

Research Paper

# Community pharmacy practice related to the COVID-19 pandemic: barriers and facilitators

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Received April 10, 2021; Accepted February 3, 2022.

## Abstract

**Background** Community pharmacies provide an important healthcare service. Their significant value has been further highlighted during the COVID-19 pandemic crisis.

**Objectives** To identify and categorize potential barriers and facilitators to the role of community pharmacists during the pandemic and their association with demographic factors.

**Methods** A cross-sectional survey of community pharmacists was conducted using a self-administered questionnaire during April 2020 across all regions of Egypt.

**Key findings** Respondents ( $n = 1018$ ; 98.4% response rate) revealed practical and psychological barriers, including inadequate levels of pandemic preparedness (mean 61.43%;  $\pm$ SD 0.47), inadequate working environments (mean 56.23%;  $\pm$ SD 0.49) and uncooperative behaviour from stakeholders (mean 65.3%;  $\pm$ SD 0.47). The majority of respondents emphasized the universal, region-independent necessity for facilitators, including the availability of timely (94.9%) guidance (97.4%) published by the Egyptian healthcare authority (94.6%), in electronic format (82.1%), through smartphone application (80.0%) and the provision of a dedicated telephone hotline (89.5%). Furthermore, authorities must use the media to manage public perceptions (97.2%) and increase public trust (94.8%) towards the pharmacist.

**Conclusions** The barriers and facilitators identified herein could improve service provision in an integrated manner by overcoming the reported inadequate level of preparedness (barrier) through the provision of electronic guidance (facilitator), and the use of the media in managing public perceptions and trust (facilitators) to reduce the panic that negatively affects the working environment (barrier) for pharmacy staff. The varied level of healthcare authority cooperation reported in many regions requires further investigation.

**Keywords:** COVID-19; cross-sectional studies; pandemics; community pharmacies

## Introduction

On 11 March 2020, COVID-19 was officially classified by the World Health Organization (WHO) as a pandemic. A WHO study estimated that if containment measures were to fail, between 83 000 and 190 000 people on the continent of Africa could die with COVID-19 and between 29 million and 44 million may become infected in the first year.<sup>[1]</sup>

By May 2020, the dramatic increases in the rates of infections and deaths in Egypt representing the highest case fatality rate (CFR) in Africa,<sup>[2]</sup> forced the Prime Minister's Office to announce aggressive preventative measures, including applying to the International Monetary Fund (IMF) for a loan.<sup>[3]</sup> The problem was further exacerbated by many government hospitals and healthcare centres already having needed to close due to physician 'dropout' from work,<sup>[4]</sup> and only 23 of 60 000 pharmacies being government-owned.<sup>[5]</sup>

Private community pharmacies provide a vital healthcare service that is established and broad-reaching, especially in low- and middle-income countries (LMICs).<sup>[6]</sup> They also constitute the initial and favoured point of contact for members of the community. Unfortunately, in LMICs, the role of the private sector in health care is often neglected by governments and international public health decision-makers.<sup>[7]</sup> The vital importance of community pharmacies has been further brought to the fore during the COVID-19 pandemic, as with most commercial enterprises and shops being required to suspend their operation, community pharmacies were the sole remaining pillar of the community. Furthermore, COVID-related restrictions significantly impacted both logistic processes and the provision of additional clinical services such as vaccinations,<sup>[8]</sup>

and placed great emphasis on remote patient education and counselling via telepharmacy.<sup>[9]</sup> Despite this, pharmacists anecdotally reported facing barriers such as difficulties keeping up with the required pharmacy practice and infection control measures during the pandemic.<sup>[10]</sup> This was in addition to the reported need for facilitators to improve their practices such as facilitating a flexibility in legislation,<sup>[8]</sup> and the provision of a formulary of pharmaceutical care contain updated and standardized management processes for dispensing medication and services. All these additional burdens together were barriers to pharmacies providing the required comprehensive response to the COVID-19 pandemic.<sup>[11]</sup>

Thus, the aim of this study was to assess the potential barriers and facilitators to the community pharmacists' role during the COVID-19 pandemic in private community pharmacies in Egypt. To address this aim, the following objectives were outlined: the identification and categorization of potential barriers and facilitators to community pharmacy practice and the association of these barriers and facilitators with demographic factors.

