

# How did the first year of the COVID-19 pandemic affect urology practice in Arab countries? A cross-sectional study by the Arab Association of Urology research group

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## Abstract

**Objective:** The aim of this study was to assess of the effect of coronavirus disease 2019 (COVID-19) pandemic on urology practice in the Arab world during the first year of the crisis.

**Methods:** An Internet-based questionnaire was created and sent out via email to members of the Arab Association of Urology (AAU) using 'Google Forms'. The survey assessed participants' demographics in terms of age, gender, country of origin, type of practice and position. Impacts of COVID-19 on urological practice were assessed in terms of the changes in hospital policies regarding consultations, and elective and emergency surgical cases. Moreover, impacts of COVID-19 on urologists were assessed.

**Results:** A total of 255 AAU members across 14 Arab countries (Emirates, Egypt, Saudi Arabia, Iraq, Jordan, Algeria, Kuwait, Yemen, Qatar, Lebanon, Libya, Oman, Sudan and Syria) completed the survey; 4% were female urologists. Consultations at outpatient clinics were closed or restricted to emergency cases or replaced by telemedicine in almost 15%, 40% and 25% of hospitals, respectively. Elective surgeries were stopped or reduced to under 25% of surgical capacity in >10% and about 25% of hospitals, respectively. Almost 90% (228) reported changes in the policy for emergency theatres. Nearly 65% of hospitals offered preoperative COVID-19 testing to patients and 50% of hospitals provided personal protective equipment (PPE) to their urologists. Of 99% (253) who reported a change in urological education, 95% relied on online webinars. About 56% of respondents had their own private practice, of whom 91% continued private practice during the crisis. About 38% of participants reported exposure to intimidation (75% emotional, 20% verbal and 5% physical).

**Conclusion:** The COVID-19 pandemic resulted in major changes in hospitals' policies regarding outpatient consultations, elective and emergency operative cases, and the shift to telemedicine. Arab urologists have been facing major challenges either in both the governmental or the private sectors, and some of them were exposed to emotional, verbal and even physical intimidation.

**Keywords:** Arab, COVID-19, effect, practice, urology

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## Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was first reported in December 2019 in the Chinese city of Wuhan,

and it started to spread like wildfire all the over the world.<sup>1</sup> Almost 1 month later, on 30 January 2020, the World Health Organization (WHO) considered the spread of SARS-CoV-2 as a public

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health emergency of international concern and called it coronavirus disease 2019 (COVID-19) pandemic. Since then, countries all over the world started to report massively increasing COVID-19 morbidities and mortalities, and lockdowns started.<sup>2</sup> While we write this article, the WHO Coronavirus (COVID-19) dashboard declares the following global situation of COVID-19: ‘as of 6:47 pm CEST, 13 August 2021, there have been 205,338,159 confirmed cases of COVID-19, including 4,333,094 deaths, reported to WHO. As of 11 August 2021, a total of 4,428,168,759 vaccine doses have been administered’.<sup>3</sup>

The above numbers indicate how rapid the spread of COVID-19 was. This resulted in a huge increase in workload for health care facilities all over the world and dramatic stress on governments and health care authorities, which mandated significant changes in health care measures under the strain from the overwhelming demand on resources such as medical supplies, including the personal protective equipment (PPE), intensive care unit (ICU) beds and ventilators, and the health care professionals (HCPs). We have seen that most of the hospitals had to serve as quarantine for COVID-19 patients and changed the policy regarding elective and urgent cases, and different recommendations regarding the triage of patients for urological surgery during this pandemic were published.<sup>4,5</sup> Accordingly, there have been cancellations of elective surgeries while only urooncological and emergency non-oncological surgeries were allowed under strict infection control criteria. Moreover, outpatient clinics in urology, like other specialties, were either completely closed, replaced by telemedicine or were run only for emergency cases.<sup>6</sup>

Arab countries are part of the world and certainly there were a lot of changes in health care systems to adapt to this pandemic. In the present cross-sectional study, we aimed to characterize the effects of the pandemic on the urological practice in Arab countries in terms of the changes in hospital policies and the impact on Arab urologists during the first year of COVID-19 pandemic.

## Patients and methods

### Study design

This Internet-based survey was designed and conducted *via* a secure website through ‘Google

Forms’ in the following link: <https://docs.google.com/forms/d/e/1FAIpQLSfXFLLFuvQm8RXGc92-Fk30QrtjWYfoiCRgFjyblHJR8rbsvg/viewform> (Supplement 1).

