Knowledge, Attitude, and Perception of Pharmacists in Primary Health Care Centers Regarding Pharmacy Services in Qatar During COVID-19 Pandemic: A Cross-Sectional Study

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ABSTRACT

Background: Pharmacists play a critical role in healthcare, especially during public health emergencies like the COVID-19 pandemic. This study aims to evaluate the knowledge, attitudes, and perceptions (KAP) of pharmacists working in the Primary Health Care Corporation (PHCC) in Qatar concerning COVID-19.

Methods: A cross-sectional survey was conducted among pharmacists in the PHCC in Qatar. A structured questionnaire assessed their knowledge of COVID-19 symptoms, transmission modes, and prevention strategies, as well as their attitudes towards handling suspected COVID-19 cases and their practices in adhering to preventive measures. The data were analyzed to identify key trends and gaps.

Results: Out of 240 targeted participants, 180 responses were received. The respondents were evenly distributed by gender, with 51% males and 49% females. The majority (64%) were aged between 36-50 years, with more than 10 years of experience in the field. During the COVID-19 pandemic, 83% of pharmacists indicated involvement in emergency preparedness. Almost all pharmacists (96%) believed in the importance of addressing patients' queries about COVID-19, and 95% felt pharmacists should be involved in developing treatment plans. While 52% allowed other staff into their pharmacies, 76% believed this increased the risk of transmission. Psychologically, 40.4% reported a negative impact due to the pandemic, while 24.2% experienced a positive impact, reflecting varied effects on mental health. The most common challenges included fear of virus transmission and difficulties with medication delivery. Professionally, 49% reported a positive impact, highlighting growth and adaptation to new guidelines and practices.

Conclusion: The findings underscore the vital role of pharmacists in the PHCC Qatar during the COVID-19 pandemic. Their knowledge, attitudes, and perceptions reflect their preparedness to contribute effectively to public health efforts. However, ongoing training is essential to keep them informed of the latest developments in COVID-19 treatment, thereby enhancing their role in pandemic response and healthcare resilience.

Keywords: Pharmacists, COVID-19, knowledge, attitudes, perceptions, primary care, Qatar

INTRODUCTION

decades, Qatar has In recent made significant strides in advancing its healthcare system, creating an accessible and efficient network, and enhancing the role of pharmacies, particularly at the primary care level (1, 2). The Community Pharmacies Strategy (2)has been instrumental in transforming pharmacists into key contributors to core health services (2, 1). Primary care pharmacies have evolved from traditional roles to adopting a patient-cantered model (3), emphasizing effective communication and patient engagement (2, 3).

The declaration of COVID-19 as a pandemic on March 11, 2020, prompted global and local institutions, including the Ministry of Public Health (MOPH) in Qatar (4), to implement measures aimed at reducing the spread of the disease and minimizing hospital admissions. These measures encompassed hand hygiene techniques, social distancing, travel restrictions, quarantine protocols, and the rapid rollout of COVID-19 vaccinations (4). The Primary Health Care Corporation (PHCC) serves as the principal provider of health services in Oatar, operating through 28 health canters across the country. As of September 7, 2021, PHCC reported a pharmacist-to-population ratio of 2.6 per 10,000, overseeing 2.4 million pharmacy visits in 2019 (5). PHCC delivers evidencebased pharmaceutical care services, including patient education, health promotion, lifestyle advice, medication optimization, vaccinations and (5). Governments worldwide, including Qatar, have recognized the pivotal role of community pharmacies, particularly in combating COVID-19. Pharmacists at PHCC have been at the forefront, actively services such as virtual involved in consultations and home medication delivery, facilitated by Qatar Post services (QPost) (6).

Despite the critical role of pharmacists during the pandemic, there is limited evidence on their preparedness and implementation of infection prevention measures (7, 8). This study addresses this gap by evaluating the awareness, practices, and risks faced by pharmacists in PHCC during the pandemic. Understanding these aspects crucial for informing is policymakers at the Ministry of Public Health (MOPH) and PHCC to support preventing pharmacists in community transmission and safeguarding their wellbeing.