## Methods

### Design

A cross-sectional survey (Figure 1) was administered using a drop-and-collect technique.<sup>[12]</sup> The structured questionnaire was distributed by 483 trained data collectors (pharmacy students) for self-administration and then collected on a subsequent visit. Ethical approval for the study was granted by the institutional ethics committee (IRB reference: ERUFP-PP-20-001).

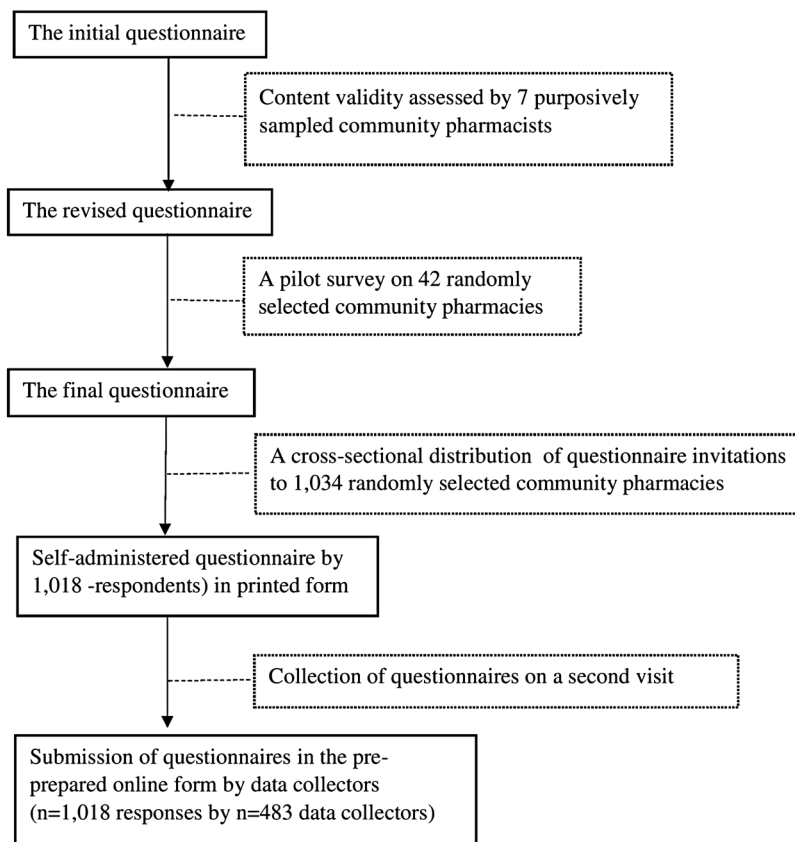


Figure 1. Study flow chart.

## Questionnaire development

The initial questionnaire was developed based on the existing literature, specifically that published by the WHO,<sup>[13]</sup> and government public health guidelines published in Egypt,<sup>[14, 15]</sup> New South Wales,<sup>[16]</sup> and the UK,<sup>[17]</sup> as well as recommendations from the International Pharmaceutical Federation (FIP),<sup>[18]</sup> the Pharmacy Guild of Australia,<sup>[19]</sup> The British Columbia Pharmacy Association (BCPhA),<sup>[20]</sup> the Pharmaceutical Services Negotiating Committee (PSNC),<sup>[21]</sup> and the National Institute for Health and Care Excellence (NICE).<sup>[22]</sup> To ensure the content validity of the initial questionnaire, a survey was conducted with a purposive sample of seven community pharmacists covering a range of roles and levels of experience.<sup>[23]</sup> This process also ensured suitability for the Egyptian situation.

The questionnaire comprised three sections; (1) demographics, (2) the research domains under investigation, and a final section (3) containing three open-ended questions about whether questions should be removed, added or modified, evaluating the questionnaire validity and seeking any other comments.