After obtaining approval from the Arab Association of Urology (AAU) Board, this survey titled ‘How Did COVID-19 Pandemic Affect Urology Practice in the Arab World’ was sent out to all members of the AAU *via* email during two phases. According to our local Institutional Review Board, the Research Ethics Committee of Benha Faculty of Medicine, the survey is exempted from ethical approval; thus, it was not required (REC: IDIRB2017122601). This study was conducted in accordance with the principles outlined in the Declaration of Helsinki and its amendments and all ethical dimensions were considered, and no concerns were identified.

Responding to the survey was voluntary and was considered a consent for participation in this research. The first call was on 7 January 2021 and the second call was on 15 February. Two reminders were sent out during this period. Most of the questions were deemed mandatory to answer and respondents were prompted to complete. Some of the questions were not mandatory to answer as the necessity to respond to these questions was based on the response to the preceding ones such as the response to questions number 19–22 was based on the answer to question number 18 about private practice, and the necessity to respond to question number 28 was based on the response to question number 27 about the exposure to intimidation (Supplement 1). Respondents were given the opportunity to use the ‘Back’ button and change their answers, whenever deemed necessary, prior to submitting the response. Each respondent was not given the opportunity to submit more than one response using one email address.

This survey was advertised on the AAU website, and free 1-year membership in the AAU was offered for the first 10 respondents. The questionnaire format was designed based on literature review about the topic, and most of the questions were adapted from a validated global survey by the Société Internationale d’Urologie (SIU) published by Gravas *et al.*<sup>7</sup> Moreover, the authors added some questions related to important topics which seemed important to include such as exposure to intimidation, effect on private practice and the psychological impact-related COVID-19. The usability and technical functionality of this survey

underwent pretesting by the research team to ensure adequacy of all questions.

This survey included a mixture of open, closed and Likert-type scale questions to assess participants' demographics in terms of age (age groups: <40, 40–50, 51–60, 61–65, >65), gender, country of origin, type of practice (academic hospital, teaching hospital, private hospital, military hospital, insurance hospital) and position (trainee, specialist, consultant, lecturer, assistant professor, professor). The survey assessed the impact of COVID-19 pandemic on different aspects of urological practice in terms of outpatient clinic activities (completely closed, replaced by telemedicine, restricted for follow-ups only, restricted for particular cases only or no change/fully works); change in the hospital policy for elective surgical cases, including cases which may require admission to ICU; and the triage policy (on a scale from 0 to 5, where 0 means *no priority* and 5 means *highest priority*) for some of the common urological operations such as transurethral resection of the prostate (TURP), transurethral resection of bladder tumour (TURBT), radical nephrectomy, partial nephrectomy, non-obstructive stones, obstructing stones, radical cystectomy and varicocelelectomy. The survey also covered the change in the policy of the hospitals regarding emergency cases, including those who necessitate urgent intervention, and the policy for dealing with surgical instruments, including the use of disposable scopes.

Other aspects of the survey included availability and type of PPE, continued medical education, private practice, psychological and mental health, and the exposure to intimidation.

No identifiable personal information was collected. Anonymized data were electronically collected initially on Google Forms prior to being transferred and stored in an electronic spreadsheet format (Microsoft Excel 2010; Microsoft Corporation, Redmond, WA, USA) on a password-protected computer to prevent unauthorized access.

Descriptive statistics were generated using SPSS, Version 23 (IBM Corp., Armonk, NY, USA).

## Results

### *Demographics*

A total of 255 AAU members from 14 Arab countries responded to this survey; 4% of them were females. Demographics of the participants are presented in Table 1. More than 50% of respondents were from three countries (Emirates, Egypt and Saudi Arabia). Most of the participants were consultants and specialists (47.4% and 41.2%, respectively). They work at private hospitals, teaching hospitals and academic hospitals (42%, 33.7% and 30.2%, respectively; Table 1).

### *Effects on hospital policy*

In terms of the effect on the hospital policy, consultations at outpatient clinic were cancelled in about 15% of hospitals, restricted to emergency cases in almost 40% of hospitals and replaced by telemedicine in almost 25% of hospitals (Table 2). Almost 90% of respondents (231/255) reported a change in their hospital policy regarding elective operative cases, with more than 10% stopped the elective surgery at all and more than 25% reduced elective surgery >75%. More than 40 elective cases which might require ICU admission were postponed and >55% were operated only if high risk (Table 2). Almost 90% of urologists (228/255) reported changes in the hospital policy regarding the emergency operative cases. In more than 97% of hospitals, precautions were taken with patients attending emergency theatres as if they were COVID-19 positive, or COVID-19 swabs were taken from these patients prior to surgery (Table 2). Triage for operations was in favour of conditions which might put the patient at high risk such as obstructed renal stones and cancer (Table 2; Figure 1). More than 65% of hospitals adopted a protocol for dealing with the surgical equipment and more than 15% of hospitals adopted the use of disposable surgical equipment, whenever available. The decision of patient's assignment to operative room (OR) was made by the urologists themselves in almost 50% of hospitals or by the chairman of the department in almost 20% of hospitals. In about 10% of hospitals, the decision was made by either a committee from the urology department or the director of the hospital (Table 2). For preoperative COVID-19 testing, about 65% of hospitals offered it for all patients and more than 20% offered it for high-risk patients only, such as patients with chronic illness.