Aim of the Study

The aim of this study is to assess the knowledge, attitudes, and perceptions of pharmacists working in Primary Health Care Centers (PHCC) in Qatar regarding pharmacy services during the COVID-19 pandemic.

Objectives

- To assess the level of knowledge among pharmacists in PHCC Qatar regarding COVID-19, transmission modes, and preventive measures.
- To evaluate the attitudes of pharmacists in PHCC Qatar towards their role in managing COVID-19, including their confidence in handling suspected cases and their willingness to participate in frontline responses.
- To explore pharmacists' perceptions of how the COVID-19 pandemic has impacted pharmacy services in PHCC Qatar, including any changes in service delivery and adherence to guidelines.

MATERIALS & METHODS

Study Design: This study employed a descriptive cross-sectional survey conducted across all 28 health centres (HCs) of the Primary Health Care Corporation (PHCC) in Qatar. The survey utilized a structured, self-administered online questionnaire to assess the knowledge, attitudes, and practices of pharmacists regarding the COVID-19 pandemic.

Study Setting: The Primary Health Care Corporation (PHCC) serves as the primary healthcare provider in Qatar, operating 28

centres distributed across the Central, Western, and Northern regions. These centers deliver comprehensive healthcare services, emphasizing health promotion, prevention, diagnosis, treatment, and ongoing support to patients and their families.

Target Population: The target population comprised pharmacists directly involved in pharmacy services across all 28 health centers, totaling 240 pharmacists. Exclusions included pharmacy technicians, pharmacists absent during the COVID-19 pandemic, and trainee pharmacists.

Data **Collection:** А non-probability sampling technique was employed, inviting all eligible individuals via their work email. An online questionnaire, previously tested for validity and reliability in a prior study (9) (Hoti K et al. and Khoja), was distributed for data collection. The questionnaire covered demographic details, current health center, educational background, preparedness for the COVID-19 pandemic, safety practices, medication home delivery, COVID-19 practice updates, and questions related to the professional practice impact. The survey instrument can be found in Appendix 1.

Survey Implementation: Interested participants accessed the survey through the provided link, ensuring a timely and efficient data collection process. Anonymity and confidentiality were maintained in the online survey format.

STATISTICAL ANALYSIS

analysis and Data presentation were Percentage primarily descriptive. and frequencies with were used a comprehensive reporting of hospital pharmacists' knowledge and attitude about Associations COVID-19. between the dependent (knowledge and attitude) and independent variables (demographic characteristics of the participants) were assessed. For attitude section, frequencies and percentages were used to report data. All statistical analyses were done using SPSS version 22 (SPSS Inc., Chicago, IL, USA).

RESULTS

Demographic Characteristics

Out of the 240 targeted participants, 180 responses were received. The gender distribution was fairly even, with 51% males and 49% females. The majority of respondents (64%) were aged between 36-50 years, followed by the 25-35 years age group (28%). Most participants held a Bachelor's degree in pharmacy (71%), with 20% possessing a Master's degree, and 3% having a Pharm.D. Over 39% of the respondents had more than 10 years of experience in the field.

During the weekdays (Sunday-Thursday), respondents were spread across 28 health centers. Nearly 49% reported working in shifts with 4-6 people, 17% had fewer than four colleagues, and 30% worked in shifts with more than six colleagues.

Variables	Categories	Number and percentage
	25-35	50 (28%)
	36-50	115 (64%)
	50-64	15 (8%)
Age group	Above 65	0
Candan	Female	89 (49%)
Gender	Male	91 (51%)
	Bachelors in science (BS) in Pharmacy	123(71%)
Educational background	Master's degree	37 (20%)
	Pharmacy doctor (Pharm.D.)	7 (3%)
	Others	13(7%)
How many years of experience do	1-5 years	51(28%)
you have in PHCC as a	5-10 years	58(32%)

