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The psychosocial and clinical concerns of physicians treating patients with COVID-19



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المخلص

أهداف البحث: تهدف هذه الدراسة لتقييم الأثر النفسي الاجتماعي والسريري على الأطباء الذين شاركوا بشكل مباشر في علاج مرضى كوفيد-19.

طرق البحث: تم اختيار الأطباء الذين يعالجون بشكل مباشر مرضى كوفيد-19 في أربعة مستشفيات في الأردن. باستخدام مسح ذاتي مكون من 20 عنصرا منظما لجمع البيانات. تم استخدام الإحصاءات الوصفية لتمثيل الأعداد والنسب المئوية لردود المشاركين على عناصر المسح. كما تم استخدام الانحدار اللوجستي متعدد المتغيرات لفحص علاقة خصائص المشاركين مع العناصر المتعلقة بمستوى الخوف، وجودة الرعاية، والتباعد الاجتماعي بين أفراد الأسرة.

النتائج: شارك 135 طبيبا، منهم 65.9% من الذكور. أفاد أكثر من نصف الأطباء بمستوى خوف معتدل إلى عالي (55.5%). كان أغلبية الأطباء (71.1%) قلقين بشكل معتدل إلى شديد بشأن الإصابة بكوفيد-19 من المرضى الذين يعالجونهم. ومارس معظم الأطباء التباعد الاجتماعي الكافي. على الرغم من أن معظم المشاركين اعتقدوا أن مرضى كوفيد-19 تلقوا رعاية عالية الجودة، كان هناك تصورا عاما حول نقص عدد الأطباء المتخصصين ومعدات الحماية الشخصية. كما كان تصنيف جودة الرعاية وممارسة التباعد الاجتماعي مرتبطا بشكل كبير بوجود أو غياب التدريب على مرض كوفيد-19.

الاستنتاجات: في هذه الدراسة، كانت درجة الخوف والمخاوف بشأن تأثير كوفيد-19 على الأطباء وعائلاتهم عالية. بالإضافة، كان هناك أيضا مخاوف بشأن العواقب الطويلة المدى لكوفيد-19 على الخدمات الطبية.

الكلمات المفتاحية: الأردن؛ كوفيد-19؛ الأطباء؛ المخاوف؛ الخدمات الطبية

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Abstract

Objectives: This study aims to assess the psychosocial and clinical issues affecting physicians who have been directly involved in treating patients with novel coronavirus (COVID-19).

Methods: We recruited physicians from four hospitals in Jordan. A structured 20-item, self-administered survey was used to gather data. Descriptive statistics were employed to represent the numbers and percentages of the participants' responses to the survey items. Multi-variate logistic regression was used to examine the relationship between the participants' traits and items related to the level of fear, the quality of care provided to patients, and social distancing among family members.

Results: A total of 135 physicians participated; 65.9% were men. More than half reported moderate to high levels of fear (55.5%). The majority (71.1%) were moderately to highly concerned about becoming infected with COVID-19 from the patients they treated. Most physicians practiced adequate social distancing. While most of them thought that COVID-19 patients received a high quality of care, they generally perceived a shortage of specialised physicians and personal protective equipment (PPE). The ratings for the quality of care and social distancing practices were significantly associated with the presence or absence of training related to COVID-19.

Conclusions: The degree of fear and concerns about COVID-19's impact on physicians and their families was high. There were also concerns about the long-term consequences of COVID-19 on medical services.

Keywords: Concerns; COVID-19; Jordan; Medical services; Physicians

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Introduction

The novel coronavirus (COVID-19)—which causes, among numerous symptoms, severe acute respiratory syndrome and is rapidly spreading around the world—has affected over 200 countries and triggered lockdowns to mitigate its transmission, which has resulted in fatalities.¹ This pandemic has impacted the daily lives of countless people around the globe, including healthcare workers on the frontlines of treating infected patients, who reduce the risk of further complications. The swift spread of the virus and the late precautions taken by many countries have overwhelmed healthcare systems internationally, thereby increasing the burden on healthcare workers; several European countries and the USA offer clear examples. Hospitals have run out of personal protective equipment (PPE), and some lack enough ventilators due to the high influx of severely infected patients in a short period of time.² Crowding has mostly been experienced in emergency rooms, where admitted patients vary in the severity of their condition from moderate to severely ill. These circumstances have produced stressful situations for healthcare workers who have been directly or indirectly involved in caring for COVID-19 patients.³ The limited time available to manage patients, wear all necessary PPE, maintain good hygiene practices, and decontaminate surfaces induce significant pressure on healthcare workers.⁴