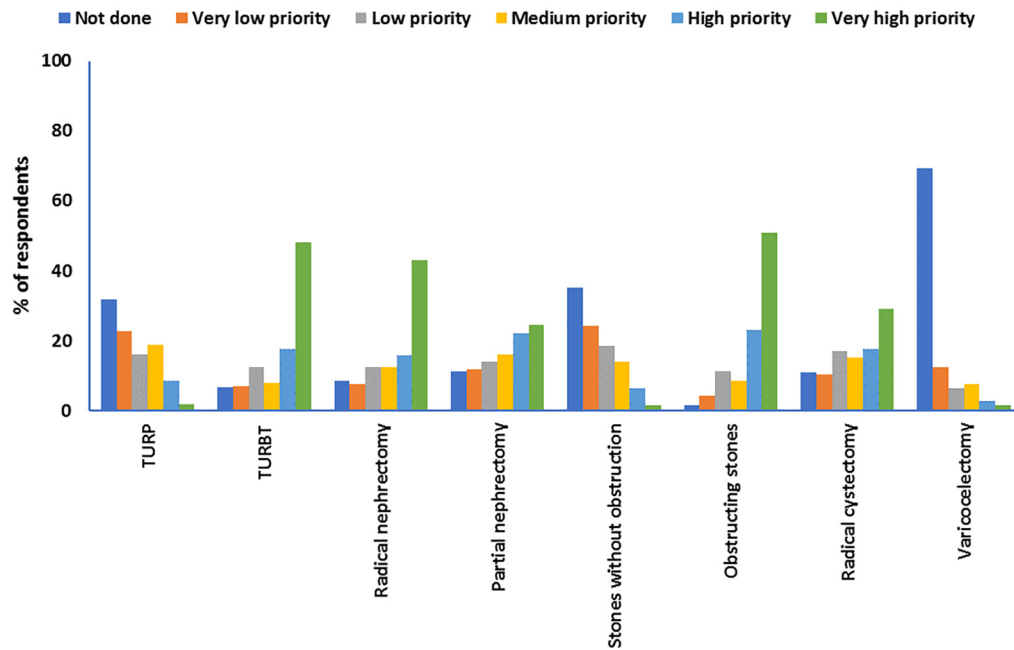
**Table 1.** Demographics of participants.

Variable (255 respondents)		Number	%	
Age (years)	<40	77	30.2	
	40–50	106	41.6	
	51–60	48	18.8	
	61–65	14	5.5	
	>65	10	3.9	
Gender	Males	245	96.1	
	Females	10	3.9	
Country (14 countries)	Emirates	66	25.90	
	Egypt	48	18.80	
	Saudi Arabia	36	14.10	
	Iraq	17	6.70	
	Jordan	14	5.50	
	Algeria	13	5.10	
	Kuwait	12	4.70	
	Yemen	11	4.30	
	Qatar	9	3.50	
	Lebanon, Libya, Oman (for each)	7	2.70	
	Sudan, Syria (for each)	4	1.60	
	Type of practice	Academic hospital	77	30.2
		Teaching hospital	86	33.7
		Private hospital	107	42.0
Military hospital		15	5.9	
Insurance hospital		15	5.9	
Position	Professor	22	8.6	
	Assistant professor	21	8.2	
	Lecturer	4	1.6	
	Consultant	74	29.0	
	Specialist	105	41.2	
	Trainee	29	11.4	

*Effects on urologists*

Regarding the effect on the medical team, the PPE was freely available in 50% of hospitals,

while there was very limited availability or no availability at all in 40% and 10% of hospitals, respectively (Table 3). Almost 99% (253/255) of



**Figure 1.** The triage policy for eight common urological operations in terms of the priority for performing these operations during the first year of COVID-19 and the percentage of respondents for each operation. TURBT, transurethral resection of bladder tumour; TURP, transurethral resection of the prostate.

\*Priority was reported on a scale from 0=not done, 1=very low priority, 2=low priority, 3=intermediate priority, 4=high priority and 5=very high priority.

