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RESEARCH ARTICLE

Community Satisfaction with Pharmacists' Interventions Over 8 Months from COVID-19 Spread in Jordan: A Cross-Sectional Study

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ABSTRACT

Objective: To measure participants' satisfaction with community pharmacists' pharmaceutical services during the Coronavirus Disease 2019 (COVID-19) pandemic.

Methods: This study was cross-sectional. Google Forms was used to create a survey. Social media was used to spread the survey. Questions were designed to measure the goals; a scale was used to measure the level of participant satisfaction.

Measures: This survey was designed to measure the community opinion of Pharmacists' role, commitment to safety measures, counseling during the pandemic, and their help in spreading scientific information regarding this virus; during the pandemic and then 8 months after the pandemic was declared. Data sets were compared, and the results were analyzed.

Results: One-thousand-one-hundred-fifteen people participated in this study; 575 at the beginning and 540 at 8 months after the initial outbreak. Significant differences were found: pharmacists' commitment to wearing gloves was less after 8 months ($p < 0.001$); pharmacists had a better role in explaining the difference between flu and COVID-19 infection after 8 months; satisfaction with pharmacists' commitment to safety rules was significantly less after 8 months ($p = 0.003$).

Conclusion: The observed high level of participant satisfaction reflects the pharmacists' efforts. But pharmacists must follow the scientific evidence that supports the proper wearing and removal of gloves. We also found that counseling has been associated with improvement in participants' opinions about pharmacists' information.

Introduction

In December 2019, an illness termed COVID-19 appeared in China. This respiratory problem has spread over the world and become a pandemic [1]. Symptoms associated with COVID-19 may be mild or severe; 81% of the cases suffer from mild symptoms [2].

From the beginning of the COVID-19 outbreak, the Jordanian government tried to follow the WHO recommendations, and control and prevention strategies were implemented to limit COVID-19 spread inside Jordan [3]. To keep up with the development in digital health, an Arabic website for COVID-19 was created and provided by shared efforts between The Ministry of Digital Economy and Entrepreneurship and The Ministry of Health. This website aims to spread knowledge, recommendations, and awareness to the Jordanian community. Also, the Jordanian government collaborated with Facebook to increase the Jordanian

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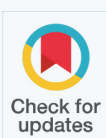
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population's awareness of COVID-19 (Facebook is a common social site used by Jordanians) [4].

Lockdowns have been observed all over the world. Yet, pharmacies were opened to serve the public. Pharmacists are performing a unique role in COVID-19 pandemic to maximize patient care; they offer home deliveries and deal with patients with other ailments. They should work proactively to plan, identify alternatives, deal with drug shortages, and prioritize drug supply according to the expected patient benefits [5-7]. During this emergency, community pharmacists have been considered a trusted, easily accessible resource for the public; providing education about symptomatic relief and infection prevention is their main role, and they support other members of the health care team to prevent and stop disease spread through emphasizing the importance of hand hygiene, staying home, and social distancing, especially if respiratory symptoms appear [7].

As frontline healthcare professionals during the COVID-19 pandemic, community pharmacists were easily accessible. Increased delivery requests and phone calls for advice have replaced the need to come in person. Since the beginning of the pandemic, pharmacists have been spending a lot of time educating individuals about COVID-19; this is essential in communities where people may think they do not need to worry about the virus as it is not present [8].

Satisfaction is a similarity between what patients expect from healthcare providers and the care they receive [9]. Patient satisfaction measures how happy they are with their healthcare [10]. It gives health care providers ideas about how effective and understandable their care is [11]. Understanding patients from their perspective reflects the behavior of the providers (how much polite and respectful they were), which provides opportunities to improve healthcare services; the more satisfied the patients are, the more likely they will comply with their treatment [12-14].

Pharmacists understand their positive role during the COVID-19 pandemic; they are handling their responsibilities to ensure patient satisfaction [15].