One critical priority in the fight against COVID-19 is their protection. Many guidelines have been put in place to achieve this goal, and various organisations consider strict adherence to the precautions and hygiene recommendations—developed by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO)—to be necessary.^{5,6} The CDC suggests several steps such as social distancing, hand washing, and the use of PPE.⁶ In addition to personal precautions and required equipment, hospitals must provide enough ventilators, respiratory isolation rooms and medications approved by local authorities (e.g. hydroxychloroquine, azithromycin, dexamethasone), and/or palliative care. Moreover, healthcare workers must provide patients with adequate social, mental, and psychological support to improve their condition and alleviate suffering and distress.^{7,8} In the case of COVID-19, stress is caused by its symptoms and hospitalisation, and is aggravated by being far from one's family, media attention surrounding the illness and transmission, and a constant fear of death.⁹ Given these facts, one can only imagine the magnitude of the responsibility that has fallen upon healthcare workers to ensure a stable workflow and to treat patients.

Jordan is a developing country in the Middle East and North Africa (MENA) region. Approximately three months after the pandemic erupted in Wuhan, China, the first positive case of COVID-19 was recorded in Jordan on 2 March 2020.¹⁰ In order to prevent COVID-19 from overwhelming the healthcare system, officials in Jordan mandated a plethora of actions that were among the strictest in the world.¹¹ Initially schools, nurseries and universities were shut down, and all social gatherings (including for prayers) were prohibited. This latter action took place following the discovery of a cluster of COVID-19 patients who had attended a wedding in a major northern city.¹² The government later mandated a complete lockdown for several days in the middle of March. The curfew was partially lifted for pedestrians to access grocery stores, but only in the daytime. Nonetheless, a complete lockdown was still enforced for 1–2 days per week for the next three months. These early measures were successful in suppressing the spread of COVID-19 in Jordan compared to neighbouring countries. Indeed, at the time of the writing of this report, there are 1033 confirmed cases in Jordan, and only 9 deaths have been attributed to it in a nation of approximately 10 million inhabitants.¹

Despite managing to diminish COVID-19's reach in Jordan and the relatively low pressure it has caused on the country's healthcare facilities, the lack of safe and effective vaccines, the conflicting scientific evidence on the benefits of using hydroxychloroquine for treatment, the soaring numbers of cases in neighbouring states, and the constant fear of a second, more aggressive wave still make COVID-19 a source of fear among healthcare workers.⁴ Therefore, this study aimed to assess the psychosocial and professional concerns of Jordanian healthcare workers. The target population was restricted to healthcare workers who were, at the time of writing, in direct contact with COVID-19 patients being actively treated in designated hospitals nationwide.

Materials and Methods

Study design and population

This cross-sectional study used a self-administered questionnaire to collect data from physicians who are all employees of hospitals assigned to manage COVID-19 patients, and who were in direct contact with them at the time the study was conducted. The Ministry of Health, as part of a national effort to combat the pandemic, designated select hospitals to quarantine and treat all patients with a positive polymerase chain reaction (PCR) diagnosis of COVID-19. The questionnaire was distributed at four hospitals covering the middle and north of the country.

Data collection

Four hospitals that serve COVID-19 patients were included. A healthcare worker at each hospital was contacted and asked to assist in administering the survey to gather data at their place of work. The research team held an online meeting with the assigned research assistants for an orientation session, during which the team explained the study's objectives and scope, and answered the assistants' questions.

The team emphasised the importance of receiving the participants' consent prior to administering the survey, in addition to providing them with the opportunity to withdraw from the study at any time.

The data were collected in April of 2020. Physicians were approached during their break times or in their offices. The size of the target population was unknown due to changes in the number of staff and their schedules. Only a small proportion of physicians and resident doctors (emergency room, pulmonary, and infectious disease residents and specialists) at each hospital were tasked with serving on the frontlines of the fight against COVID-19. Other specialists remained on call for severe, critical cases related to their specialty (such as cardiologists). Collecting data was more difficult than during ordinary times given the limited numbers of participants available, the heavy workload, and the stressful conditions.

