

## ORIGINAL PAPER

## Primary Care

# Community pharmacists' needs, education, and readiness in facing COVID-19: Actions & recommendations in Egypt

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**Abstract**

**Introduction:** Coronavirus disease 2019 (COVID-19) outbreak is considered one of the most important public health crises all over the world and in Egypt. Community pharmacists represent the third largest health care professional group after physicians and nurses. Community pharmacists are expected to be fully prepared at the frontline of defending their community needs by limiting the spread of COVID-19 via different pharmaceutical care services.

**Aim:** This study aimed to evaluate the sources of knowledge and readiness of community pharmacists in facing COVID-19 early outbreak in Egypt.

**Methods:** A descriptive cross-sectional study was performed via a self-administered online google form questionnaire during the early period from 14 April to 3 June 2020. The questionnaire focused on; evaluating education level, sources of information, and readiness of Egyptian community pharmacists in the COVID-19 pandemic crisis.

**Results:** A total of 318 community pharmacists from Egypt participated in this questionnaire. About half of the surveyed pharmacists reported that they were frequently consulted and that their patients were seeking consultation regarding COVID-19 management more than 10 times per day. More than half of the pharmacists reported using social media as a source of information and knew the right social distancing recommendations. Regarding protective measures, only a quarter of pharmacists disclosed the availability of personal protective equipment (PPE). Nevertheless, the majority of pharmacists significantly reported some initial lack of support either inform of recommendations or PPE supply.

**Conclusion:** The study revealed the dependence of community pharmacists on social media as the main source of information and the lack of early awareness of evidence-based practice resources. Community pharmacists were in need of more initial support to achieve better satisfaction, patient counselling and infection control. Corrective measures were promptly undertaken to support and satisfy the Egyptian community pharmacists' initial awareness and readiness facing COVID-19.

## 1 | INTRODUCTION

Coronavirus disease 2019 (COVID-19) outbreak is considered one of the most important public health crises all over the world.<sup>1</sup> The first case of the novel COVID-19 was identified in China's Wuhan City

in December 2019.<sup>1</sup> At the end of January 2020, the World Health Organization (WHO) declared the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as a pandemic disease.<sup>2</sup> In Egypt, COVID-19 first emerged in March 2020.<sup>3</sup> The Egyptian government and the ministry of health advocated several measures aimed to limit

the spreading of the disease and increase public awareness.<sup>4</sup> These measures include hand hygiene, environmental hygiene, social distancing, travel limitation, and quarantine.

According to a global perspective, community pharmacists represent the third largest health care professional group after physicians and nurses.<sup>5</sup> Community pharmacists are considered the nearest & easiest health care provider for those with health-related concerns.<sup>6</sup> Community pharmacists have played an important role in limiting the spread of COVID-19 via different provided pharmaceutical care services like producing reliable information on the disease and its preventive measures, referring to suspected cases and ensuring continuous supply of medicine.<sup>6</sup> The types of patient care services that community-based pharmacists providing are extremely variable by country, pharmacists knowledge, population awareness & economical issue.<sup>7</sup> So, International Pharmaceutical Federation (FIP) published in February 2020 "Coronavirus 2019-nCoV outbreak: Information and interim guidelines for pharmacists and the pharmacy workforce" to provide pharmacists with relevant information and guidelines on coronavirus outbreaks.<sup>8,9</sup>

Community pharmacists are required to protect themselves and their pharmacy's staff by promoting protective measures and regulations in their pharmacy such as keeping the social distance encouraged pharmacy's staff to wear a facial mask, wipe and disinfect the counter after each customer/patient, proper sanitisation, encourage telemedicine services and facilitate home delivery services.<sup>9</sup> At the beginning of the crisis, the community pharmacists were confused about precautionary measures which should be done in their pharmacy to limit infection spread. In addition to face obstacles in supplying the personnel protective equipment (PPE) and sensitisers.

The study aimed to explore community pharmacists' sources of information in Egypt during the COVID-19 outbreak. In addition, to know how far precautionary measures were applied in community pharmacies and if the community pharmacists were in need of meaningful support from competent authorities.

