1% of pharmacies offered home delivery. The authors stated that infection control procedures around staff and client contacts should be emphasized to ensure community pharmacists can continue to offer continuity in their crucial duties. Finally,

Table 2: Summary of the studies on preparedness, knowledge, attitudes, and practices of pharmacists or health-care workers (including pharmacists) from the Middle East and Africa

Author (year)	Region/country	Study population	Conclusions
Basheti <i>et al.</i> , 2021	MENA	2589 P	MENA pharmacists believe they have got enough education about the pandemics Majority follow the latest guidelines
Kasahun <i>et al.</i> , 2020	Aksun, Ethiopia	6 PP	Necessary pharmacy services are needed Drug stocking is important for optimal delivery of pharmacy services Government and other bodies should work together to combat the COVID-19 pandemic
Mukattash <i>et al.</i> , 2021	Jordan	30 PP/20 P	Jordanian pharmacists are happy to help in testing for COVID-19, but they feel not ready to undergo this task yet
Bahlol <i>et al.</i> , 2021	Egypt	1018 PP	More attention is needed to the shortage of PPE by the government and other policy-makers More public education Accurate reporting procedures are needed
ElGeed <i>et al.</i> , (2021)	Qatar	311 CP	Community pharmacists in Qatar are willing to receive more training and preparedness related to the COVID-19 pandemic
Zeenny <i>et al.</i> , 2020	Lebanon	81 HP	Overall findings revealed good general knowledge and practice toward COVID-19, but national organizations would benefit from expertise to minimize and avoid the future influx of COVID-19 cases
Design <i>et al.</i> , 2021	Addis Ababa, Ethiopia	1334 HCW in 10 Hospital (6 Governmental and 4 Private hospitals)/193 P	Half of the respondents mention inadequate preparedness of their hospital regarding lack of consumables and equipment and call for global solidarity
Bashir <i>et al.</i> , 2021	Saudi Arabia	597 HCW	The study concluded that their findings supported the design of effective measures to prevent and control COVID-19 infections
Shehu <i>et al.</i> , 2021	Nigeria	138 HCW/27 P	There is a need for regular training and updates
Qadah <i>et al.</i> , 2020	Saudi Arabia	1023 HCW/37 P	HCWs have sufficient knowledge and attitude towards COVID-19, but more work is needed for staff for periodical training
Hamza <i>et al.</i> , 2021	Egypt	238 PS	More efforts, strategies, and education programs should be put in place to reduce infection risk and protect future pharmacists
Basheti <i>et al.</i> , 2020	Jordan	470 P/256 PS	Majority of pharmacists and pharmacy students believe they have an essential role in pandemics It is worrying that a significant source of information is through the media considering numerous conflicting messages available.

CP: Community pharmacists; HP: Hospital pharmacists; P: Pharmacists; PS: Pharmacy students; PP: Pharmacies; HCWs: Health-care workers, MENA: Middle East and North Africa, COVID-19: Coronavirus disease-2019, PPE: Personal Protective Equipment.

educating clients with updated posters, banners, or signage should reduce patient interaction and pharmacy visits. The job of community pharmacists should include precise reporting processes to help track the countrywide spread of illness.

ElGeed *et al.* 2021^[5] conducted a cross-sectional 38-item online survey of 311 community pharmacists in Qatar. More than 75% of pharmacists “always” practiced hygiene and social distancing. On the other hand, there was a vast range of 32%–73% of pharmacists participating in patient assessment, education, or providing information related to COVID-19 and applying the evidence-based protocol. Overall, 77% of pharmacists “strongly agreed” or “agreed” that they had completed all essential COVID-19 emergency response preparation and training. Undergraduate education

and pharmaceutical specialty influenced the overall opinion of emergency response preparation. Thus, notwithstanding their readiness to connect with patients, community pharmacists (87%–96%) in Qatar are eager to undertake extra training relevant to the COVID-19 public health problem.

