INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an ongoing infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus and is generally known as "novel coronavirus."\(^1\) Since its detection in Wuhan, China in December 2019, the pandemic has proliferated quickly worldwide, and was eventually announced as a pandemic by the World Health Organization (WHO) in March 2020.\(^1\) Indeed, by the time of writing this report, it is estimated that COVID-19 has already infected more than 33 million individuals worldwide with a total death toll of 1,014,291.\(^2\) Following the spread of COVID-19 outside Wuhan, it quickly became apparent that many public health systems worldwide were not prepared to manage such a pandemic. The fatality rates in many of these countries were higher than the estimates (ie, 2%-53%) provided in the earlier reports.\(^3,5\) This discrepancy might be explained by (a) differences in the protocols stipulated by different public health systems to control the spread of the virus, (b) the continuously evolving knowledge of the behavior of COVID-19,\(^3,5\) and (c) differences in the population structure among different countries. Some countries have a larger population of elderly citizens with a high level of comorbidity, and these individuals are particularly more vulnerable to COVID-19 infections.\(^4,6\) Regardless of these differences, global cumulative experience has clearly demonstrated that personnel working in health-related fields, including physicians, nurses, and medical laboratory technicians, are on the frontline to contain the pandemic.
and prevent it from overwhelming the healthcare system of the respective countries. Among these professionals, primary care physicians (PCPs) play a central role.

The nature of the services provided by PCPs entails that they meet patients of different ages, backgrounds, and socioeconomic status more frequently and by a larger volume than other specialists. The responsibility of PCPs in a pandemic situation is not only limited to patient diagnosis and treatment but also covers prevention, disease surveillance, and above all, patient knowledge and education. Public knowledge and education are of particular importance during a pandemic. Several studies found these to be directly related to public compliance with governmental measures implemented to control the spread of the pandemic. Importantly, lack of knowledge or misinformation may even facilitate the spread of the disease. For example, during the Ebola epidemic, the poor understanding of the infectivity of the virus, including its airborne mode of transmission, remarkably contributed to the high number of cases and fatalities.

Despite the established and wide range of roles that PCPs play during outbreaks, studies aiming to evaluate the way PCPs perceive these roles during the COVID-19 pandemic have been scarce. Considering the above deficiency in the literature, this study aimed to survey the perceptions of PCPs in Jordan towards their roles during the COVID-19 pandemic.

2 | MATERIALS AND METHODS

2.1 | Study design and population

This was a cross-sectional study that used a self-administered questionnaire. The study sample consisted of primary healthcare physicians practicing in the Ministry of Health, academic institutions, and the private healthcare sector in Jordan. The collection of data was conducted through a web-based survey application named "Google forms." Two authors of this research, who are PCPs, distributed the survey to PCPs within their social media networks, and the target population was every PCP within this network. The social media groups of these networks included registered PCPs from the above-mentioned sectors, which are used for communication, education, and socialization. A link to the survey was sent to 309 PCPs via a social media messaging application inviting them to participate in the study. A statement of optional participation was included in the survey, which included a consent to participate in the study and the right to withdraw at any time.

2.2 | Study instrument

At the time of conducting the study and collecting the data, non-emergency medical care was still suspended in Jordan in compliance with government measures to control the spread of COVID-19. Therefore, the survey was designed to evaluate the perceptions of PCPs as to how COVID-19 would affect their practice once non-emergency visits to primary healthcare centers resumed following the control of COVID-19 spread in the country. The survey comprised 24 items enquiring about (a) previous training/experience with specific COVID-19 infection control protocols (three items), (b) perceptions of PCPs regarding their specific role(s) in educating/counselling the patients on COVID-19 (10 items), and (c) new infection control protocols they intend to implement in their respective practices (seven items). In addition to these twenty items, the survey also collected demographic information, including data on sex, age, years of experience, and specific specialty of the survey taker (four items).

The study items were developed after reviewing pertinent literature and the latest WHO infection control recommendations and were further reviewed by a team of four experts in public health, epidemiology, family medicine, and infectious diseases (one expert from each specialty). The survey was first tested on a group of 10 PCPs and then further modified according to their recommendations.

2.3 | Data analysis

Descriptive statistical analysis was used to analyse data on the items included in the survey. Frequencies and means were used to describe categorical and continuous variables respectively.

3 | RESULTS

A total of 221 out of 309 PCPs completed the survey (response rate 71.5%). The baseline characteristics of the participants are presented in Table 1. Most participants were males (59.7%) in the age group of 25-35 years (59.3%) and were practicing family medicine (61.1%). Most participants reported that they did not receive any training related to infection control (59.7%) or COVID-19 (81%). However, 44.8% of participants reported treating patients with COVID-19.
More than half PCPs in this survey (53.4%) felt positive about the way patients received and/or complied with their instructions and recommendations, and many of them (56.1%) believed that most patients would follow instructions and recommendations about COVID-19. More than half PCPs (55.7%) reported that they would often or always educate their patients about ways to protect themselves from the risk of infections. Moreover, educating patients on ways to reduce the risk of infection was the most used method by PCPs. Most PCPs believed that they shared the responsibility of fighting the spread of COVID-19 and that their role as PCPs included educating patients about methods of preventing the transmission of the disease (Table 2).