Despite the importance of patient satisfaction, the information on community perception and satisfaction with health services in Jordan during the COVID-19 pandemic is lacking. This study aims to assess the level of satisfaction with pharmaceutical care services submitted by community pharmacists at the beginning and 8 months after the COVID-19 pandemic.

Methods

Study design

This was a cross-sectional study. Using Google Forms, a survey was created to measure community opinion on pharmacist role during the pandemic (including drug

delivery during quarantine, OTC medications delivery and counseling, patient assurance, etc.); we were aiming to measure community satisfaction about pharmacist's commitment to safety measures, satisfaction about their counseling about the pandemic, and how to decrease its spread in order to decrease stress associated with this period and their help in spreading scientific information regarding this new virus.

The questionnaire was developed to measure community satisfaction. Demographic data were documented. The questions were designed to measure our objective, and a scale was used to measure the level of satisfaction.

A draft was developed, then evaluated individually by three Ph.D. holding pharmacists to ensure content validity. Discussions were made to ensure clarity and overcome any unclear parts of the questions. The survey was designed in Arabic.

Two data sets were collected: at the beginning of the COVID-19 spread in Jordan (22 July 2019 – 8 August 2019) and 8 months after the COVID-19 outbreak began (16 November 2019 – 22 December 2019). These data sets were compared, and the results were analyzed.

The survey was spread to different parts of the Jordanian community by social media (WhatsApp and Facebook). Closed-ended questions were used to measure our goals, and a scale was used to measure the level of participant satisfaction.

Participants' consent to participate was obtained before the survey, and confidentiality was highlighted. Two clinical pharmacists and one statistician evaluated many questionnaire drafts to ensure validity. Participants who contacted the same pharmacists at least once were included in the study; they self-reported their gender, age, educational level, and residence area. They were asked about their primary source of information. Participants' satisfaction was measured at the beginning and then 8 months after the coronavirus spread.

Data analysis

The data was collected, entered, and coded using the Statistical Package for Social Sciences (SPSS version 25.0) database. Descriptive statistics have been performed; Confidence Intervals (CIs) were constructed to be 95%. Differences among the groups were evaluated using the chi-square test for categorical dependent variables, t-test, and ANOVA for normally distributed continuous dependent data. Paired sample t-tests were used to check the significant difference in satisfaction during the study period. $p < 0.05$ considered statistically significant.

Ethical consideration

The World Medical Association Declaration of Helsinki

guidance [16] was followed. The study was approved by the Institutional Review Board (IRB) committee at Balqa applied university (Approval No 26/3/1/491).

Results

Sample characteristics

A total of 1115 people participated in this study. The first data set was collected from 575 participants (22 July – 8 August), 41% aged 25 years or less, and 22% aged between 36 and 45 years old. Around 72% of the sample were females, and 44% were university graduates with bachelor's degrees. Most of the participants (53%) were located in the middle of Jordan, and around 40% lived in Amman.

Less than half (47.4%) of the participants used social networking as the primary source of information. Around 72% of these contacted pharmacists 1–5 times, the community pharmacists' ages were mostly 23–30 years (42.9%) or 31–40 years (42.9%), and around 52% were female.

The second data set was collected from 540 participants (16 November – 22 December), 54.6% aged 25 years or less. Around 70% of the sample were females, and 45% were university graduates with middle diploma degrees. Most participants (55.9%) were located in the middle of Jordan, and around 31% lived in Amman.

Most (53%) were using social networking as the primary source of information. Of these, 56% had contacted pharmacists 1–5 times, the community pharmacists' ages were mostly 23–30 years (49.4%), and around 53% were females.

Perception, beliefs, and attitudes of participants regarding community pharmacists' practices and services

According to the participants from the first group, 84.4% of the pharmacists were committed to social distancing, 87.7% were committed to wearing masks, and 79% to wearing gloves. Most (57.8%) of the participants believe that pharmacists have a role in decreasing the spread of COVID-19, and 67% feel that communication with pharmacists assures them that commitment to safety measures will keep things under control. About 52% of the contracted pharmacists did not explain the difference between flu and COVID-19, but 56% were able to correct false information regarding this pandemic.