A pilot survey was then performed in demographically similar regions in the Centre, North, South and East of Egypt. The country consists of seven regional units in Centre (Grater Cairo regional unit), North (Delta and Alexandria regional units), South (North, Asyut/Centre and south of Upper Egypt regional units) and East (Suez Canal regional unit).<sup>[24]</sup> The total list of registered pharmacies in Egypt<sup>[25]</sup> was numbered from 1 to 62 000. In order to select pharmacies from this list, 42 random numbers were selected using a random number generator, each of these being attributed to a pharmacy that was included in the sample.<sup>[26]</sup> Following the feedback obtained during this pilot, a number of alterations were made to the questionnaire.

## Data collection

The final questionnaire comprised two sections: demographic information and the domains under investigation. The third/final section of open-ended questions was removed. A numbered list of 62 000 registered pharmacies in Egypt was used to select 1034 pharmacies at random, using a random number generator,<sup>[26]</sup> such that a proportionate number of sites were selected in the Centre, North, East and South regions of Egypt. Data collectors were allocated community pharmacies that were local to them to deliver invitations and questionnaires and return on a second visit to collect the completed questionnaires. Envelopes containing invitations were directed to 'the pharmacist'. Personal communication as soon after completion as possible<sup>[27]</sup> was used to clear up any misinterpretations or misunderstandings, and to ask supplementary questions if necessary. All questions had closed answers, either yes/no or multiple choice. Using local data collectors was advantageous, ensuring that registered community pharmacies were actively working (i.e. not only registered but also open for service) and maximizing the response rate through being guaranteed to attract the attention of the pharmacist. Data collectors were asked to drop and collect the questionnaires within a 2-week period, and to submit the collected responses electronically using a pre-prepared online questionnaire (implemented in Google Forms) to facilitate anonymized data collection and analysis.<sup>[28]</sup> Following digitization, all participant data were de-identified. All responses submitted within the 2-week period (8–19 April 2020) comprised the study sample.

## Sample size

The sample size was calculated using the formula:  $X = Z_{\alpha/2}^2 \times p \times (1-p)/MOE^2$ <sup>[29]</sup> in which  $Z = 2.576$ , using a confidence level of

99%, a margin of error of 5% and a sample proportion of 50%. Accordingly, the minimum sample size required in this study was calculated to be 658. The number of respondents exceeds the minimum sample size required after 2 weeks. Thus, the survey was closed on schedule.

## Questionnaire content

The entire questionnaire included six domains. The results have been divided into two manuscripts as was relevant to the separate directions of the objectives of the study. The questions covering four domains (1 – the ability to provide products, 2 – infection control, 3 – knowledge and awareness and 4 – practices surrounding patient education) out of the six covered in the survey are published.<sup>[25]</sup>

The present manuscript, in addition to providing demographic information (8 questions), covers the two remaining domains, namely 24 items comprising 13 barriers and 11 facilitators (see [Supplementary file](#)) in the questionnaire (internal consistency measured by Cronbach's alpha = 0.774).

## Statistical analysis

Statistical analyses were conducted in SPSS version 20. The data were inspected using descriptive statistics. Chi-square tests were used to perform comparative analyses between survey items. Due to the presence of a small number of missing values in the data, the tabulated results show absolute numbers of respondents together with the percentage of valid responses for transparency. Significance was considered at a threshold of  $P \leq 0.05$ .

## Results

A total of 1034 community pharmacies were visited to conduct data collection with one pharmacist in each community site, and the sample comprised the responses of 1018 (i.e. 98.4% response rate) pharmacists.

The sample (see [Table 1](#)) included pharmacists across all three levels of position (junior, senior and manager) actively working in community pharmacies in four regions (South, East, Centre and North) of Egypt. The graduation year of study participants ranged from 1971 to 2019, and pharmacists had been practicing for a mean of 12.7 years (ranging from 1 to 50 years). Incomplete questionnaires were included, with the numbers of participants with missing data for each variable of interest ranging from 2 to 23 (mode 4; mean 6.5).