## 2 | METHODOLOGY

A descriptive cross-sectional self-administered questionnaire was performed among Egyptian community pharmacists. The questionnaire was distributed online from 14 April to 3 June 2020. It was validated by a face-to-face sample of three community pharmacists other than authors, and independent psychological professor, Dr Alhousini Mansour Alwan, Professor of Psychology at the Faculty of Education Damamhur University concerning relevancy and accuracy. The questionnaire was formulated in Arabic to match the currently used native language. The questionnaire consisted of 27 questions divided into four sections. The 1st section included the important role of the community during the COVID-19 pandemic. The 2nd part covered sources of information used by a community pharmacist, 3rd part include community pharmacists' knowledge concerning infection control measurements and 4th part covered the need for governmental support to community pharmacists concerning

### What's known

Community pharmacists are considered the most susceptible health care category to get COVID-19 infection. Facing COVID-19 pandemic, community pharmacists are expected to be fully prepared at the frontline of defense to serve their community needs.

### What's new

This study aimed to evaluate the role, behaviour and knowledge of community pharmacists in Egypt, as well as the actions undertaken and recommendations. Our study spots light on the importance of preparing our community pharmacists to be well qualified in facing a pandemic crisis. So, the governate, ministry of health, pharmacists syndicate and pharmaceutical companies should be cooperated, supported and qualified community pharmacists in order to decrease the load on governate, control the infection spreading & increase the community awareness in facing COVID-19 crisis. The results highlighted the initial shortage of evidence-based readiness of most Egyptian pharmacists to provide patient counselling and education. Most respondents answered the questions about medication from social media, talk shows, news stations and advertisements rather than using evidence-based resources. Pharmacists were in need of continuing e-learning education, and require more regulation, support and supplies to ensure their safety and others'. Corrective measures were promptly undertaken. It is hence recommended to cooperate with governorate, ministry of health, pharmacists syndicate and pharmaceutical companies to support and increase the community awareness facing the COVID-19. In addition, corrective and protective measures are guaranteed with further studies recommended to evaluate the advancements achieved.

COVID-19 pandemic (Supporting Material 1). The targeted population was mainly Egyptian community pharmacists. Hospital pharmacists, foreign community pharmacists and under graduated pharmacists were excluded.

The questionnaire was distributed in different governances in Egypt (El Behira, Alexandria, Cairo & Kafar El Shikh). Posting online at the electronic sites and social media of the Behira Pharmacists Syndicate at Behira Governorate also took place (Available from: <https://www.facebook.com/groups/122413404514689/permalink/2996281860461148/>).

### 2.1 | Statistical analysis

Data were analysed, processed and illustrated using IBM SPSS software package version 25, MiniTab Version 19.1 (MacOS Version) and GraphPad Prism 8.4.1<sup>10</sup> (GraphPad Software).

### 3 | RESULTS

#### 3.1 | Characteristics and demographic data of participating pharmacists

A total of 318 community pharmacists from Egypt participated in this questionnaire. 251, 55 and 77 participants located in cities, towns and villages (65.8%, 14.43% and 19.68%), respectively (Table 1). The highest responses were recorded from pharmacists aged from 23 to 30 (56.9%) followed by 31 to 40 (33.33%) and 41 to 50 (7.87%) with only seven pharmacists older than 50 years (2.2%). Female pharmacists' participation in this questionnaire was 86.2%.

#### 3.2 | Are the pharmacists needed by the community during the COVID-19 pandemic?

When asked about the need for pharmacists' consultation to patients regarding COVID-19 management, 51%, 39%, 4% and 1% of the pharmacists reported that they either frequently, sometimes, rarely, and never consulted by patients, respectively. Also, 40.4% of pharmacists reported that patients were seeking consultation regarding COVID-19 management more than 10 times per day while 23.9% of pharmacists reported that they had never been requested for any consultation related to COVID-19. As reported by the questionnaire, 41.73%, 38.8% and 6.8% of participated community pharmacists were used social media, face to face patient's interaction and printed materials, respectively, to offer COVID-19 awareness. However, 12.6% of participated pharmacists reported that they had never offered any awareness (Table 1).

#### 3.3 | The community pharmacists' sources of information

In response to COVID-19 information resources used by community pharmacists, 58.01%, 19.16%, 13.12% and 8.14% of the pharmacists used social media, media like newspaper and television, WHO website, and the Egyptian ministry of health, respectively, while 1.57% of pharmacists reported not getting information at all (Figure 1A). Concerning the frequency of information updates, 58.79%, 37.01% and 2.62% of pharmacists access information daily, weekly and monthly, respectively (Figure 1B).