Table 1: Demographic Characteristics

pharmacist?	More than 10 years	71(39%)
	Abu Baker Al Siddiq HC	8
	Abu Nakhla HC	9
	Al Jumailiya HC	0
	Al Rayyan HC.	4
	Al Karaana HC	4
	Al Sheehaniya HC	5
	Al Waab HC	8
	Al Wajbah HC	10
	Muaither HC	5
	Al Thumama HC	1
	Airport HC	13
	Omar Bin Kathab HC(OBK)	6
	Al Wakra HC	14
Which health centre are you	South Wakra HC	2
working during week days	Rawdat Al Khail HC	2
(Sunday-Thursday)	Umm Ghuwailina HC	1
	West Bay HC	13
	Al Daayen HC	12
	Al Kaaban HC	3
	Al Khor HC	8
	Garrafat Al Rayyan	9
	Leabaib HC	5
	Al Ruwais HC	8
	Al Leghwairiya HC	2
	Qatar University HC	6
	Madinat Khalifa HC.	1
	Umm Slal HC	8
	Mesaimeer HC	12
	Others (Staff clinic, Head Quarters etc	1
Approximately how many	1-4	7 (4%)
pharmacists do you have in your	2-4	31(17%)
shift?	4-6	88(49%)
Sint.	More than 6	54 (30%)

Health Centre Practices

A majority of health centers (94%) accepted patients suspected or diagnosed with COVID-19, while 4% did not accept such cases, and 2% were uncertain. About 17% of pharmacists reported that their health centers were designated as COVID-19centers. with assigned 2% unsure. Additionally, 83% of respondents indicated that their health center's pharmacy was involved in the organizational development of emergency preparedness and management. Nearly 96% of pharmacists adhered to COVID-19-related guidelines, and 82% observed changes in pharmacy services due to the pandemic.

The majority of pharmacists (96%) believe that addressing patients' queries and providing information about COVID-19 benefits patients. Additionally, 95% think pharmacists should be involved in developing PHCC treatment plans and guidelines for managing COVID-19positive patients. However, 66% feel that pharmacy staff required additional training during the pandemic to ensure smooth operations and safety.

Regarding staffing levels, 26% of pharmacists felt there were insufficient staff during the pandemic, while 70% considered the staffing adequate for their duties. In terms of allowing other staff into the pharmacy, 52% of pharmacists permitted entry, whereas 44% did not. A significant 76% believe that allowing additional staff into the pharmacy increases the risk of COVID-19 transmission, and 78% think that external staff pose a risk if allowed inside

the pharmacy. This shows a relatively balanced view, with a slight majority allowing access to other PHCC staff members during the COVID-19 pandemic, while a significant number did not, indicating varied approaches to managing pharmacy access during the pandemic. A majority of the health center pharmacies did not allow external staff members, such as delivery personnel and medicine suppliers, inside the pharmacy during the COVID-19 pandemic, reflecting a cautious approach to minimize potential exposure and transmission risk (Table 2).

Table 2. Health Centre	practice related to PHCC	preparedness for COVID-19
Table 2. Health Centre	practice related to r mod	prepareulless for COVID-17