According to the participants from the second group, 81.3% of the pharmacists were committed to social distancing, 84.1% were committed to wearing masks, and 46.7% were committed to wearing gloves. Most (58%) of the participants believe that pharmacists have a role in decreasing the spread of COVID-19, and 67.2% feel that communication with pharmacists assures them that commitment to safety

measures will keep things under control. Most (55.6%) of the contacted pharmacists explained the difference between flu and COVID-19, and around 55% were able to correct false information regarding this pandemic.

Participants' satisfaction towards community pharmacists' practice and services during the COVID-19 pandemic

On a scale from 1 to 10 (1 = not satisfied, 10 = very satisfied), the mean of the participant's satisfaction with pharmacist services at the beginning of the COVID-19 pandemic was 8.34 ± 1.93 , and 8.26 ± 1.98 at 8 months after the initial outbreak. The mean participant satisfaction with the pharmacist's commitment at the beginning of COVID-19 was 8.64 ± 1.81 , dropping to 8.32 ± 1.99 at 8 months after the initial outbreak. The mean participant satisfaction with pharmacist's information at the beginning of COVID-19 was 8.10 ± 2.22 , dropping to 7.93 ± 2.18 after 8 months. The mean participant satisfaction with the level of benefits provided by pharmacists was (8.02 ± 2.27 at the beginning and 7.84 ± 2.24 at 8 months after the initial outbreak).

Relationship between demographics and results from the first data collected

Participants in the middle region ($p = 0.004$) and female participants ($p = 0.034$) believe more that pharmacists are committed to social distancing. Females were more likely to believe that pharmacists are committed to mask-wearing ($p = 0.02$).

Participants in the middle region ($p = 0.045$), participants aged 15–25 years ($p < 0.001$) and participants with a middle diploma ($p < 0.001$) were more likely to believe in pharmacists' role in decreasing COVID-19 spread. They believe that pharmacists can explain the difference between Flu and COVID-19 pandemic ($p < 0.001$, 0.001 , and < 0.001 respectively). They think communication with pharmacists assures them that things will stay under control as long as they commit to safety measures ($p = 0.006$, < 0.001 and 0.006 , respectively). They were also more satisfied with pharmacists' services during the pandemic ($p < 0.001$).

Regarding satisfaction about pharmacists' commitment during pandemic, participants in the 15–25 age group ($p < 0.001$), participants with middle diploma education level ($p < 0.001$), and females ($p = 0.026$) were more satisfied. While participants from the south ($p = 0.018$) were less satisfied.

Regarding satisfaction with pharmacists' health information during a pandemic, participants in the 15–25 age group (p -value < 0.001) and participants with a middle diploma education level ($p < 0.001$) were more satisfied. At the same time, participants from the south region were less satisfied ($p = 0.008$).

Regarding satisfaction with the level of benefits from

pharmacists, participants in the 15–25 age group ($p < 0.001$) and participants with a middle diploma education level were more satisfied ($p < 0.001$). At the same time, participants from the south area were less satisfied ($p = 0.017$).

Relationship between demographics and results from data collected after 8 months

Participants in the middle area ($p = 0.012$) and participants from age group 15–25 years ($p = 0.022$) are more likely to believe that pharmacists are committed to social distancing. Participants in the middle region ($p = 0.001$), participants with a middle diploma education level ($p = 0.038$), and participants from the age group 15–25 years ($p < 0.001$) are more likely believe that pharmacists are committed to mask wearing. They are also more that pharmacists are committed to gloves wearing (p -value= 0.003, < 0.001 , and < 0.001) respectively. They believe more in pharmacists' role to decrease COVID-19 spread (p -value = 0.007, < 0.001 , and 0.021 respectively).