Study instrument

The study's questions were formed after reviewing relevant studies in the literature.^{9,13,14} The questionnaire was developed in English and designed to examine the psychosocial impact of COVID-19 on the participants, as well as their clinical concerns. To ensure the study instrument's validity, 2 public health experts and a clinical psychiatrist with experience in investigating the psychosocial effects of the Syrian crisis on Syrian refugees in camps situated in Jordan reviewed the survey's content. The survey was structured in a multiple-choice format, containing 5 questions on sociodemographic and profession information, 8 questions on the social and psychological effects of COVID-19 on the participants, and 7 questions about the participants' clinical concerns in relation to handling the pandemic.

Analysis

Survey items (including demographics and participants' traits, social and psychological effects, and clinical and professional impacts) were described using numbers and percentages. Binary and multinomial logistic regression models were used to uncover the association linking demographics and the physicians' characteristics (gender, age, job title, COVID-19 training, COVID-19 testing)—which were considered independent variables—to the following dependent variables: (1) the level of fear among the participants due to COVID-19; (2) the quality of care provided to COVID-19 patients; and (3) the degree of physical interactions with family members at home to infer the extent of social distancing. In order to simplify the analysis in logistic regression, the dependent variables (1–3) were re-categorised to reflect fewer categories for each variable. Level of fear was re-categorised into 2 levels: *a little fear or not scared at all* was one category, while *moderately or very scared* was the other. The quality of care provided was re-categorised into three levels: *not good or acceptable*, *good*, and *very good or excellent*. The degree of physical interactions with family members was re-categorised into two levels: *isolated or relatively isolated* was one category, while *remained the same or almost the same* were the other. Testing for COVID-19 was re-categorised into two levels: *never or only tested at one time* was one category, while *weekly or monthly* was another.

A p-value of 0.05 was considered statistically significant. The data were analysed using IBM SPSS, Version 23 (Armonk, NY: IBM Corp).

Results

Participants' characteristics

A total of 135 physicians completed the survey. Two thirds were male, 3 out of 4 were resident doctors, and most were 23–40 years old. More than half (57.8%) had not received any training related to COVID-19, and 68.1% had never been tested for it at the time the survey was administered (see [Table 1](#)).

Psychosocial impact

The level of fear among the participants was relatively high. More than half reported moderate to high levels of fear (55.5%) regarding the conditions of COVID-19 patients, and the majority (71.1%) were moderately to highly concerned about becoming infected by their patients ([Table 1](#)). Most expressed concern that the health measures triggered by the pandemic would last for a few additional weeks. More than three quarters (87.4%) were moderately to highly concerned about the possibility of transmitting COVID-19 to immediate family members.

The majority of the physicians (74.8%) reported that health administrators at their current workplace had not requested that they quarantine themselves upon going home. One third of the participants reported that while being at home, they isolated themselves most of the time. Notably, one fifth (22.2%) maintained the same degree of physical interactions/distancing with their family members at home.

Clinical and professional impact

Most of the participants felt they were putting more effort in at work compared to normal days (74.8%), and that the current situation might last for more than 3 months (64.7%). Almost all participants believed that extra precautions mandated at work are moderately to highly important (97.8%), yet more than half (53.5%) felt these extra precautions limited their ability to work with COVID-19 patients, as shown in [Table 2](#).

Most of the participants viewed the quality of care provided to COVID-19 patients as good to excellent (88.9%), while believing that their hospitals were understaffed across all health professions relevant to managing the pandemic. More than three quarters (77.8%) reported a lack of specialists in this field, while most felt that there was a shortage regarding all types of PPE. The majority anticipated a dearth of ventilators if the number of COVID-19 patients significantly increased ([Table 2](#)).

Multivariate analysis

In the logistic regression model, none of the independent variables was significantly associated with any of the dependent ones, except for training for COVID-19, which

Table 1: Participants' characteristics, their perceptions of the disease, and its psychosocial impact.