Zeenny *et al.* 2020^[12] evaluated pharmacists in Lebanese hospitals in response to this pandemic. An anonymous 78 questions were distributed through social media sites. A total of 81 surveys were completed; participants correctly answered more than 90% of knowledge-based questions on COVID-19. The majority of respondents expressed anxiety about being sick and infecting their families due to their occupational exposure. Conversely, around 67% adhered to safety advice. Most participants indicated that they are experiencing

Table 3: Professional and patients' perspectives

Authors	Region/country	Issue	Action
Ashiru-Oredope <i>et al.</i> , 2020	Commonwealth	545 responses about issues facing pharmacy teams	Continuous opportunity for professional development and regular information updates
Jarab <i>et al.</i> , 2021	Jordan	860 responses - assess socio-demographic and knowledge about COVID-19 among Pharmacy and pharmacy students	Universities to play an active role to enrich pharmacy students with knowledge about COVID-19

COVID-19: Coronavirus disease-2019

Table 4: Real-world experience of pharmacists during the coronavirus disease-2019 pandemic

Authors	Region	Take out message
Abdel Jalil M <i>et al.</i> , 2020	Jordan	Pharmacists had positive perceptions about both their traditional and nontraditional roles specified by the FIP
Arain S <i>et al.</i> , 2020	Saudi Arabia	By implementing a robust plan, pharmacy professionals show that they are integral members of interprofessional health care teams
Al Mazrouei N 2021	UAE	Years of experience and good knowledge on COVID-19 were significant determinants of pharmacist preparedness for the pandemic control
Alsharif A 2020	Saudi Arabia	Managing pandemics requires an effective and efficient eHealth framework
Haque M <i>et al.</i> , 2021	India	Key stakeholder groups can play a role in enhancing evidence-based approaches and reducing inappropriate purchasing in the future
El Bizri L <i>et al.</i> , 2021	Eastern mediterranean region	Supporting community pharmacists will strengthen SRH in the EMR and may help make the health system more efficient and more targeted
Akour A <i>et al.</i> , 2021	Jordan	Community pharmacists with a focus on patient adherence to ensure the optimal management
Alhamad H <i>et al.</i> , 2021	Jordan	The public positively endorsed the impact of the educational role of pharmacists, medication delivery services, and extending pharmacist's prescribing authority during the COVID-19 pandemic

SRH: Sexual and reproductive health, EMR: Eastern Mediterranean region, COVID-19: Coronavirus disease-2019, FIP: The International Pharmaceutical Federation

mask and sanitizer shortages, price increases, and supply delays. Around 50% of hospitals have taken actions toward COVID-19 preparedness. These findings indicated that respondents from Lebanese hospitals have an adequate level of knowledge, while utilization expertise of hospital pharmacists may help minimize/avoid future outbreaks of COVID-19.

Other research studies included pharmacists in the samples of mixed health-care workers (HCWs). For example, Desalegn *et al.* 2021^[13] investigated 1334 health workers' knowledge and preparation for COVID-19 in selected institutions in Addis Ababa, Ethiopia. A facility-based cross-sectional survey was undertaken. There were ten public and private hospitals involved. Nurses/midwives accounted for 39.9% of participants, followed by doctors (29.8%) and pharmacists (14.5%). One-third of these had official COVID-19 instruction. 76.5% of respondents indicated that their significant sources of information were television, radio, and newspapers. 43%–57% of individuals verified the existence of established hospital preparation measures. Thus, health professionals in Addis Ababa, Ethiopia, are

aware of critical information but have a limited understanding of the COVID-19 pandemic. This article concluded that additional efforts are required among younger demographics, nonphysicians, and females. Half of the respondents indicated that their hospitals were not adequately equipped, indicating the need for increased global solidarity, particularly consumables and equipment.

Bashir *et al.* 2021^[14] reported a 26-item cross-sectional observational poll research on 597 HCWs on social media. The questionnaire was distributed randomly on Arabic-language social media platforms – the analysis from HCWs with physicians, nurses, medical students, and pharmacists as participants. Most participants agreed that the virus could be transmitted directly or indirectly. To avoid infection, most participants answered that they wash their hands, avoid touching their eyes, nose, or mouth, and avoid crowded locations. Most participating HCWs identified COVID-19 symptoms correctly. The findings of this study may contribute to the development of effective techniques for preventing and controlling COVID-19 infections during a pandemic.