#### 3.4 | The community pharmacists' knowledge concerning infection control measurements

When asked about the knowledge of community pharmacists regarding ethanol concentration, 97.11% of pharmacists reported that 70% ethanol concentration is an effective concentration (Figure 1C) and 90.81% of pharmacists discouraged the use of methanol instead of ethanol (Figure 1D). Concerning cloth handling, 51.7% of

pharmacists washed their clothes after each use daily, 21.52% of pharmacists wore their white lab coats in their pharmacies while 26.77% of pharmacists never altered their normal habits during the COVID-19 pandemic with respect to cleaning and cloth management (Figure 1E). Concerning the knowledge of face masks and gloves usage, 55.12% of pharmacists wore their face mask all the time in their pharmacies, 26.77% of pharmacists wore face masks during contact only, while 18.11% did not wear face masks at all (Figure 1F). 63.78% and 19.95% of the pharmacists wore gloves either all the time or during contact, respectively, while 16.27% of pharmacists did not use gloves (Figure 1G). 16.01%, 9.19%, 14.44%, 17.59%, and 26.51% of pharmacists who used gloves reported the changing of it per patient, hour, two hours, four hours or day, respectively, although 16.27% of pharmacists did not use gloves in their daily practice (Figure 1H). Concerning the detergent used 90.29% of the pharmacists used diluted Clorox® to clean the surfaces in their pharmacies (Figure 1I).

For proper social distancing community pharmacists' knowledge, 58.53%, 5.7%, 2.3%, and 0.52% of the surveyed pharmacies suggested 2, 4, 6-m and less than 1 m, respectively, while 32.81% reported that they did not know the proper social distance to combat COVID-19 (Figure 1J).

#### 3.5 | The community pharmacists' knowledge regarding commonly used medications

Concerning the community pharmacists' knowledge of using Ibuprofen as a non-steroidal anti-inflammatory in COVID-19 patients, 77.43% of surveyed pharmacists discouraged the use of Ibuprofen (Figure 1K). Furthermore, 84.25% of the surveyed pharmacists reported the ineffectiveness of vaccines such as BCG or seasonal influenza vaccines in COVID-19 protection (Figure 1L). 33.78%, 19.03%, 15.78%, 10.91%, 7.67%, 2.8%, 2.8% and 7.23% of surveyed pharmacists suggested that Chloroquine, Tamiflu, vitamin c, Azithromycin, Favipiravir, Remdesvir, Ivermectin and plasma of recovered COVID-19 patients could aid in treating COVID-19, respectively (Figure 1M). 14.44% of surveyed pharmacists dispensed unreported prophylactic therapy for COVID-19 (Figure 1N). 72.18% of surveyed pharmacists communicated proper questions to their patients (Figure 1O). Finally concerning community pharmacists' recommendations regarding dealing with the suspicious COVID-19 cases, 23.36%, 71.39% and 5.25% of surveyed pharmacists suggested calling hotlines, 14 days home quarantine, and immediate hospitalisation, respectively (Figure 1P).

#### 3.6 | How far community pharmacists applied infection control measurements in their pharmacies

Concerning the availability of PPE, only 25.2% of surveyed pharmacists reported that PPE was currently available. 40.03% of them reported that PPE was only available for only 50% of the demand,

TABLE 1 Characteristics and demographic data of participating pharmacists

Questionnaire's results	20-30	31-40	41-50	>50	Sum
Age (y)	217	127	30	7	381
Gender	Male 107	Female 274			381
Demographics	City 251	Town 55	Village 75		381
Patients' consultation	Frequently	Sometimes	Rarely	Never	381
Patients requesting COVID19 remedies and advice?	213	149	15	4	381
Participation in community awareness	>20/day 74	>10/day 154	<3/day 62	None 91	381
Information source	Via social media 159	Via printed material in Pharmacy 26	Only patients' consultation 148	Never participated 48	381
Frequency of information search	Egyptian Ministry of Health 31	Media 73	Social media 221	WHO 50	381
What is Ethanol effective Conc.?	Daily 224	Weekly 141	Monthly 10	Not getting Information 6	381
Can methanol be used instead?	50% 7	70% 370	90% 2	95% 2	381
How you handle your cloth daily?	Yes 35	No 346			381
Do you wear face mask?	Wash after single use 197	Wear PPE (Coat) 82	No change in normal pattern 102		381
	All of the time 210	Only during contact 102	Never 69		381