## Potential barriers

Pharmacists expressed having inadequate levels of preparedness, that is, lack of pandemic-related knowledge regarding the required role of the pharmacist and clinical information (undergraduate [ $n = 598$ , 59.0%], postgraduate [ $n = 493$ , 48.6%] and continuing professional development [ $n = 778$ , 76.7%]) as a barrier, and there were no significant differences between regions or demographics of pharmacists ([Table 2](#)). Barriers included a lack of an adequate working environment ([Table 3](#)). Particularly, inadequate pharmacy size was recognized as a barrier by 59.6% ( $n = 605$ ) of pharmacists surveyed. Shortages of safety items and protective equipment for the use of pharmacists were reported by 63.9% ( $n = 649$ ) of respondents. Shortages in terms of the number of pharmacists available ( $n = 402$ , 39.7%) and the time they had available to perform the necessary duties ( $n = 489$ , 48.2%) were also reported. Barriers also included the psychological effects of working in an atypical working environment, that is, suboptimal working environment during the

**Table 1** Demographics of respondents (community pharmacists)<sup>1</sup>

	Number	Valid (%)
Region		
South	93	9.2
East	75	7.4
Centre	164	16.2
North	681	67.2
Missing	5	
Position		
Junior (0- to 1-year experience)	380	37.5
Senior (>1-year experience)	229	22.6
Registered manager	403	39.8
Missing	6	
Graduation year (mean, $\pm$ SD, median)	2007, $\pm$ 10, 2009	Range: 1971–2019
Missing	23	2.3
Years of experience (mean, $\pm$ SD, median)	12.7, $\pm$ 9.6, 10 years	Range: 1–50 years
Missing	16	1.6
University <sup>2</sup>		
Government-funded	833	82.2
Private	180	17.8
Missing	5	
Respondent gender		
Male	738	73
Female	273	27
Missing	7	
Respondent age (mean, $\pm$ SD, median)	36.1, $\pm$ 10.3, 34 years	Range: 22–75 years
Missing	14	1.4
Reported at least 1 symptomatic patient		
Yes	89	8.8
No	923	91.2
Missing	6	

Source: Analysis of the cross-sectional survey of 1018 community pharmacies in Egypt by SPSS version 20.0, 8–19 April 2020.

<sup>1</sup>Participant demographic characteristics were collected using questions 1–8 of the study questionnaire, as shown in the [Supplementary data](#).

<sup>2</sup>Pharmacists that graduated from government pharmacy schools represent the largest proportion of graduates, as government-funded pharmacy schools are greater in number (the first being established in 1827); however, the first private pharmacy school was recently established in 1997.<sup>[30]</sup>

pandemic; pharmacists expressed feeling unsafe ( $n = 541$ , 53.4%) and expressed receiving insufficient financial incentive ( $n = 588$ , 58.1%). Regarding the lack of stakeholder cooperation (Table 3), more than half the pharmacists reported a lack of customer cooperation or willingness to follow preventive measures ( $n = 643$ , 63.4%), independent of region. Most pharmacists expressed a detrimental unfamiliarity of their pharmacy management team with pandemic management ( $n = 772$ , 76.1%) as a barrier. Coordination between pharmacies and other healthcare providers was not achieved in 66% ( $n = 668$ ) of pharmacies surveyed. More than half the respondents expressed their discontent about the lack of necessary cooperation from Health Affairs Directorates (HADs) ( $n = 565$ , 55.7%), and this varied significantly across regions ( $P = 0.035$ ).

### Potential facilitators

Almost all the respondents emphasized the necessity for facilitators (Table 4) including information, particularly that having the characteristics of being timely ( $n = 959$ , 94.9%), in electronic format ( $n = 829$ , 82.1%) and guidance ( $n = 990$ , 97.4%) from the Ministry of Health and Population (MoHP) ( $n = 961$ , 94.6%). The preferred means of communications were a smartphone application ( $n = 811$ , 80.0%) and a telephone hotline ( $n = 907$ , 89.5%) specific to pharmacies. Furthermore, most respondents felt the healthcare authority should use the media to manage public trust ( $n = 961$ , 94.8%) and public perceptions ( $n = 988$ , 97.2%) of the role of

community pharmacists in the pandemic effort. Respondents also stated the necessity of acknowledgment from the healthcare authority of the atypical and suboptimal working environment endured during the pandemic and acknowledging the role of pharmacists: the provision of non-financial rewards ( $n = 865$ , 85.6%), financial compensation ( $n = 765$ , 75.6%) and out-of-hours security cover ( $n = 955$ , 94.2%) independent of pharmacists' gender or position (Table 5).