	Yes	170 (94%)	
is your nearth center/facility accepting COVID-19 suspected or diagnosed	No	7(4%)	
patients?	Don't know	3(2%)	
	Yes	31 (17%)	
Is/was your H.C is COVID 19 assigned center? (Eg: RAK, UMS, Al Gharaffa	No	147(82%)	
HC)	Don't know	2(2%)	
	Yes	150 (83%)	
Does your health centre pharmacy involve in the organizational development	No	16 (9%)	
of the emergency preparedness/management?	Don't know	14(8%)	
	Yes	176(96%)	
Do you normally follow current guidance of Covid 19 related to pharmacy	No	2 (1%)	
services (Eg:MOPH policy, WHO and CDC policies)?	Not	2(10/)	
	applicable	2(1%)	
	Yes	148(82%)	
Have you noticed any changes in pharmacy services (dispensing, counselling	No	30(17%)	
etc.) during covid 19 pandenne?	Don't know	2(1%)	
	Yes	172 (96%)	
Do you think Pharmacists have a role in clarifying misconceptions and advanting national with responde to Could 10 treatments?	No	4(2%)	
educating patients with regards to Covid 19 freatments?	Don't know	4(2%)	
De soon thigh there is a sole for allowing sists in the development of the DUCC	Yes	171(95%)	
Do you think there is a role for pharmacists in the development of the PHCC tractment plan and guidelines to manage COVID 10 positive patients?	No	6(3%)	
treatment plan and guidennes to manage COVID-19 positive patients?	Don't know	3(2%)	
	Yes	118(66%)	
In your opinion, do you think pharmacy stall needed extra training to perform	No	57(32%)	
essential pharmacy responsibilities during Corvid 19 pandemic?	Don't know	5(3%)	
De sous fait sous staffing lovel more adapted to perform about our duties	Yes	126(70%)	
Do you reel, your starting level were adequate to perform pharmacy duties	No	47(26%)	
	Don't know	7(4%)	
In your boolth contar abarmooy, did you allow other members of staff within	Yes	94(52%)	
In your nearth center pharmacy, did you allow other members of stall within DICC some to inside your pharmacy during Covid 102	No	80(44%)	
Prece come to inside your pharmacy during Covid 19?	Don't know	6(3%)	
Do you think other members of staff within DUCC ness risk of COVID 10 if	Yes	137(76%)	
bo you unit other members of start within PHCC pose fisk of COVID-19 if	No	33(18%)	
they come inside your pharmacy?	Don't know	10(6%)	
In your health center pharmacy, did you allow staff members outside PHCC	Yes	66(37%)	
come to inside your pharmacy Covid 19 (E.g.: Q post man, medicine	No	109(61%)	
suppliers)?	Don't know	5(3%)	
From Question 18 if they allowed to come inside your pharmacy do you	Yes	140 (78%)	
think they nose risk of catching COVID-19?	No	17(9%)	
think they pose lisk of ellening coverb 17.	Maybe	23(13%)	

This data indicates that a significant majority of respondents 86% believe virtual training programs are effective in contributing to the reduction of the pandemic's spread. A smaller portion are unsure 13%, and a very minimal number do

not believe in their effectiveness 3%. Masks and gloves were mandatory for 98% of pharmacists, and 86% felt that sharing equipment like computers and printers impacts COVID-19 transmission. To

minimize exposure, 76% were encouraged to rotate staff, (Table 3).

Do you think virtual training organized by work force training department and	Yes	154(86%)
other organizations help to reduce the pandemic spread?		3(2%)
other organizations help to reduce the pandenne spread?	Maybe	23(13%)
During Covid restrictions, were you required to weer a mark gloves while	Yes	176(98%)
During Covid restrictions, were you required to wear a mask, groves, while	No	3(2%)
performing your job?	Don't know	1(0.5%)
In your opinion, the sharing of equipment (computer printer in health conter)	Yes	155(86%)
In your opinion, the sharing of equipment (computer, printer, in health center)	NT	14(00())
has an impact on Covid 10 transmission?	NO	14(8%)
has an impact on Covid 19 transmission?	No Don't know	14(8%) 11(6%)
has an impact on Covid 19 transmission?	No Don't know Yes	14(8%) 11(6%) 136(76%)
has an impact on Covid 19 transmission? In your health center pharmacy, were you encouraged to do staff rotation in order to minimize the exposure to Covid 10(within your chift)?	No Don't know Yes No	14(8%) 11(6%) 136(76%) 31(17%)

Table 3:	Practice	of	pharmacists	regarding safety	7
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This result indicates that a significant majority of respondents 91% believe that home delivery services effectively fulfilled patients' needs during the COVID-19 pandemic, highlighting the value of these services in ensuring continued access to medications and health products when traditional in-person pharmacy visits may have been disrupted.

Home delivery also altered workloads and contributed to limiting COVID-19 spread, according to 82% of pharmacists. However, 31% noticed limitations in the supply of masks, gloves, and hand gels, which they believe could impact patient safety, though 66% did not perceive such limitations. A substantial portion of pharmacists (44%) experienced delays or shortages in medical supplies (Table 4).