(Continues)

TABLE 1 Continued

Questionnaire's results	Objective										Sum
Do you wear gloves?	All of the time	Only during contact	Never								381
	243	76	62								
When do you change gloves, if any?	One/patient	One/hour	One/2 hours	One/4 hours	One/day	Never					381
	61	35	55	67	101	62					
Agents used to clean surfaces	Dettol	Clorox (Diluted)	Water	Others							381
	13	344	8	16							
What is proper social distancing?	<1 m	~2 m	~4 m	~6 m	I don't know						381
	2	223	22	9	125						
Can we use ibuprofen for fever?	Yes	No									381
	86	295									
Can current vaccines work for COVID19?	Yes	No	I don't know								381
	6	321	54								
What therapy you would recommend?	Hydroxychloroquine/ chloroquine	Tamiflu	Vitamin C	Azithromycin	Favipiravir	Remedesvir	Ivermectin	Recovered patient's plasma			678
	229	129	107	74	52	19	19	49			
Do you sell prophylactic therapy for COVID19?	Yes	No									381
	55	326									
Are Pharmacist asking proper questions?	Yes	No									381
	275	106									
Recommendations for suspected COVID19 patients	Call hotline	Home Quarantine for 14 days	Immediate hospitalisation								381
	89	272	20								

(Continues)

TABLE 1 Continued

Questionnaire's results	Yes	No	Sum
Do you have counter shield?	92	289	381
PPE availability	Available currently	Available for only 50% of demand	Not available
	96	183	102
New policies to combat COVID 19?	Daily sanitisation & cleaning	Decreased labour	Home delivery
	135	100	76
		Social distancing	No policy
		38	32
Is Ministry of Health offering Meaningful support?	Yes	No	381
	21	360	
Comments	More help needed	More PPE needed	25
	10		

while 26.77% reported complete nonavailability (Figure 2A). 75.85% of surveyed pharmacists reported a complete lack of counter shield in their retail sites (Figure 2B). For pharmacists' adopted strategies to combat the COVID-19 pandemic spread, 35.43%, 26.25%, 19.95% and 9.97% of pharmacists adopted daily sanitisation, decreased labour, home delivery and social distancing, respectively. 8.4% of pharmacists adopted no new policies in response to COVID-19 (Figure 2C).

### 3.7 | Are competent authorities provided meaningful support to community pharmacists?

94.5% of surveyed pharmacists significantly reported that there were no meaningful support provided from competent authorities like the government, Ministry of Health and pharmacy syndicate either in the form of information, regulations or PPE supplies (Figure 2D).