### Discussion

Community pharmacists participating in the survey identified a lack of preparedness (mean 61.43%;  $\pm$ SD 0.47), inadequate working environment (mean 56.23%;  $\pm$ SD 0.49) and lack of stakeholder cooperation (mean 65.3%;  $\pm$ SD 0.47) as potential barriers. Conversely, the majority of respondents emphasized the universal, region-independent need for the following facilitators; professional guidance in electronic format tailored to the specific needs of pharmacists practicing in Egypt and published by a trusted source (the MoHP), efficient two-way communication between pharmacists and the authorities, positive portrayal in the media and tangible recognition of services rendered during the pandemic.

In designing the research and writing the article, the authors consulted literature published in English, Russian and Arabic languages, as well as published literature from other languages, that had been translated into English, Russian and Arabic, such as translated

**Table 2** Lack of pharmacist pandemic preparedness<sup>1</sup> by region, gender, position and university type

	Differences between pharmacists (region, gender, position and university type) (chi-square test)																	
	Answer 'No'				Region				Gender				Position				University	
	<i>n</i>	Valid (%)	Centre (%)	North (%)	South (%)	East (%)	P-value	Female (%)	Male (%)	P-value	Junior (%)	Senior (%)	Manager (%)	P-value	Government (%)	Private (%)	P-value	
Did you receive pandemic preparedness in																		
Undergraduate education	598	59.0	62.0	59.9	62.0	41.3	0.013	59.6	59.0	n.s.	60.2	61.0	56.5	n.s.	59.2	58.1	n.s.	
Further education	493	48.6	55.2	48.7	47.3	33.3	0.019	53.7	46.5	0.025	49.1	53.9	45.2	n.s.	48.1	50.3	n.s.	
Continuing professional development	778	76.7	78.5	77.5	78.3	64.0	n.s.	75.4	77.2	n.s.	78.0	78.5	74.1	n.s.	77.2	74.4	n.s.	

Source: Analysis of the cross-sectional survey of 1018 community pharmacies in Egypt by SPSS version 20.0, 8–19 April 2020.

<sup>1</sup>Lack of pandemic-related knowledge regarding the required role of the pharmacist and clinical information.

<sup>2</sup>Preparedness refers to items 9–11 of the study questionnaire, as shown in the [Supplementary data](#).

<sup>3</sup>Mean 61.43%;  $\pm$ SD 0.47; range 48.6%–76.7% of valid responses.

WHO reports and publications, or studies originally published in Chinese. This wide range of sources was consulted to provide a comprehensive range of potential barriers and facilitators and to address language bias, and hence publication bias. The data presented were collected within one nation. As such, caution must be applied in generalizing the findings of this article to other places or contexts. However, there is great value in reporting and evaluating geo-located data representing the potential barriers and facilitators during outbreaks, especially when these data are available in real-time, as there is an expected level of bias inherent in the subsequent reporting of such items due to the rapidly changing landscape during an ongoing global pandemic. Data entry was not validated and was conducted by many data collectors; however, these processes were highly controlled through the use of highly trained pharmacy students and used a closed-ended survey instrument comprising simple response options (yes/no). The advantages of employing such a large number of local data collectors significantly outweighed any disadvantages as it ensured our ability to rapidly collect a representative sample from across the country, with the maximum response rate.