Shehu *et al.* 2021^[15] examined 138 clinical HCWs at Bingham University Teaching Hospital Jos using a questionnaire. The data collecting method was successive sampling, and the response distribution was given as frequencies and percentages. Doctors, pharmacists, and nurses had the greatest mean of accurate replies for knowledge. The attitudes and practices of the various clinical specialties were similar; nonetheless, the difference was not statistically significant. Superior knowledge, attitudes, and practice were among doctors and pharmacists, but regular training and updates are required.

Qadah *et al.* 2020^[16] conducted cross-sectional research on 1023 HCWs in Jeddah city, Western province, Saudi Arabia, to ascertain their comprehension of the infection's clinical characteristics. Over 88% of participants demonstrated a favorable attitude and level of understanding of COVID-19. Social media and the workplace were the primary sources of information for the majority of respondents. Around 99.12% of responders were aware of the viral pandemic and the agent responsible for it. When demographic factors were compared to mean knowledge, a statistically significant correlation was discovered. The findings of this study indicated that HCWs have appropriate knowledge and a favorable attitude regarding COVID-19. However, hospital staff should be trained well and regularly to deal efficiently with future pandemics.

Despite widespread anxiety around COVID-19, history may give significant insights when students were recruited during crises.^[17] Here, two studies assessed pharmacy senior students' knowledge, attitudes, and behaviors on the COVID-19 pandemic.

Hamza *et al.* 2021^[18] employed a 12-question online questionnaire to 238 senior pharmacist students in Cairo. Results revealed their primary source of information was social media (70%), written articles (48%), and television (48%). Most students demonstrated an adequate level of COVID-19 understanding (72.5%). The more knowledge students possessed, the surer they were that COVID-19 would be effectively handled. Females were 3.6 times more likely than males to avoid going out. The detrimental behavioral pattern became

apparent when about 50% of students acknowledged not wearing masks when leaving their residence. As a result, further measures should be made to safeguard future pharmacists against this epidemic.

Basheti *et al.* 2021^[19] used an online questionnaire to ascertain pharmacists' and pharmacy students' understanding and source of information on the management of the COVID-19 pandemic. 94.6% of them stay up to date on treatment changes, mainly via the media (59.5%), World Health Organization (WHO) reports (58.7%), and published research (57%). Pharmacists' ($n = 470$) awareness score (out of 20) was substantially higher ($P < 0.001$) than that of students ($n = 256$). While most pharmacists and pharmacy students claimed that they play a significant role in the pandemic management through community pharmacies, the majority also keep up with the newest coronavirus news through media. This discovery is significant considering the various contradictory messages aired throughout the pandemic by the media.

KNOWLEDGE, ATTITUDES AND PRACTICES OF PHARMACISTS TOWARD COVID-19

Some professional repercussions of COVID on pharmacy practice, education and research were addressed by several workers [Table 3 and 4]. Ashiru-Oredope *et al.* 2020^[20] investigated the challenges faced by pharmacy teams in commonwealth countries in Africa, Asia, the Americas, Europe, and the Pacific during the COVID-19 pandemic. The study assessed 545 pharmacy professionals' comprehension of crucial topics covered at the Commonwealth Pharmacists Association's COVID-19 webinar (CPA). A quantitative 32-item survey was used to collect the data. The final survey was sent via member organizations of the CPA. The majority of respondents (90%) expressed some concern about the impact of COVID-19 on their personal and professional lives, whereas more than 65% expressed significant concern. Almost two-thirds of respondents indicated that working efficiently during the pandemic was very or extremely challenging. Most pharmacy professionals (82%) have never participated actively in a global health emergency or received

global/public health emergency preparation (62%). Their study reaffirms pharmacists' worries about practicing during a pandemic and offers early data on the profession's problems and educational needs. The CPA has since taken action on these findings, offering continuous opportunities for the profession to develop and update materials as the pandemic progresses.

Jarab *et al.* 2021^[21] assessed the knowledge and information needs through a cross-sectional web-based design survey to determine sociodemographic characteristics and awareness of COVID-19 among 860 pharmacy and pharmacy students enrolled in reputable Universities in Jordan. The findings indicated that students had a fair amount of awareness of COVID-19 (mean knowledge score was 5.6 out of 10). Students revealed a lack of understanding when quizzed on the incubation time and degree of contagion. Variation of responses was found to relate to students' knowledge levels, including their subject of study and academic year. Few students relied heavily on their course for knowledge regarding the virus, whereas most depended on self-reading and social media. The findings of this study reveal an insufficient level of understanding regarding COVID-19. Additional efforts should be made to educate pharmacy students about COVID-19, focusing on the importance of universities taking more active roles in accomplishing this aim.