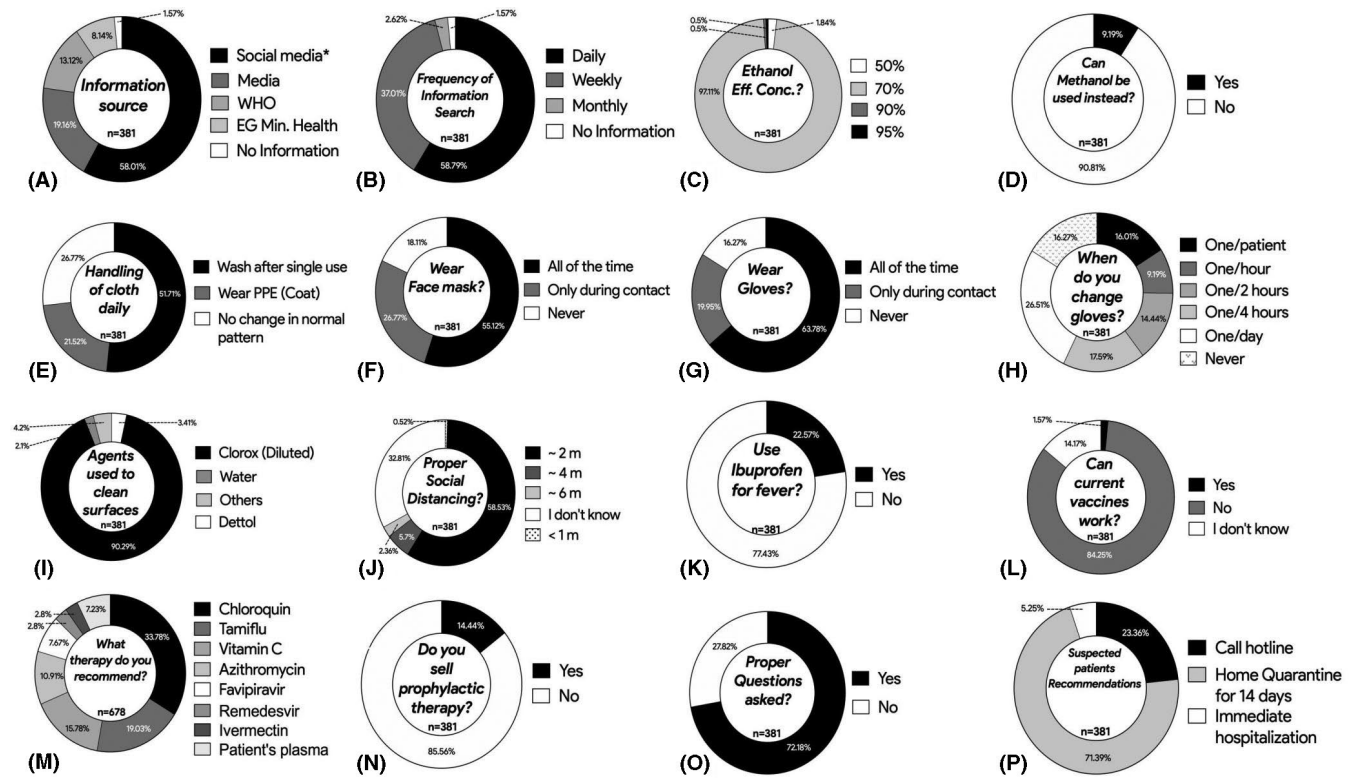
## 4 | DISCUSSION

In Egypt, and most Middle East countries, community pharmacies are favoured by patients as primary consultation sites over primary care centres, because of its ease to access, always open even in restricted hours, and no waiting list.<sup>11</sup> Our study revealed that the Egyptian community needed community pharmacists either in consultation or medication counselling during COVID-19. So, the community pharmacists should be updated with evidence knowledge to provide their patients with the right information regarding COVID-19. Our results showed that 77.17% of pharmacists depend on media & social media as a source of information.

The dependence of social media as a source of information in our study may regard young age participants as 57% of participants aged from 23 to 30 years old with less experience while 43% of participants were above 31 years old. Our results were matched with a cross-sectional study concerning COVID-19 awareness among pharmacists from the Middle East and North Africa (MENA) which, reported that 60.8% of participants pharmacists (40.8% of participants were from Egypt) get their information from social media. On the other hand, another study by Hoti et al<sup>12</sup> reported that most of the Kosovo pharmacists get their information from translated FIP guidelines.

The study revealed a lack of evidence-based resources among Egyptian pharmacists and their need for educational support on how to get evidence-based information to empower them in consulting and educating patients and customers. According to Basheti et al, MENA pharmacists strongly agreed with their need for training programs and continuous education for ideal health supporting during the COVID-19 outbreak focusing on the role of faculties/educational institutes in this area.<sup>13</sup>

More than half of community pharmacists were well informed of infection control measures and applied them in their pharmacies like



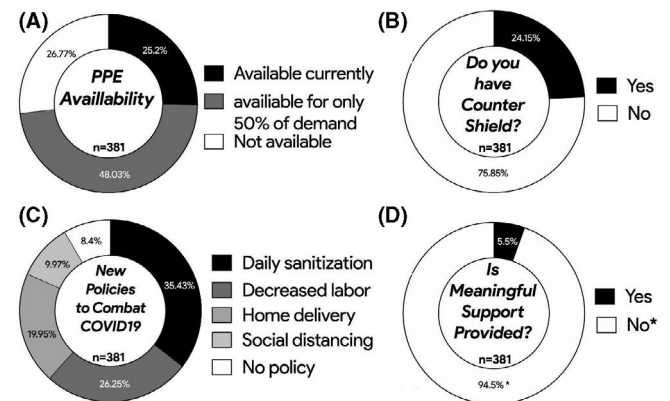
**FIGURE 1** Are pharmacist well informed and educated? (A). Information source (B). Frequency of information search (C). What is the Ethanol effective conc. (D). Can methanol be used instead (E). Handling of cloths daily (F). Wear face mask. (G). wear Gloves. (H). When do you change gloves, (I). Agents used to clean surfaces. (J). Proper social distancing? (K). Can we use Ibuprofen for fever. (L). Can current vaccines work for COVID19. (M). What therapy you would recommend. (N). Do you sell prophylactic therapy for COVID19. (O). Are Pharmacist asking proper questions. (P). Recommendations for suspected COVID19 patients