Characteristics	Number (%)
Gender	
Male	89 (65.9%)
Female	46 (34.1%)
Age	
23–40	115 (85.2%)
40–65	46 (14.8%)
Specialty	
Resident doctor	104 (77%)
Specialty doctor	31 (23%)
Have you received any training related to COVID-19 at work?	
No	78 (57.8%)
Yes	57 (42.2%)
How often do you undergo a COVID-19 test at work?	
I have never been tested	92 (68.1%)
I was only tested once	25 (18.5%)
Monthly	8 (5.9%)
Weekly	10 (7.4%)
To what level does the condition of COVID-19 patients scare you?	
It doesn't scare me	16 (11.9%)
It scares me slightly	44 (32.6%)
It scares me moderately	52 (38.5%)
It scares me a lot	23 (17%)
How concerned are you that you will become infected with COVID-19 while working with infected patients?	
Not concerned	11 (8.1%)
A little concerned	28 (20.7%)
Moderately concerned	57 (42.2%)
Highly concerned	39 (28.9%)
Are you worried about yourself if this situation lasts for several weeks to a few months longer?	
No	30 (22.2%)
Yes	105 (77.8%)
Have you been asked to quarantine yourself once you go home?	
No	101 (74.8%)
Yes	34 (25.2%)
When you return home, how physically close do you get to any of your family members?	
I stay within the same usual distance	30 (22.2%)
I stay close by, but I do not touch them	34 (25.2%)
I keep a 1–3 m distance most of the time	26 (19.3%)
I isolate myself most of the time	45 (33.3%)
How concerned are you about transmitting the virus to your family members?	
Not concerned	2 (1.5%)
A little concerned	15 (11.1%)
Moderately concerned	28 (20.7%)
Highly concerned	90 (66.7%)

showed a statistically significant association with ratings on the quality of care provided to patients, as well as the degree of physical distance maintained from family members. Physicians who had not received any COVID-19 training were less likely to perceive the care provided to patients as very good to excellent, compared to those who had received training [OR = .11, 95% CI = .018 - .669, p-value = .017]. Moreover, they were less likely to practice social distancing

Table 2: Participants' clinical and professional concerns.

	Number (%)
Do you feel that your workload has increased compared to normal days?	
No	34 (25.2%)
Yes	101 (74.8%)
How important are the extra required precautions in the treatment protocol while dealing with COVID-19 patients?	
Not important	1 (.7%)
Slightly important	2 (1.5%)
Moderately important	24 (17.8%)
Highly important	101 (80%)
Do these extra precautions restrict your ability to better serve COVID-19 patients?	
No	63 (46.7%)
Yes	72 (53.3%)
How long do you think it will take to return to normal working conditions?	
Less than a month	8 (5.9%)
1–3 months	41 (30.4%)
3–6 months	53 (39.3%)
More than 6 months	33 (24.4%)
How different is the work environment experienced during the COVID-19 pandemic from the environment surrounding other outbreaks (e.g. seasonal flu)?	
The same	1 (.7%)
Slightly different	14 (10.4%)
Moderately different	43 (31.9%)
Very different	77 (57%)
How would you rate the quality of care provided to COVID-19 patients at your workplace?	
Not good	5 (3.7%)
Fair	10 (7.4%)
Good	42 (31.1%)
Very good	46 (34.1%)
Excellent	32 (23.7%)
During this pandemic, has demand increased for any of the following professionals?	
Nurses	55 (40.7%)
Infectious disease physicians	105 (77.8%)
Emergency physicians	79 (58.5%)
Pulmonologists	80 (59.3%)
Cardiologists	30 (22.2%)
Which of the following medical equipment is there a shortage of?	
Ventilators	72 (53.3%)
Gloves	72 (53.3%)
Regular masks	71 (52.6%)
Surgical masks	79 (58.5%)
Gowns	101 (74.8%)
Face shields	88 (65.2%)
Goggles	77 (57%)
Do you think there will be a shortage of ventilators if the number of COVID-19 patients significantly increases?	
No	17 (12.6%)
Yes	118 (87.4%)

with immediate family members compared those who had received training [OR = .428, 95% CI = .193 - .937, p-value = .036].