In your opinion did the home delivery fulfilled notionts' needs during	Yes	163(91%)
Covid 19 pandemic?	No	12(7%)
Covid 19 pandemic?	Don't know	5(3%)
In your opinion did the home delivery limit the spread of COVID 10	Yes	148(82%)
during nondemic?	No	15(8%)
	Don't know	17(9%)
In your experience have you noticed any limitation of supply of masks,	Yes	56(31%)
gloves, and hand gels at your H.C during pandemic which you think	No	118(66%)
might impact patient safety?	Don't know	6(3%)
In your experience have you noticed any shortens in mediaction sumply.	Yes	79 (43.8%)
in your experience have you noticed any shortage in medication supply	No	48 (26.6%)
or delay during pandemic?	Don't know	8 (4.4%)

 Table 4: Home delivery of medications and medication supply

The majority spent between 1-2 hours daily learning about COVID-19, with 46% dedicating this amount of time, 43% spending less than an hour, and 11% more than three hours. The most common sources for COVID-19 information were the Ministry of Public Health website (55%), followed by the World Health Organization (42.7%) and the CDC website (27.2%). UpToDate Webinars and were also frequently used.

Psychologically, 40.4% reported a negative impact, reflecting the stress and mental

health challenges during the pandemic. Conversely, 24.2% experienced a positive impact, which could indicate personal growth or improvements in work-life balance. The most common difficulties included fear of virus transmission, contact with infected individuals, and challenges with medication delivery. A minority (16%) reported a negative impact on professional well-being, while 49% felt a positive impact and 35% found the question not applicable. Professional impacts included shifts to

Professional impacts included shifts to virtual environments, increased COVID-19

awareness, adjustments to new guidelines, and enhanced professional knowledge. The pandemic has led to both challenges and opportunities for growth among pharmacists (Table 5).

During Covid 19		
pandemic, how many	Less than 1 hour daily	77(43%)
hours did you spend	1-2 hours daily	83(46%)
gathering information	More than 3 hours daily	20(11%)
about COVID-19?		~ /
From where did you collect your information about COVID-19?	Ministry of Public Health website (MOPH) World Health Organization (WHO) CDC website Internet/website Webinar UpToDate	99(55%) 77(42.7%) 49(27.2%) 51(28.3%) 32(17.7%) 66(36.6%)
	Other	22(12%)
	All above	89(49.4%)
Please select the most challenges you encountered during this pandemic Medication reconciliation.	Touch the multiple usage equipment. Medication home delivery Fear of passing the virus to people you live with Contacting with positive or suspected patient with COVID-19. Coping with family (e.g. school-age children or frail relatives), while working	13(16.25%) 12(6.6%) 14(7.7%) 65(36.1%) 59(32.7%) 17(9.4%)
Has COVID-19 impacted your psychological wellbeing in anyway?	Positively Negatively Not applicable	43(24%) 72(40%) 65(36%)
If the above answer is 'Yes' please explain how was it impact you	51 Responses	
Has COVID-19	Positively	89(49%)
impacted you	Negatively	28(16%)
professionally?	Not applicable	63(35%)
From Question 34, how covid-19 impacted you professionally.	82 Response	

Table 5: Information about Covid-19

DISCUSSION

Health Center pharmacists play a pivotal role within the healthcare system in combating the spread of COVID-19. The Pharmaceutical Federation International has highlighted their essential (FIP) contribution in delivering vital services to patients and healthcare teams through the provision of medications and pharmaceutical care (10). The results of this study showed that in primary care settings, have pharmacists overall good the knowledge about the health center practice, and they have positive attitude, and acceptable perception about COVID-19 pharmaceutical services. This result is not consistent with the other related study from

Qatar as they were looking at the pharmacist's clinical knowledge about the symptoms and definitive treatment of COVID- 19 (11). However, our study results are consistent with the related published studies from other countries (12,13).