### Barriers

Education is the healthcare professional's main source of preparedness.<sup>[31]</sup> Pharmacists expressed having inadequate levels of preparedness in their education. In the short term, useful lessons about pharmacy practice can be learned from previous viral outbreaks in LMICs such as the Ebola in Nigeria,<sup>[32]</sup> and by ensuring the proactive gathering and sharing of new and continuously evolving information about COVID-19 from authorities in more developed countries, such as Australia.<sup>[16, 33]</sup>

The cancellation of mass gatherings has been shown to be effective in substantially reducing infection rates.<sup>[34]</sup> Inadequate pharmacy size leads to having insufficient space for physical distancing measures, with some pharmacies having areas as small as 25 m<sup>2</sup> (29.89 square yards, the minimum according to Egyptian regulations).<sup>[25]</sup> Unfortunately, shortages of personal protective equipment available for pharmacy workers were reported even in many developed countries, including the UK,<sup>[35]</sup> and it was also reported in more than half the pharmacies surveyed. Panic resulted in unnecessary and excessive purchasing, while exports from the main production countries decreased. Furthermore, shortages in terms of the numbers of pharmacists available and the time they had available to perform their duties were reported. As staff were at an increased infection risk, the resulting absences due to illness or self-isolation further exacerbated the situation,<sup>[36]</sup> with African countries being reported to have suffered a more severe second wave of COVID-19 than the first.<sup>[37]</sup> Thus, new legislation, for example, increasing the minimum pharmacy size, should be considered in future crises. In addition, policymakers should consider placing a maximum on the number of people allowed on the shop floor.

Pharmacists reported a lack of customer cooperation, independent of region. Uncooperative customer behaviour during the pandemic may be further amplified due to panic. The pharmacy management team had failed to adequately update their operating procedures during the pandemic. However, the scope of pharmacy practice has shifted significantly over time, now encompassing many clinical services.<sup>[38]</sup> Coordination between pharmacies and other healthcare providers was not achieved in two-thirds of the pharmacies surveyed. Conversely, in the USA, China and Ukraine, authorities endowed pharmacists with additional powers to perform essential tasks.<sup>[39, 40]</sup> In the third pandemic wave, vaccines were available, but there were still high levels of circulating virus



**Table 3** Lack of an adequate working environment and lack of stakeholder cooperation by regions

	Yes <sup>1</sup>		Differences between regions (chi-square test)				
	<i>n</i>	Valid (%)	Centre (%)	North (%)	South (%)	East (%)	<i>P</i> -value
<b>Working environment<sup>2,3</sup></b>							
Inadequate size of pharmacy for preventive measures <sup>4</sup>	605	59.6	62.8	56.3	73.1	65.3	0.008
Shortage of COVID-19-associated medication and preventative products <sup>5</sup>	649	63.9	69.5	62.2	71.0	60.0	n.s.
Shortage of community pharmacists available	402	39.7	36.0	41.4	37.4	33.3	n.s.
Time constraints to perform tasks required	489	48.2	43.3	47.6	53.8	57.3	n.s.
<b>Psychological well-being</b>							
Lack of security when working during curfew hours	541	53.4	53.0	52.5	59.1	52.0	n.s.
Lack of financial incentive to work and undergo risk	588	58.1	57.9	58.8	63.7	45.9	n.s.
<b>Stakeholder<sup>3,6</sup></b>							
<b>Customers<sup>7</sup></b>							
Pharmacies management teams <sup>8</sup>	772	76.1	81.1	76.0	73.9	66.7	n.s.
Healthcare providers <sup>9</sup>	668	66.0	65.9	64.1	74.2	64.9	n.s.
Healthcare authorities <sup>10</sup>	565	55.7	64.6	54.3	47.3	58.1	0.035

Source: Analysis of the cross-sectional survey of 1018 community pharmacies in Egypt by SPSS version 20.0, 8–19 April 2020.

<sup>1</sup>In the above table, a respondent answer of 'yes' indicates lacking the relevant items, as measured in the community pharmacy in which they are actively working.

<sup>2</sup>Mean 56.23%;  $\pm$ SD 0.49; range 39.7%–63.9% of valid responses.

<sup>3</sup>The working environment refers to items 12–17, and stakeholder cooperation to items 18–21 of the study questionnaire, as shown in the [Supplementary data](#).

<sup>4</sup>For example, 1-m physical distancing or separation of symptomatic customers.