REAL-WORLD EXPERIENCES

Several studies reported hospital and community pharmacists' real-world experiences during the COVID-19 outbreak in the Middle East and African countries [Table 4]. Abdel Jalil *et al.* 2020^[22] reported on a cross-sectional electronic survey of 449 Jordanian pharmacists examining pharmacists' knowledge, educational efforts, and views on traditional and nontraditional roles during the COVID-19 pandemic as specified by the IPF. The pharmacists reported varied educational initiatives and general awareness of COVID-19. However, the authors found several information gaps that needed to be filled. The authors found that pharmacists had a positive perception of their duties as defined by the IPF. They found that pharmacists in Jordan can help

limit community transmission. However, more must be done to keep pharmacists up to date on disease outbreaks to respond effectively in a crisis.

Infection control, personnel, managing clinical, operational issues, ethics, greater automation, and employee health were all addressed by the inpatient hospital's pharmacy department in Saudi Arabia, as reported by Arain *et al.* 2021.^[23] The strategy developed by the inpatient pharmacy department was developed while incorporating information and suggestions from top national and worldwide pharmacy organizations and regulatory agencies benefiting from the experience. The authors described more focus needed for a modified staffing plan, system changes in perioperative areas, keeping pharmacy professionals updated on new and scientific research, increased use of automation, clinical interventions by pharmacists ensuring appropriate medication utilization while monitoring for drug-drug interactions, adverse drug event prevention, and preparing for handling drug shortages. By creating a solid plan, pharmacists continue to demonstrate their value as interprofessional health-care team members.

Al Mazrouei *et al.* 2021^[24] studied community pharmacists' ($n = 491$) in the United Arab Emirates, understanding COVID-19 and readiness for the pandemic via a cross-sectional online survey. The majority of participants ($n = 400$) were well-versed in COVID-19 and had a high degree of preparedness for the pandemic control. Most pharmacists ($n = 212$) agreed or strongly agreed ($n = 910$) that they play a significant role in crisis management. However, nearly a quarter ($n = 103$) of the individuals wrongly believed a DNA virus caused COVID-19. Those with 5–10 and >10 years of experience were 3.95 and 1.59 times more likely to have strong knowledge than participants with <2 years of experience, respectively. Compared to those with limited understanding, individuals with high awareness were more likely to know clients with suspected COVID-19 symptoms. This study found that years of experience and understanding of COVID-19 were essential predictors of pharmacists' preparation for pandemic control.

Alsharif *et al.* 2020^[25] assessed Saudi Arabia's National eHealth Strategy and proposed an

integrated eHealth framework capable of effectively managing health care operations and services during pandemics. A questionnaire was distributed to 5 Hospitals/316 HCWs to review Saudi Arabia's current national eHealth framework. 187 (59.2%) of participants regarded the existing eHealth framework as ineffective, and more than half of the participants reported that the framework was missing several critical components. Additional components and objectives focusing on eHealth for information management, raising awareness, increasing accessibility and reachability, promoting self-management and self-collaboration, promoting electronic services, and extensive stakeholder engagement were deemed the most critical factors by more than 80% of total participants. Pandemic management demands an effective and efficient eHealth framework capable of managing multiple health care services by integrating diverse eHealth components and collaboration with all stakeholders.

Haque *et al.* 2020^[26] evaluated 111 pharmacies' use and price variations and shortages of appropriate medications and equipment throughout the pandemic's early phases in India, increased purchasing on personal protective equipment (PPE) (over 98%). Antimalarials and antibiotics prices were unchanged in 83.8 and 91.9% of pharmacies, respectively, despite shortages at 70.3% of pharmacies for antimalarials and 9.9% for antibiotics. However, price increases were frequently observed for PPE (over 90% of retailers) and analgesics (over 50% of pharmacies). There were also shortages seen for PPE (88.3%). The pandemic has influenced the use and pricing of relevant medications and PPE in India, but increased inspection has mitigated this effect. In the future, key stakeholder groups may contribute to enhancing evidence-based approaches and reducing improper purchasing.