Majority of the pharmacists (94%) know that most of health centers in Qatar accepted patients suspected or diagnosed with COVID-19. Additionally, 83% of pharmacists stated that their health center's pharmacy was involved in the organizational development of emergency preparedness and management. Nearly 96% of pharmacists adhered to COVID-19related guidelines, and 82% observed

changes in pharmacy services due to the pandemic reflecting the dynamic adjustments made to address the evolving needs during this public health emergency, which was consistent with the studies reported from China, Iran and Pakistan (14, 15, 16).

A significant majority of pharmacists (96%) recognized the importance of addressing patient queries and providing information about COVID-19, viewing it as beneficial to patient outcomes. Furthermore, 95% of pharmacists expressed the belief that they should be involved in developing treatment plans and guidelines for managing COVID-19 positive patients within primary health care centers. Despite these positive aspects, the study also highlights areas of concern, particularly regarding the need for additional training and staffing during the Approximately pandemic. 66% of pharmacists felt that additional training was necessary to ensure smooth operations and safety, indicating a perceived gap in preparedness. Moreover, while 70% of pharmacists considered staffing levels adequate during the pandemic, suggesting that resource constraints were a challenge in some centers.

A significant 76% believe that allowing additional staff into the pharmacy increases the risk of COVID-19 transmission, and 78% think that external staff pose a risk if allowed inside the pharmacy. This shows a relatively balanced view, with a slight majority allowing access to other PHCC staff members during the COVID-19 pandemic, while a significant number did not, indicating varied approaches to managing pharmacy access during the pandemic. Masks and gloves were mandatory for 98% of pharmacists, and 86% felt that sharing equipment like computers and printers impacts COVID-19 transmission. These findings highlight the cautious and varied strategies employed by pharmacists to mitigate the risk of COVID-19 transmission within their workspaces and safe operational practices. maintaining These findings are consistent with many related studies from different countries (12-16).

A significant majority of pharmacists (91%) believe that home delivery services effectively fulfilled patients' needs and it contributed to limiting COVID-19 spread. It also altered workloads of pharmacists according to 82% of pharmacists. A substantial portion of pharmacists (44%) experienced delays or shortages in medical supplies and 31% noticed limitations in the supply of masks, gloves, and hand gels, which they believe could impact patient safety. Similar attitude shown bv pharmacists from related studies (15-17). The majority (46%) spent between 1-2 hours daily learning about COVID-19. The most common sources used for COVID-19 information were the Ministry of Public Health website (55%), followed by the World Health Organization (42.7%) and the CDC website (27.2%). This indicates the strong confidence hospital pharmacists have in Qatar's health authorities to manage the effectively. Additionally, pandemic pharmacists demonstrated а better understanding of the general aspects of the disease, likely reflecting their commitment to staying informed about disease control

and prevention strategies to safeguard themselves, their families, and the broader community (11). Psychologically, 40.4% of pharmacists reported a negative impact, highlighting the significant stress and mental health challenges faced during the pandemic. This likely stems from the uncertainty and increased workload, coupled with concerns

about personal and familial health. Conversely, 24.2% of respondents psychological experienced а positive impact, potentially indicating a sense of personal growth, resilience, or improved work-life balance during this challenging period. A high incidence of severe levels of psychological impact was detected in different studies (18-20). It's important to clarify that many frontline care workers in some countries were dying because of COVID-19(eg: Italy) (9). However, in

Qatar, the situation was entirely different than other countries due to the initial mild variant infections and comparative low death rate (21).

The most frequently reported difficulties were fear of virus transmission, contact with infected individuals, and challenges associated with medication delivery. These stressors underscore the heightened faced responsibilities pharmacists in ensuring public health safety and maintaining continuous care (22-24). Regarding professional well-being, 16% of pharmacists reported a negative impact, while a notable 49% felt a positive impact, did not find the question and 35% applicable. The positive professional impacts included the adaptation to virtual environments, increased awareness of COVID-19-related information, and adjustments to new guidelines. These likely contributed experiences to an enhancement of professional knowledge and skills, demonstrating that the pandemic, while challenging, also offered opportunities for professional growth and adaptation.