PPE usages such as masks and gloves and clean surface with diluted Clorox. By asking about proper social distance about 58% of participants had correct answers while the rest had either wrong or did not know. More than 75% of community pharmacists did not support the usage of Ibuprofen, although there was no supporting evidence. Neither WHO nor the FDA declares withholding ibuprofen in patients with COVID-19.<sup>14,15</sup>

Finally, the study assessed the extent of infection control measures and availability of PPE in community pharmacies during the beginning of the crisis in Egypt. The limited supply and availability of PPE in Egyptian pharmacies at the beginning of the crisis was considered one of the obstacles facing community pharmacists. A cross-sectional study by Bahlol and Dewey, focusing on the Pandemic preparedness of community pharmacies for COVID-19 in Egypt during the same period of our study in April 2020 revealed a shortage of PPE and alcohol in Egyptian pharmacies which support our finding.<sup>11</sup> About 75% of community pharmacists did not have a counter shield in their pharmacies which increased the risk of infection. On the other hand, more than 90% applied new policies in their pharmacies to limit the infection spreading. Keeping a social distance is one of these policies. Only 9.97% of pharmacists applied the social distance regulation in their pharmacies. This may be because of either the shortage of pharmacists' knowledge or the size limitation of most pharmacies as the minimum allowed area for pharmacy

approval was 25 m<sup>2</sup> according to Egyptian regulation.<sup>11</sup> The issue of keeping social distance in community pharmacies is considered an obstacle not only in Egypt but also, in the United Kingdom according to surveyed questionnaire among pharmacists who indicated that most of them were unable to keep social distancing either between pharmacy worker or patients.<sup>16</sup>

94.5% of community pharmacists significantly suffered from lack of provided support either in supplying PPE or getting information



**FIGURE 2** Are pharmacists well prepared? (A). PPE availability. (B). Do you have counter. (C). New polices to combat COVID-19. D. Is meaningful support provided

from competent authorities. So, the ministry of health, pharmacists syndicate, and pharmaceutical companies should cooperate, support, and qualify community pharmacists to decrease the load on the governate, control the infection spreading and increase community awareness in facing the COVID-19 crisis. These can be achieved via saving PEE, counter shields, and alcohol to community pharmacies. In addition to legislating regulations and laws such as concise the number of pharmacy staff and clients according to the size of the pharmacy, bind the community pharmacists and pharmacy staff to wear masks and PPE if possible, allocate special place with protective measures in pharmacy to deal with suspected persons, encourage the telemedicine and electronic prescriptions and finally provide health insurance services to the community pharmacists.

Corrective measures and recommendations were promptly undertaken by the community service sector of the Faculty of Pharmacy at Damanshour University such as improving E-learning and continues education via posting online lectures to better educate pharmacists at the official electronic sites of the Faculty of Pharmacy and the Pharmacists Syndicate at Behera Governorate.

## 5 | LIMITATIONS

The study was done via an online survey which leads to the collection of data only from pharmacists who were interesting in social media. Such sampling technique leads to selection bias and affecting the validity of our study as the other pharmacists who did not interest in social media lost the chance of participation. This may be explained by the relatively young age of the study participants as elderly pharmacists may either not interesting or unable to use social media. In addition, the study cannot be generalized to all Egyptian community pharmacists, it is mostly covering the west regions in Egypt. The study was done at the beginning of the crisis, so further studies are recommended.

## 6 | CONCLUSION

The study revealed the dependence of community pharmacists on social media as the main source of information. The community pharmacists should be provided with evidence-based knowledge regarding infection control measures and how to apply them in their pharmacies. In addition, the community pharmacists were in need of meaningful support from competent authorities to achieve the best health care services during the COVID-19 crisis.