These groups have seen the pharmacist's role in explaining the difference between Flu and COVID-19 pandemic ($p < 0.001$). They have also seen the pharmacists' role in correcting false COVID-19 related information ($p = 0.015$, < 0.001 , and < 0.001 respectively). Regarding satisfaction with pharmacists' services, participants with high school or fewer education levels were less satisfied ($p < 0.001$).

Participants in the 46–55 age group (p -value = 0.020) and participants with high school or less education level (p -value = 0.001) were less satisfied about pharmacists' commitment during the pandemic. Participants with high school or fewer education levels were less satisfied with pharmacists' health information during a pandemic ($p < 0.001$). Participants in the 46–55 age group (p -value = 0.031) and participants with high school or less education level (p -value < 0.001) were less satisfied with the level of benefits from pharmacists.

Discussion

A total of 1115 people participated in this study; 575 participated at the beginning of the coronavirus spread and 540 after 8 months. When we compare the two sets of data, the following was noticed: After 8 months, the main source of information is still social networking. Yet, people started to depend on personal reading more as a source of information; they were less dependent on TV newscasts as they were at the beginning of the pandemic.

There was a significant difference in wearing gloves ($p < 0.001$), pharmacists were less committed to wearing gloves after 8 months of the pandemic spread.

There was a significant difference in communication with pharmacists ($p < 0.001$) as this communication made more participants feel worried after 8 months of COVID-19

spread compared to the beginning of the pandemic.

There was a significant difference in pharmacists' ability to explain the difference between flu and COVID-19 infection ($p < 0.001$). But at 8 months after the outbreak, pharmacists were less able to correct wrong information related to COVID-19 infection ($p < 0.001$).

A paired sample t-test was used to compare satisfaction during these 8 months. Despite the decrease in participant satisfaction in all the assessed fields, there were no significant differences in satisfaction with pharmacists' services, pharmacist health information during the pandemic, or satisfaction with the level of benefits offered by pharmacists. Yet, a significant difference was noted in satisfaction with pharmacists' commitment to safety rules ($p = 0.003$); this commitment was less at 8 months after COVID-19 outbreak compared to the beginning of the pandemic.

Pharmacists can significantly reduce morbidity levels by providing adequate information, monitoring, and drug therapy counseling. However, patients must receive the expected service to enhance satisfaction and avoid low levels of patient satisfaction [17].

Satibi detected a relationship between patient satisfaction level and drug information services [18]. Many studies have reported a direct relationship between monitoring and counseling frequency and patient satisfaction level [19]. Our study results showed the lowest mean for participants' satisfaction with pharmaceutical services and care to be around 8; it is interesting that the better you are, the better you need to become. Quality is never stable; it should be as a linear ascending line. Our aim should be to provide better care and meet every patient's needs and expectations [20].

Surprisingly, the degree of participants' satisfaction decreased after 8 months. This might be related to the effect of patient's knowledge on their level of satisfaction; as time passed, participants gained more and more information about this pandemic in a way that made it challenging for the pharmacists to keep providing participants with satisfactory updated information that they do not have access to. The WHO reports that if the participant has any previous contact with the health care system, he will report lower satisfaction levels. Also, it was shown that country characteristics are associated significantly with participants' satisfaction levels [21].

Patients' satisfaction is all about attitude. It is also considered a strong motivation for pharmacies. The level of satisfaction is considered an indirect or proxy measure of performance efficiency [22,23].