LIMITATIONS

It is essential to acknowledge potential limitations, including the exclusion of certain pharmacist categories and the focus on PHCC pharmacists, which may impact the generalizability of the findings.

The study's cross-sectional design captures information at a single point in time, limiting the ability to assess changes in knowledge, attitudes, and practices over the course of the pandemic. This design also precludes the establishment of causal relationships between variables.

This methodology establishes the framework for a comprehensive assessment of pharmacists' knowledge, attitudes, and perception regarding the COVID-19 pandemic within the context of the Primary Health Care Corporation in Qatar.

CONCLUSION

This study evaluated the knowledge, attitudes, and perception (KAP) of pharmacists in the Primary Health Care Corporation (PHCC) in Qatar towards the COVID-19 pandemic. The findings indicate that pharmacists in PHCC Qatar exhibited satisfactory levels of knowledge, positive attitudes, and appropriate practices related to COVID-19.

In conclusion, the evaluation of pharmacists' KAP towards COVID-19 in PHCC Qatar indicates their readiness and commitment to providing high-quality care during the pandemic. The results of this study can inform policy development, training programs, and strategies aimed at optimizing the role of pharmacists in public health emergencies, ultimately enhancing patient outcomes and healthcare system resilience.

Declaration by Authors

Ethical Approval: This study was approved by the Institutional Review Board of PHCC with reference number: PHCC/DCR/2021/12/076.

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APPENDIX 1

Knowledge, attitude, and perception of pharmacists in Primary Health Care Centers regarding pharmacy services in Qatar during Covid-19 pandemic: A cross sectional study questionnaire

1. Demographic details:

- 1. Age
- 25-34 •
- 18-24 •
- 55-64 •
- Above 65

2. Gender

Male

Female 3. Years of experience A)1-5 years B)5-10 years C)10 more 4. Health center *Northern region HCs: A) Al Daayen HC. B) Al Kaaban HC. C) Al Khor HC. D) Garrafat Al Rayyan HC E.) Leabaib HC. F) Al Ruwais HC. G) Al Leghwairiya HC. H) Umm Slal HC.) Qatar University HC. I) Madinat Khalifa HC. *Central region HCs:

A) Al Thumama HC. B) Airport HC. C)South Wakra HC. D)Al Wakra HC. E) OBK HC. F) Rawdat Al Khail HC. G) Umm Ghuwailina HC. H) West Bay HC. *Western region HCs: A) Abu Bakr Al Siddiq HC. B) Abu Nakhla HC.C) Al Jumailiya HC. D) Al Rayyan HC. E) Al Karaana HC. F) Al Sheehaniya HC. G) Mesaimeer HC.H) Al Waab HC. I) Al Wajbah HC. J) Muaither HC. Staff Clinic *Other: 5.Educational background (A) Bachelor's in science (BS) in Pharmacy (B) master's degree (C) Pharmacy doctor (Pharm.D.) (D) Other *Number of staff/clinical pharmacist on same shift D) more than 4 A)1 **B**)2 C)3

2. Practice related to PHCC preparedness for COVID-19

(1). Is your health center/facility see COVID-19 suspected or diagnosed patients?

a) Yes b) No c) Don't know

(2). Is/was your H.C is COVID 19 assigned center? (Eg: RAK, UMS, Al Gharaffa HC)

a) Yes b) No c) Don't know

(3). Does your health center pharmacy involve in the organizational development of the emergency preparedness/management?

a) Yes b) No c) Don't know

(4). Do you follow current guidance of Covid 19 related to pharmacy services (MOPH, policy, WHO and CDC policies)?

a) Yes b) No c) Not applicable

(5). Have you noticed any changes in pharmacy services (dispensing, counselling etc.) during covid19 pandemic?

a) Yes b) No c) Don't know

(6). Do you think Pharmacists have a role in clarifying misconceptions and educating patients with regards to Covid 19 treatments?

a) Yes b) No c) Don't know

(7). Do you think there is a role for pharmacists in the development of the PHCC treatment plan and guidelines, to treat COVID-19 positive patients?