<sup>5</sup>For example,  $\geq$ 70% conc. alcohol and disposable face masks for staff use.

<sup>6</sup>Mean 65.3%;  $\pm$ SD 0.47; range 55.7%–76.1% of valid responses.

<sup>7</sup>Lack of cooperation from customers and willingness to follow preventive measures.

<sup>8</sup>Unfamiliarity with the pharmacy's role in pandemic management.

<sup>9</sup>Lack of coordination with other healthcare providers such as nearby fever clinics and designated COVID-19 centres.

<sup>10</sup>Lack of absolutely necessary facilitation and cooperation from regional healthcare authorities during the pandemic.

**Table 4** Information about COVID-19, preferred means of communication, and portrayal in the media by university type, training and reporter status

	Yes <sup>1</sup>		Differences between pharmacists (university type, training and reporter status) (chi-square test)								
	<i>n</i>	Valid (%)	University			Received training			Reporter		
			Government (%)	Private (%)	<i>P</i> -value	No (%)	Yes (%)	<i>P</i> -value	No (%)	Yes (%)	<i>P</i> -value
<b>Preferred communication formats<sup>1</sup></b>											
Source (MoHP)	961	94.6	94.5	95.0	n.s.	93.9	96.7	n.s.	94.3	97.8	n.s.
Format (guidance)	990	97.4	97.6	96.7	n.s.	97.1	98.6	n.s.	97.2	100	n.s.
Regular updates	959	94.9	94.2	97.8	0.031	94.7	95.3	n.s.	94.7	96.6	n.s.
In electronic format	829	82.1	82.1	82.1	n.s.	83.1	78.6	n.s.	81.7	87.5	n.s.
<b>Means of communication<sup>1</sup></b>											
Smartphone application	811	80.0	79.2	83.3	n.s.	78.3	86.0	0.007	79.6	84.3	n.s.
Telephone hotline	907	89.5	89.7	88.8	n.s.	88.8	92.5	n.s.	89.4	91.0	n.s.
<b>Portrayal in the media<sup>1</sup></b>											
Public perception	988	97.2	97.4	97.2	n.s.	97.1	98.6	n.s.	97.1	100	n.s.
Public trust	961	94.8	94.7	95	n.s.	93.7	98.6	0.001	94.4	98.9	0.042

Source: Analysis of the cross-sectional survey of 1018 community pharmacies in Egypt by SPSS version 20.0, 8–19 April 2020.

<sup>1</sup>Preferred communication formats refer to items 22–25, means of communication to items 26 and 27, and portrayal in the media to items 28 and 29 of the study questionnaire, as shown in the [Supplementary data](#).

and new viral variants, often with greatly increased transmissibility, especially in high population countries such as is the case in LMICs.<sup>[41]</sup> Where over time, the emergence of new variants may decrease the efficacy of the current vaccines, pharmacists can rapidly contribute to these vaccination campaigns. This can only happen if the vaccine is to become available widely through established community pharmacies, instead of limited to centralized government healthcare centres, which are subject to waiting lists in Egypt

and other LMICs. However, respondents expressed their discontent about the level of cooperation from regional authorities (HADs) that varied significantly across regions.

### Facilitators

Pharmacists were asked their opinions on the preferred characteristics of the information they would benefit from receiving. Pharmacists expressed the need for information to be provided by

**Table 5** Preference for facilitators of psychological comfort by gender and position

Psychological comforts <sup>1</sup>	Yes		Differences between pharmacists (gender and position) (chi-square test)						
			Gender			Position			
			<i>n</i>	Valid (%)	Female (%)	Male (%)	<i>P</i> -value	Junior (%)	Senior (%)
Financial rewards	765	75.6	73.8	76.2	n.s.	76.9	73.2	75.6	n.s.
Non-financial rewards	865	85.6	85.6	85.6	n.s.	85.9	83.3	86.3	n.s.
Security	955	94.2	93.4	94.4	n.s.	93.9	94.3	94.3	n.s.

Source: Analysis of the cross-sectional survey of 1018 community pharmacies in Egypt by SPSS version 20.0, 8–19 April 2020.