### ETHICAL APPROVAL AND CONSIDERATION

The authors declare that this work complies with the ethical standards of the Scientific Ethics Committee Board at the University of Pharmacy Damanshour University (Approval Ref. No. 420PP23). This study was approved by the Ethics Committee of Damanshour University (420PP23). The study was registered on the Clinical Trials online database (NCT04374513, <https://clinicaltrials.gov/ct2/>

[show/NCT04374513?term=community+pharmacist&cond=Covid19&draw=2&rank=1](https://clinicaltrials.gov/ct2/show/NCT04374513?term=community+pharmacist&cond=Covid19&draw=2&rank=1)). Participation in the study is voluntary. The submission of the answered questionnaire was considered as consent to participate in the study.

### CONFLICT OF INTEREST

All authors declare that they have no conflict of interest.

### DATA AVAILABILITY STATEMENT

All data generated or analysed during this study are included in this published article will be available upon request.

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### REFERENCES

- Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020;382(8):727-733.
- Sohrabi C, Alsafi Z, O'Neill N, et al. World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *Int J Surg*. 2020;76:71-76.
- Egypt records new 16 "COVID-19" cases, bringing total of 126: Health Ministry, in Egypt today. 16 Mar 2020.
- Egyptian government's anti-virus plan met with mixed reactions, in AL-MONITOR. 27 Mar 2020.
- Brewster S, Holt R, Portlock J, Price H. The role of community pharmacists and their position in the delivery of diabetes care: an update for medical professionals. *Postgrad Med J*. 2020;96(1138):473-479.
- Bennett M, Goode J-VR. Recognition of community-based pharmacist practitioners: essential health care providers. *J Am Pharm Assoc*. 2016;56(5):580-583.
- Aly M, García-Cárdenas V, Williams K, Benrimoj SJ. A review of international pharmacy-based minor ailment services and proposed service design model. *Res Soc Admin Pharm*. 2018;14(11):989-998.
- Zheng S-Q, Yang L, Zhou P-X, Li H-B, Liu F, Zhao R-S. Recommendations and guidance for providing pharmaceutical care services during COVID-19 pandemic: a China perspective. *Res Soc Admin Pharm*. 2021;17(1):1819-1824
- Federation IP. COVID-19: guidelines for pharmacists and the pharmacy workforce. 2020 Available from: <https://www.fip.org/files/content/priority-areas/coronavirus/COVID-19-Guidelines-for-pharmacists-and-the-pharmacy-workforce.pdf>
- Motulsky H. *Intuitive biostatistics: a nonmathematical guide to statistical thinking*. Oxford University Press; 2010.
- Bahlol M, Dewey RS. Pandemic preparedness of community pharmacies for COVID-19. *Res Soc Admin Pharm*. 2021;17(1):1888-1896
- Hoti K, Jakupi A, Hetemi D, Raka D, Hughes J, Desselle S. Provision of community pharmacy services during COVID-19 pandemic: a cross sectional study of community pharmacists' experiences with preventative measures and sources of information. *Int J Clin Pharm*. 2020;42(4):1197-1206.
- Basheti IA, El-hajji F, Nassar, R, et al. Pharmacists' awareness of COVID-19 and perceptions of their roles, barriers, and roles of policymakers: Exploring the Middle East and North Africa (MENA). *Int. J. Clin. Pract*. 2021;75(6):e14074.
- Chary MA, Barbuto AF, Izadmehr S, Hayes BD, Burns MM. COVID-19: therapeutics and their toxicities. *J Med Toxicol*. 2020;16(3):284-294.
- Drake TM, Fairfield CJ, Pius R, et al. Non-steroidal anti-inflammatory drug use and outcomes of COVID-19 in the ISARIC Clinical Characterisation Protocol UK cohort: a matched, prospective cohort study. *The Lancet Rheumatology*. 2021.



16. Hasan SS, Kow CS, Zaidi STR. Social distancing and the use of PPE by community pharmacy personnel: Does evidence support these measures?. *Res. Social Adm. Pharm.* 2021;17(2):456-459.

#### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

**How to cite this article:** Kassem AB, Ghoneim AI, Nounou MI, El-Bassiouny NA. Community pharmacists' needs, education, and readiness in facing COVID-19: Actions & recommendations in Egypt. *Int J Clin Pract.* 2021;75:e14762. <https://doi.org/10.1111/ijcp.14762>