Table 3 summarises the practices that PCPs would employ to reduce the possibility of COVID-19 transmission at their workplace. Over 80% of the participants would apply social distancing, hand sanitation, facial masks and patient education. However, only half of them (51.1%) reported that they were planning to order COVID-19...
test kits. Conversely, if a COVID-19 test becomes readily available, the majority (85.9%) of the participants expressed their intention to use it on their patients, with 52.5% reporting that they would only be using the kit on patients whom they suspect to have COVID-19. Finally, upon asking the participants regarding the most suitable protocol to use when treating a patient with COVID-19 in their clinic, the majority of PCPs (63.8%) reported that they would prioritise the patient in treatment, separate from other patients, and ask the patient to immediately leave the clinic following the treatment. A minority of PCPs (10.4%) reported that they would completely avoid receiving patients with COVID-19 and would request them to leave their clinics.

### DISCUSSION

The role of PCPs in controlling the spread of COVID-19 is considered a cornerstone in the global health response to defeat this pandemic. They are responsible for early detection of diseases, triaging of diseases that require special attention, and provision of essential treatment and proper patient management. They should also be capable of distinguishing patients suspected to have COVID-19 from those with other respiratory diseases or symptoms. These responsibilities highlight the importance of the PCPs role in controlling the pandemic. Additionally, PCPs carry an important duty of counselling and educating patients. These responsibilities emphasise the importance of focusing on the role of PCPs in the prevention and control of infectious disease outbreaks, including pandemics.
The findings of this study demonstrated a general tendency among PCPs towards providing precautionary measures of prevention and disease control through education and safety practices. Unfortunately, most participants did not receive any sort of professional training related to infectious disease in general or COVID-19 in particular. However, PCPs understood their responsibilities with regard to educating the patients on how to protect themselves, and they were willing to take the necessary protective safety measures at their workplaces. Experts have encouraged the role of PCPs in fighting infections through education, training, and maintaining safety practices during the crisis. Direct contact with the patient, along with the previous knowledge of the patient and his/her family medical history, makes the patient more receptive to the physician advice, particularly regarding the COVID-19 disease. However, many studies found that patients generally do not feel that they have a strong connection with their PCPs. In this study, PCPs expressed a moderately positive view on the willingness of patients to follow their advice, with more than half PCPs agreeing that most of the patients would follow their advice.

The WHO recommends PCPs to receive and treat patients with COVID-19 by segregating patients with respiratory symptoms from others and prioritising patients with the highest probability of poor outcomes, including those with a chronic disease such as diabetes. It is encouraging that most PCPs in this study intended to follow WHO recommendations in their practice. However, 9 (4.1%) of PCPs did not see a need for separating patients or taking any action, probably because they had no previous experience with COVID-19 patients or did not see it as any imminent threat. Although low, this proportion is important to take into consideration and it is indicative of the need for having proper training for PCPs on infection control and COVID-19 protective measures. The PCPs in our study showed the willingness to allocate more efforts and resources in the management of the pandemic, including social distancing, applying general hygiene protocols, and assigning nurses and other health personnel to provide proper counselling and advice to their patients, aiming at early detection and prevention of the spread of COVID-19. Although PCPs largely appreciated and respected the general protective measures, they appeared to be in less favour of applying the specific COVID-19 test kits. Studies have shown that some of the tests in use are not characterised by ample sensitivity or specificity, they are very costly, not widely available, and sometimes provide misleading results. Therefore, these test kits should be applied with care in specific circumstances while focusing on the general protective measures during the daily practice, especially for PCPs.

5 | CONCLUSIONS

Our findings indicate a positive attitude of PCPs towards controlling COVID-19 infection, and willingness to educate patients on how to protect themselves from COVID-19. This, in turn, could help in the early detection and prevention of COVID-19 infection. However, our data show that PCPs did not receive any specific training on COVID-19; therefore, special training on infection control and management of COVID-19 is urgently needed. This specialised training could help motivate PCPs to use COVID-19 test kits in their clinics rather than merely applying general protective measures. This highlights the importance of PCPs clinical duties since they are on the forefront with means to dampen this fast-spreading pandemic by providing patients’ education and counselling on the infection control measures, and by adhering to WHO recommendations on segregating patients with respiratory symptoms from others and prioritising patients with the highest probability of poor outcomes.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

RS, MAA and MZA contributed to conceptualisation. MAA, AA, MA, NA, YK and OBY contributed to methodology. RS and MA contributed to formal analysis. RS and MAA contributed to writing—original draft preparation. MAA, AA, MA, NA, YK and OBY contributed to writing—review and editing. RS and MZA contributed to supervision. MZA contributed to project administration. All authors have read and agreed to the published version of the manuscript.

DATA AVAILABILITY STATEMENT

Data is available upon request.

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