a) Yes b) No c) Don't know

(8). In your opinion, do you think pharmacy staff needed extra training to perform essential pharmacy responsibilities during Corvid 19 pandemic?

a) Yes b) No c) Don't know

(9). Do you feel, your staffing level were adequate to perform pharmacy duties during Covid 19?

a) Yes b) No c) Don't know

(10). Are you aware of PHCC guidance with regards to staff absences, employees' inability to work if employee is suspected or confirmed COVID 19?

a) Yes b) No c) Don't know

(11). In your opinion do you have enough protective barriers to prevent cross infection (Eg; glass barrier etc.) at the patients point of contact in your pharmacy?

a) Yes b) No c) Don't know

(12). Are you familiar IPAC policy with regards to pharmacy services in your health center (E.g.: collection of medication by nurses instead of patients who had Covid 19 swabbing etc.? a) Yes b) No c) Don't know

(13). PHCC has provided hand sanitizer in patient dispensing areas and have displayed posters encouraging patients to wear masks etc. Do you educate patients to use this?

a) Yes b) No c) Don't know

A In your health center pharmacy, do you allow other members of staff within PHCC come to inside your pharmacy?

a) Yes b) No c) Don't know

B Do you think they pose risk of COVID-19?

a) Yes b) No c) Don't know

(14). This question has 2 parts

A. In your health center pharmacy, do you allow staff members outside PHCC come to inside your pharmacy (E.g.: Q post man, medicine suppliers)?

a) Yes b) No c) Don't know

B. Do you think they pose risk of catching COVID-19?

a) Yes b) No c) Don't know

3.Practice of community pharmacists regarding safety

(1). Do you think virtual training organized by work force training department and other organizations help to reduce the pandemic spread?

a) Yes b) No c) Don't know

(2). Are you required to wear a mask, gloves, while performing your job?

a) Yes b) No c) Don't know

(4). In your opinion, the sharing of equipment (computer, printer, in health center) has an impact on Covid 19 transmission?

a) Yes b) No c) Don't know

(5). In your health center pharmacy, were you encouraged to do staff rotation in order to minimize the exposure to Covid 19 patients?

a) Yes b) No c) Don't know

4. Home delivery of medications

1) Do you think in your opinion home delivery has fulfilled patients' needs during Covid 19 pandemic?

a) Yes b) No c) Don't know

2) Do you think in your opinion home delivery has changed your workload during Covid 19 pandemic?

) Increased workload

) Decreased workload

) No change

3) Do you think in your opinion home delivery has limited the spread of COVID-19 during pandemic?

a) Yes b) No c) Don't know

5. Medication supply:

(1). In your experience have you noticed any limitation of supply of masks, gloves, and hand gels at your H.C during pandemic which you think might impact patient safety?

a) Yes b) No c) Don't know

(2). In your experience have you noticed any shortage in medication supply or delay during pandemic?

6. Information about COVID-19

a) Yes b) No c) Don't know

(1). How many hours do you spend gathering information about COVID-19?

a) <1 hour daily

b) 1-2 hours daily

c) More than 3 hours daily

(2). From where you collect your information about COVID-19

- Ministry of Public Health website (MOPH)
- World Health Organization (WHO)
- CDC website
- Internet/website
- lectures, Webinar
- UpToDate
- Library
- Other
- All above

(3). Please select the most challenges you encountered during this pandemic

- medication reconciliation.
- Touch the multiple usage equipment.
- Medication home delivery
- Fear of passing the virus to people you live with
- Contacting with positive or suspected patient with COVID-19.
- Coping with family (e.g. school-age children or frail relatives), while working

8. Impact on your Professional Practice

(1) Has COVID-19 impacted your psychological wellbeing in anyway?

- a) Positively
- b) Negatively
- c) N/A

If yes, please explain how was impact you

(2) Has COVID-19 impacted you professionally?

- a) Positively
- b) Negatively
- c) N/A

if yes please explain how was impact you

9.Please describe the impact of COVID-19 on your professional practice
