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# Providing pharmaceutical care during the COVID-19 pandemic: attitudes and experiences of home-treated patients in Jordan

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## Abstract

**Objectives** This study aims to explore home-treated COVID-19 patients' experiences and perceptions of pharmaceutical care services offered during their sickness.

**Methods** This is a cross-sectional online questionnaire study, where a 30-item questionnaire was texted via a link to COVID-19 patients who were tested positive previously. A list of anonymised numbers was obtained from different COVID-19 testing centres. The study received ethical approval from the Institutional Review Board at the King Abdulla University Hospital/Jordan University of Science and Technology.

**Key findings** A total of 268 patients who were previously diagnosed with COVID-19 agreed to participate in this study. Only 22.9% of patients reported taking medications regularly. Almost one-third of respondents (28.7%) indicated that pharmacists were involved in prescribing medicine to patients. Almost half the respondents (49.6%) stated that they or their caregivers obtained information and advice about their medicine from the pharmacists. Only 54.9% of the respondents agreed/strongly agreed that pharmacists have enough scientific information to provide the necessary medical assistance to COVID-19 patients. Patients who work in the medical field, and who always get their medication from the same pharmacy, showed better perception towards pharmaceutical care services that might be provided to COVID-19 patients ($P < 0.01$).

**Conclusions** Pharmacists had an unsatisfactory contribution to the management of the disease in outpatient settings. Moreover, there was a poor perception of the pharmacists' role including their knowledge, communication skills and counselling skills. Thus, it is essential to improve pharmacists' knowledge and practices about infectious diseases.

**Keywords:** health services research; managed care; international; pharmaceutical HSR

## Introduction

Pharmacists had a leading role in fighting the COVID-19 pandemic.[1] They were willing to take part in the efforts aiming to the prevention and treatment of the disease.[2] Pharmacists supported the health system and participated in maintaining the supply of medicines, testing suspected patients, counselling the patients, educating the public about the disease and most recently in vaccinating patients.[3–5]

In addition to the role pharmacists played during the pandemic, they were required to offer pharmaceutical care services for COVID-19 patients.[4] Patients, especially those treated at home, lack reliable sources of information regarding their treatment, what medicines and supplements to take, any potential interaction and proper follow-up.[6] Although pharmaceutical care is expected to be delivered by different means due to the nature of the disease, it is still an important unreplaceable service.[4] Pharmaceutical care services in COVID-19 patients could include, patient counselling, proper medicines and supplement selection, medication management to reduce contraindications and proper patient follow-up. Hence, the present study aims to explore the attitudes and experiences of home-treated patients of pharmaceutical care services offered during their sickness.

## Methods

A cross-sectional questionnaire was designed and distributed online during the last quarter of 2020. Following an extensive literature review on pharmacists' role during the COVID-19 pandemic and pharmaceutical care, a draft questionnaire was designed. Eight recovered COVID-19 patients were invited to discuss the draft questionnaire and provide feedback. Accordingly, the draft questionnaire was modified taking into consideration all comments and concerns. The final version of the questionnaire was further tested for content validity by several experts in pharmaceutical research who had minimal reported concerns. Those concerns were addressed, and then the questionnaire was piloted on a small sample group of patients ($n = 20$). Those questionnaires were not included in the final analysis of the results.

The questionnaire consisted of 30 questions and was divided into three sections. The first section (questions 1–11) collected respondents' demographic and medical information, and the second section (questions 12–22) explored respondents' experiences with their disease and with pharmaceutical care services they received during their treatment. The third section (questions 23–30) sought respondents' perceptions of the pharmaceutical care services that might be provided to COVID-19 patients during their home treatment.

The questionnaire was distributed electronically by being directly sent to the respondents. The study applied a convenient sampling method in which respondents were approached to reach the largest possible sample within the data collection period. The research team obtained a list of anonymised patient numbers from COVID-19 testing centres in Jordan. Those were contacted by a text message that described the study and were asked to reply to the message if they were willing to take part in the study and if they have been treated at home during their infection. Then a link to the online questionnaire would have been sent to the respondents who volunteered to complete it. An information page containing details about the study, its objective, ethical approval information, anonymity and estimated completion duration preceded the questionnaire. This was followed up by the option of completing the questionnaire or terminating the study. Respondents were asked to consent through typing their initials at the end of the information page. All completed questionnaires were included in the study and no questionnaires were excluded. To deal with possible duplication, an IP-based duplicate protection technique that allows one response per IP address.

The World Medical Association Declaration of Helsinki guidances was followed in designing and conducting this study. This study protocol was approved by the Institutional Review Board at King Abdulla University Hospital, Jordan University of Science and Technology (REF: 20200883).

## Results

A total of 268 patients who were previously diagnosed with COVID-19 agreed to participate in this study and to fill-out the electronic study survey. The mean age of the study participants was 35.6 ±11.8 years, and 58.6% of them were female. Regarding patients' medical histories, only 20.9% of the respondents reported to have chronic diseases. When respondents were asked about the COVID-19 experience, 90.3% of them indicated that they knew about their infection by getting COVID-19 test. The majority of respondents reported to have symptoms (83%) ranging from mild to severe. Also, most of the patients (82.5%) stated that they have been prescribed medications and nutritional supplements during their infection. Demographic and clinical characteristics of the study participants are presented in Table 1.

Almost one-third of respondents (28.7%) indicated that pharmacists were involved in prescribing medicine and nutritional supplements to them during their sickness. When asked about their experiences with pharmaceutical care service provided to them during their treatment period, only 49.6% of respondents stated that they or their caregivers obtained information and advice about their medicine by the patients, and only 34.0% of respondents reported of being followed up with their pharmacists during their treatment period. In addition, 28.7% of the patients revealed that they have received a program to control their medications by their pharmacists. On the other hand, around 39.2% of the patients ($n = 222$) felt that their pharmacists were keen to provide medical assistance to them.