Discussion

Concern is growing in terms of COVID-19's ramifications for populations and specific individuals. The increased

reports of healthcare workers becoming infected by COVID-19 while at work have drawn attention to their susceptibility to other impacts, such as social effects and professional issues. The physicians in this study were worried about becoming infected or transmitting the disease to their families. They were also anxious about the consequences of the pandemic lasting longer and its repercussions on their working conditions, including medical supplies they need to handle the crisis.¹⁵ Anxiety, stress, and depression are expected to rise during a pandemic, which raises concerns about routine life activities and future career plans.^{13,16} Hence, physicians' worries may deepen as well, especially since they are on the frontlines of the pandemic, experiencing the daily effects and possible consequences in the long term. Benjamin et al. (2020) compared depression, anxiety, stress, and PTSD levels induced by the pandemic, and demonstrated lower levels of these indices among medical staff compared to their non-medical counterparts.¹⁷ Physicians and medical personnel are updated regularly on COVID-19 medical and epidemiological information and related risk factors.

Fortunately, over the past two months, data have revealed a decline in the numbers of COVID-19 incidences in most affected countries, with higher numbers of recoveries.¹ Moreover, improved testing methods and a lower risk of infection than previously expected have mitigated tensions among numerous medical personnel. This good news has brought a considerable level of relief regarding matters that were threatening medical practices and healthcare systems around the globe.^{1,18,19}

The participants had a high level of concern about contracting COVID-19, but they were even more worried about transmitting it to their families. Similarly, Wang et al. (2020) found that 53.8% of participants rated the pandemic's psychological impact as moderate or severe, and over 70% were fearful of their family members contracting the virus.¹⁹ Research signals that people are generally more anxious about the (health) risks facing their significant others than about challenges they themselves may face.²⁰ Physicians are no exception; interviews with physicians from different countries indicate that they are not concerned about contracting the virus themselves, but rather about whether any of their immediate family members may be susceptible to transmission.^{21,22} It is unfortunate that most physicians in our study have not been asked to practice social distancing with their family members at home. It is vital to have conversations and to make recommendations about how to act at home, such as taking showers immediately upon returning, maintaining one's distance from family members, and changing one's work clothes before entering the house. Such steps could help to reduce this anxiety.^{8,14}

Without a doubt, if the pandemic lasts longer and the number of those infected significantly rises, the effectiveness of medical care and the availability of medical equipment could become jeopardised.²³ It is not easy to maintain quality care during a protracted, increasingly difficult situation. The health conditions of critically ill patients could quickly deteriorate, or they could develop severe complications with no successful medicines or vaccines yet available. Thus, patient care—which is mainly supportive—drains the

effectiveness of medical aid. Many physicians and other healthcare workers have little experience or an inadequate level of training with such pandemics, which require training, education, and good communication.¹⁴ Participants who had received COVID-19 training had a better perception of the importance of precautions taken, and were more likely to practice social distancing with immediate family members. This implies that training is valid and helpful in improving practices surrounding outbreaks, and could prepare medical personnel to appropriately deal with public health emergencies in the future.²⁴

Conclusion

Clearly, there are huge concerns about the extent of COVID-19's transmission and the duration of the pandemic. If the virus continues to spread, a national strategy should be prepared to reinforce the psychological and social status of healthcare workers. Physicians and other medical staff are the most affected by this pandemic; hence, their safety and comfort should be prioritised through national strategic and supportive programs.

Recommendations

It is imperative to offer professional training on COVID-19 for healthcare workers in all healthcare settings, whether their facility treats COVID-19 patients or not. Physicians should receive more advanced and up-to-date training. Further, due to the uncontrollable spread of the virus over the past several months, the Jordanian healthcare system (in addition to other systems) should medically and psychologically prepare for a second wave of COVID-19, which could be more intense.

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Conflict of interest

The authors have no conflicts of interest to declare.

Ethical approval

Informed consent, privacy, and confidentiality were ensured. This study was approved by the Institutional Review Board of Jordan University of Science and Technology [IRB proposal # 20200527, 11th June, 2020].

Authors contributions

RAS conceived of and designed the study, conducted research, provided research materials, and collected, organised and analysed the data. MAA and AMO edited the manuscript. OBY and KAO wrote the final draft and provided logistical support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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