<sup>1</sup>Psychological comfort refers to items 30–32 of the study questionnaire, as shown in the [Supplementary data](#).

a trusted source (the MoHP) in the form of professional guidance tailored to the specific needs of their practice within Egypt. They reported needing to receive regular, up-to-date information in electronic format.

The use of smartphone applications to convey continually updated information was supported by respondents, similar to the findings of a recent study in Kosovo.<sup>[42]</sup> Conversely, for communication from pharmacists to the authorities, respondents expressed the need for human interaction in the form of a dedicated telephone hotline.

The WHO relies on the media to induce rapid changes in public behaviour, perception and trust.<sup>[43]</sup> Across the board, respondents expressed the need to use the media in managing public perceptions and trust towards pharmacists.

Recent research in China revealed healthcare staff being at risk of anxiety and depression.<sup>[44]</sup> Similarly, respondents described feeling unsafe at work and receiving insufficient financial incentives. Respondents emphasized the need for financial rewards, and acknowledgements of the sacrifices they have made, as well as the need for security. These findings were independent of respondents' position or gender.

### Implications for policymakers

Undergraduate students should be well prepared for the future possibility of outbreaks, through the curricula provided. The appropriate national bodies should deliver further education and specific pandemic training to practicing pharmacists.

Healthcare authorities should effectively utilize the capacity of the broad and established network of private community pharmacies, as exists in most LMICs, and should embrace their preferred means of communication (smartphone applications and telephone hotlines), maintaining the psychological well-being of staff (the provision of security and acknowledgement of sacrifice). As authorities should use the media more effectively in managing public perceptions and trust towards pharmacists. Regulations regarding adequate pharmacy size, as well as a maximum occupancy during a pandemic, should be updated. New incentives should be implemented in times of crisis management, while pharmacists' are typically paid by the hour.

It will be necessary, in the longer term, to investigate the disparity in the level of cooperation provided by regional authorities across different geographical regions of LMICs, where different administrative provinces have greatly differing administrative processes. This research was beyond the scope of this study.

### Conclusions

There is considerable pressure on government healthcare facilities, especially in LMICs, which are already experiencing scarcities of

financial and human resources. It is vital to address the potential barriers and facilitators identified by community pharmacy staff in an integrated manner to ensure the preparedness for and response to the ongoing pandemic. This will require measures such as the provision of regularly updated electronic guidance from the healthcare authority via smartphone application to facilitate fast and effective solutions to overcoming inadequate levels of pandemic preparedness received during pharmacist training. Also, the use of the media in managing public perceptions can reduce the levels of public panic that negatively affected the working environment for pharmacy staff. There is a capacity for community pharmacies to contribute greatly to the COVID-19 response if stakeholder cooperation is considered and addressed. Levels of cooperation from healthcare authorities varied significantly across the regions surveyed, and this warrants further investigation. This article reports the opinions of healthcare professionals, in real-time, during a global pandemic, and these findings are targeted towards policymakers and the research community.

### Supplementary Material

Supplementary data are available at *International Journal of Pharmacy Practice* online.

### Acknowledgements

The authors are thankful to all the community pharmacists who agreed to be interviewed for the study. The authors acknowledge the efforts undertaken by undergraduate students in conducting interviews, which form a critical part of their education on courses related to the specialty of pharmaceutical management and economics according to international education standards, providing professional development and links with the real-life context of the labour market that is required in Egypt by guidelines from (1) the Supreme Council of Universities and (2) the National Authority for Quality Assurance and Accreditation of Education.

### Author Contributions

M.B.: conceptualization, methodology, validation, formal analysis, investigation, data curation, writing – original draft, writing – review and editing, visualization, project administration. V.D.T. and R.S.D.: writing – original draft, writing – review and editing.

### Funding

This study did not receive any financial assistance from funding agencies in the public, commercial, or not-for-profit sectors.

### Ethical Approval

1. Approval of study protocol by the institute of authors.
2. Copy of the confidentiality of information and its use for study purposes.

## Conflict of Interest

None.

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