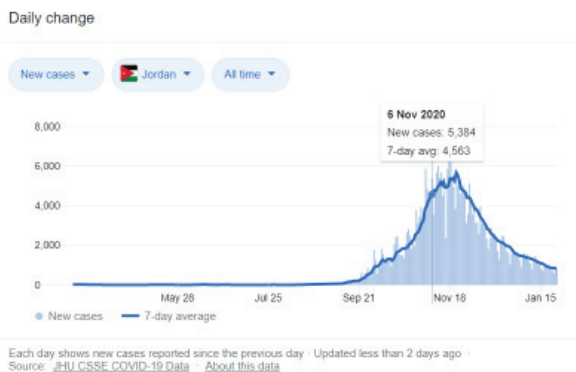
Another interesting finding was the decrease in pharmacists' commitment to wearing gloves at 8 months compared to the beginning of the COVID-19 outbreak; this may be related to a doctor of the National Health

Services (NHS) who shared a TikTok video in which he explained that people could harm rather than protect themselves when they wear gloves in public [24].

Wearing medical gloves is an important part of infection control strategy, but accurate guidelines must be followed. Wearing gloves might cause problems (hand dermatitis is a growing concern) rather than protection if not performed properly. Until now, the US FDA (Food and Drug Administration) has not approved, cleared, or authorized medical gloves of any kind for protection or prevention against the COVID-19 virus [25].

Good hand washing for at least 20 s is still the best protection against COVID-19. Yet, if people go to any public place, they will not have access to water and soap, wipes, or even hand sanitizer; this explains why people wear gloves. But the virus can adhere to the glove's latex, which means that if we touch our face, we can expose ourselves to the infection; that is why it is highly important not to have a false sense of security just because we are wearing gloves. Add to that the lack of people's information about the proper removal of gloves without contaminating hands when they take the gloves off. For instance, after a person takes off his right glove with his left hand gloved (the right hand is virus free at this point). But if that person took off his left glove by touching it outside, he would have probably contaminated his right hand. He must reach inside his left glove, and without touching the outside, he should peel it inside out; this may need some skill and practice to be done properly. Gloves can only be used once and must be disposed of properly after taking them off. Wash your hands immediately before touching your face [26].

Regarding the result that communication with pharmacists after 8 months of the spread has significantly increased the number of worried participants, this can be explained by data collection dates. As shown below, the second set of data was collected at the peak of the COVID-19 infection in Jordan; the rise in the number of cases and deaths may explain the increase in the number of participants who became worried after contacting the pharmacists [27].



Lastly, there was a significant difference in the ability of the pharmacists to differentiate between COVID-19 and

flu. This depends on pharmacists' adequate knowledge and information about this pandemic disease. The Jordan Food and Drug Administration (FDA), Jordan Pharmacists' Association (JPA), and the Jordanian Ministry of Health manage online courses to help community pharmacists. The Jordan Pharmacists' Association has released an app called "Hello Pharmacist". This service aims to connect our pharmacists with the patients in order to be able to answer their questions and also to increase medicine accessibility [15].

Conclusion

This study has several findings that must be considered to improve the health care quality in Jordan during a crisis or regular situations.

- During this pandemic, pharmacists have shown great efforts reflected by a high level of participant satisfaction, but pharmacists must always have updated information about health conditions to meet and even exceed patients' expectations; this will improve satisfaction as an important outcome of providing pharmaceutical services.
- Pharmacists must follow the scientific evidence supporting proper wearing and removal of gloves (rather than not wearing them).
- Counseling patients about medical conditions (and explaining the difference between COVID-19 and flu) has improved participants' opinions about pharmacists as an up-to-date and trusted source of information.
- As frontline healthcare providers, pharmacists have a direct influence shown by the increased number of worried participants after contacting pharmacists from the second data set. This puts a great responsibility on pharmacists; they should be kept up-to-date and prepared to give the best assurance to the patients that committing to safety measures will always keep things under control.

Study Limitations

As a cross-sectional study, it was difficult to find similar participants; we could not determine temporal relationships, and confounding factors may not be equally distributed. Errors from the recall of the exposure may occur.

Our sample consists of young participants rather than older ages; this may cause some bias in the results. Yet it was noted that during quarantine, older populations were confined to their houses with little interaction with the outside community due to their fear of the pandemic.

It has been noted that satisfaction is a personal feeling

that varies due to many personal causes. These limitations were considered when the survey results were interpreted.

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