Self-care initiatives can help the WHO accomplish three of its goals: To increase universal health coverage, to reach people in humanitarian circumstances, and to improve health and well-being. El Bizri *et al.* 2021^[27] evaluated the role of community pharmacists in expanding access to and usage of self-care treatments for sexual and reproductive health (SRH) in the Eastern

Mediterranean Region (EMR). In light of WHO has consolidated guidelines on self-care interventions to strengthen SRH in EMR, pharmacists from four countries (Egypt, Jordan, Lebanon, and Somalia) discussed the current state of SRH, disparities in access to SRH services, and the pharmacist's critical role as a first-line responder to patients before, during, and after the COVID-19 pandemic. This paper emphasizes community pharmacists' critical role in promoting self-care interventions and empowering people, families, and communities. Therefore, knowledgeable individuals will be able to make authoritative health decisions. Before the COVID-19 pandemic, it was discovered that community pharmacists were excluded from both government and nongovernment SRH initiatives. Throughout the pandemic, community pharmacists assisted patients with self-care measures, either on their initiative or via the efforts of their pharmacy organizations. This demonstrates the importance of health care decision-makers, including and assisting community pharmacists in influencing policy and advocating for self-care initiatives. Self-care strategies can help individuals gain more control and autonomy over their SRH. Supporting community pharmacists will undoubtedly boost SRH in the EMR and contribute to a more efficient and focused health system.

Numerous nations' preventive and control actions to combat the development of COVID-19 may negatively influence medication and chronic illness management, impairing patients' ability to achieve their treatment goals. Akour *et al.* 2021^[28] assessed the influence of the COVID-19 lockdown on these factors while also examining the involvement of community pharmacists. Cross-sectional research was undertaken using a web-based questionnaire to collect data from individuals ($n = 431$) in Jordan diagnosed with chronic conditions. Convenience sampling was used to recruit participants, who were asked to self-report their accessibility to get medicine and their perception of the function of community pharmacists. Participants mainly reported challenges with medication access (45.9%), drug shortages or unavailability (49.4%), medication non-adherence owing to lack of access (22.7%),

and excessive expenses (19.7%). Participants opted out of follow-ups due to infection (82.5%) or the length of time required to wait in clinics (74.7%). 39.9% of participants indicated an increased dependence on community pharmacies for medical assistance, with more than half (50.3%) relying on pharmacists for guidance on over-the-counter drugs and COVID-19-related information. There is an immediate need to integrate community pharmacists in medication and chronic illness management, emphasizing patient adherence, to offer the best possible care for these vulnerable patient populations. Future research is needed to determine the influence of pharmacists' contributions to improving medication/disease management.

Alhamad *et al.* 2021^[29] used a different approach, examining public opinions of pharmacists' teaching and prescribing roles and the drug delivery service offered during the COVID-19 pandemic. They performed a 10-day cross-sectional survey of 578 Jordan's general population members utilizing a straightforward sample approach. According to the survey, the public supported the pharmacist's teaching role, drug delivery services, and the rise in pharmacists prescribing authority during the pandemic. In addition, this study offered a forum for examining public perceptions of pandemic illnesses and educating policymakers on how to respond by modifying existing regulations to expand pharmacy services and prescription roles during the COVID-19 pandemic.

CONCLUSIONS

During the COVID-19 pandemic, the entire world was engaged in a battle against an invisible virus. Pharmacy professionals had to fulfill their responsibilities while also participating in additional activities. It was much more complicated than previously because the novel coronavirus is intractable, there was no vaccine or established therapeutic guidelines, and it manifested itself unexpectedly. To handle the pandemic problems and the postpandemic situations, pharmacists must be prepared, trained, and equipped, as well as working together with other health-care professionals. As members of an interdisciplinary team, community

pharmacists may fulfill their responsibilities and play a key role in disease prevention, containment, and management efforts.

Authors' contributions

RA drafted an initial manuscript, HA further developed it for intellectual content, and all other authors reviewed and helped with shaping the article. The final product was refined through several rounds of discussion.

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Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

Ethical approval is not required for review types of studies.

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