Finally, patients were asked about their perceptions towards the pharmaceutical care services that might be provided to COVID-19 patients during their home treatment. Only 54.9% of respondents agreed/strongly agreed that pharmacists have enough scientific information to provide the necessary medical assistance to COVID-19 patients and around 58.6% believed that the pharmacists have the ability to communicate information clearly to COVID-19 patients and their families. Further details about respondents' experiences and perceptions of pharmaceutical care services received during their sickness are presented in Table 2.

Patients who work in the medical field, and who always get their medication from the same pharmacy, showed better perception towards pharmaceutical care services that might be provided to COVID-19 patients ($P < 0.01$).

## Discussion

This study sought the experiences and perceptions of COVID-19 home-treated patients of pharmaceutical care services during their sickness. To the best of our knowledge, no previous study in the literature focussed on health services delivered to home-treated COVID-19 patients. Patients present with COVID-19 infections need a reliable source of information, evidence-based advice, medication management and proper follow-up.[7] Unfortunately, the present study highlights shortage of professional pharmaceutical care

**Table 1** Socio-demographic and clinical characteristics of the study respondents ($n = 268$)

| | | |
|---|---|---|
| Demographic characteristics | Age (years), (mean ±SD) | 35.6 ±11.8 |
| | Gender | |
| | Males | 111 (41.4) |
| | Females | 157 (58.6) |
| | Educational level | |
| | Not educated | 2 (0.7) |
| | School education | 16 (6.0) |
| | Diploma | 16 (6.0) |
| | BSs | 174 (64.9) |
| | Masters/PhD | 60 (22.4) |
| | Job status | |
| | From the medical field | 69 (25.7) |
| | From the non-medical field | 145 (54.1) |
| | Not working | 54 (20.1) |
| | Living status | |
| | With family | 258 (96.3) |
| | Alone | 10 (3.7) |
| Clinical Characteristics | Do you suffer from any chronic diseases? | |
| | No | 212 (79.1) |
| | Yes | 56 (20.9) |
| | Do you always get your medicines from the same pharmacy? | |
| | No | 156 (58.2) |
| | Yes | 112 (41.8) |
| | Did you know about your COVID-19 by getting a COVID-19 test? | |
| | No | 26 (9.7) |
| | Yes | 242 (90.3) |
| | Why did you test for COVID-19? | 98 (36.6) |
| | I came in contact with a COVID-19 patients | |
| | I had COVID-19 signs and symptoms | 124 (46.3) |
| | Random test | 20 (7.5) |
| | I never did a test | 26 (9.7) |
| | How would you describe the severity of COVID-19 symptoms? | |
| | No signs and symptoms | 17 (6.3) |
| | Mild | 77 (28.7) |
| | Moderate | 131 (48.9) |
| | Severe | 36 (13.4) |
| | Very severe | 7 (2.6) |
| | What is the quarantine period that you spent during COVID-19 infection? | |
| | Less than 7 days | 28 (10.4) |
| | 8–14 days | 150 (56.0) |
| | 15–21 days | 72 (26.9) |
| | More than 21 days | 18 (6.7) |
| | Have you been prescribed any medications or nutritional supplements during your COVID-19 infection? | |
| | No | 47 (17.5) |
| | Yes | 221 (82.5) |

**Table 2** Experiences and perceptions of respondents towards pharmaceutical care

| | **Statement** | ***N* (%)** |
|---|---|---|
| Experiences | Did you or the caregiver obtain advice or information about your medicine from the pharmacist? | 133 (49.6) |
| | Were you followed up by a pharmacist? | 91 (34.0) |
| | Did you or your caregiver get information to control you medications from the pharmacist? | 77 (28.7) |
| | Did you feel that the pharmacist was keen to provide medical assistance? | 105 (39.2) |
| Perceptions | Pharmacists have enough scientific information to provide the necessary medical assistance to COVID-19 patients | 147 (54.9) |
| | Pharmacists could communicate information clearly to COVID-19 patients and their families | 157 (58.6) |
| | Pharmacists can provide advice regarding the medications for COVID-19 patients | 136 (50.7) |
| | Pharmacists can follow up COVID-19 patients during their condition | 129 (48.1) |
| | Pharmacist can organise and control the medications of COVID-19 patients | 210 (78.3) |

services for home-treated COVID-19 patients. Many patients were not offered advice nor followed up by pharmacists. Furthermore, respondents did not feel that pharmacists were keen to aid. This is not surprising as in Jordan pharmacists were not given a clear role to play during the pandemic and there was no official role described for pharmacists.[8] Another thing is that pharmaceutical care services in Jordan could be not mature enough to cope with the requirements of the COVID-19 pandemic.[9]

Regardless of their experiences, respondents had better perception about the role of pharmacists in delivering care for COVID-19 patients. Pharmacists themselves had better perceptions of the role they could have played during the pandemic.[1, 3] Proper pharmaceutical care services should be offered to patients, and pharmacists should have sufficient training and expertise to provide such services.

### Limitations

This is a web-based questionnaire that subjects the results to the selection and recall biases. Moreover, the responses of the participants were not independently validated.

## Conclusion

Pharmacists had an unsatisfactory contribution to the management of the disease in outpatient settings. Moreover, there was a poor perception of the pharmacists' role including their knowledge, communication skills and counselling skills. Thus, it is essential to improve pharmacists' knowledge and practices about infectious diseases.

## Funding

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## Conflict of Interest

None to declare.

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