**Table 2.** Effects on the hospital policy.

Variable		Number	%
Consultations at outpatient clinic	Completely closed	42	16.5
	Replaced by telemedicine	60	23.5
	Restricted for follow-up only	30	11.8
	Restricted for specific cases only	97	38.0
	No change, fully work	70	27.5
Policy for elective operative cases	Elective surgery reduced by >25%	25	9.8
	Elective surgery reduced by >25% to <50%	53	20.8
	Elective surgery reduced by >50% to <75%	51	20.0
	Elective surgery reduced by >75%	68	26.7
	No elective surgery right now	34	13.3
Policy for elective cases requires ICU admission (231 responses)	Performed as in the past	8	3.5
	Performed if high risk of disease progression	130	56.3
	Postponed	93	40.3
Policy for emergency operative cases	COVID-19 test before surgery	158	69.3

(continued)

Table 2. (continued)

Variable		Number	%
	Presume COVID-19 positive and do surgery	64	28.1
	Not applicable or I don't know	6	2.6
Policy for dealing with surgical equipment	As before without any precautions	36	14.1
	Follow special COVID-19 protocol	169	66.3
	Use single use equipment, whenever possible	43	16.9
	I don't know or not applicable	7	2.7
Policy regarding the decision of OR assignment	Committee of urology division	29	11.4
	Special board for COVID-19 era	22	8.6
	The head of department	50	19.6
	The medical director of the hospital	24	9.4
	The responsible urologist	122	47.8
	Not applicable, I don't know	8	3.1
Policy regarding preoperative COVID-19 testing	Case by case based on a committee decision	15	5
	Risky patients with bad general conditions	6	2.4
	Patients suspicious for COVID-19 infection	59	23.1
	All patients	161	63.1
	None	14	5.5
Policy regarding the use of PPE while in the hospital	Surgical mask	167	65.5
	Goggles	47	18.4
	Face shield	101	39.6
	N95 or FFP3 mask	126	49.4
Triage policy for eight common urological operations (reported as median on a scale from 0 to 5, where 0 is <i>no priority</i> and 5 is <i>highest priority</i> )	Transurethral resection of the prostate	1 (0–5)	
	Transurethral resection of bladder tumour	4 (0–5)	
	Radical nephrectomy	4 (0–5)	
	Partial nephrectomy	3 (0–5)	
	Stones without obstruction	1 (0–5)	
	Obstructing stones	5 (0–5)	
	Radical cystectomy	3 (0–5)	
	Varicocelelectomy	0 (0–5)	

COVID-19, coronavirus disease 2019; ICU, intensive care unit; OR, operative room; PPE, personal protective equipment.

**Table 3.** Effects on the urologists.

Variable		Number	%
Was PPE provided by the hospital?	No, we had to buy it ourselves	27	10.6
	Yes, but with very limited availability	97	38.0
	Yes, the hospital provides all types of PPE	131	51.4
Continuing education during COVID-19	Online webinars	240	94.9
	Online courses	139	54.9
	Online videos	134	53.0
Private practice during COVID-19 (130 responses)	No change	13	10.0
	Only emergency	11	8.5
	Severe decrease of patients' number	103	79.2
	Slight decrease of patients' number	3	2.3
Biggest worry during COVID-19 pandemic	You will get infected	119	46.7
	Your colleague or team will be infected	87	34.1
	One of your family will become infected	172	67.5
	Your hospital will not able to provide patient care	70	27.5
	All hospitals will not able to handle the patient load	112	43.9
Intimidation during COVID-19	Emotional/Psychological	72	74.2
	Physical	5	5.2
	Verbal	20	20.6

COVID-19, coronavirus disease 2019; PPE, personal protective equipment.

respondents reported a change in the continuing urological education during COVID-19 and about 95% of them had to switch completely to online educational modalities (Table 3). A total of 143 of respondents (56%) had their own private practice; 130 (91%) of them continued their private practice during the COVID-19 pandemic and 103 out of these 130 urologists (79%) reported significant decline in the number of patients visiting their clinic during the pandemic time (Table 3). Among the participants, 229 (90%) knew how to protect themselves from being infected by COVID-19. All participants believed that there was a modest effect (median of 3 on a scale from 0 to 5, where 0 is *no effect* and 5

is *severe effect*) on their mental and psychological health during the pandemic time. Meanwhile more than 45% reported that the biggest worry was to get infected or the hospitals will not be able to handle the patient load, the majority (almost 70%) reported that their biggest worry was about the infection of their family members (Table 3). A total of 97 (38%) respondents reported that they were exposed to some sort of intimidation for being doctors, of whom about 75% were subjected to emotional intimidation and around 20% were subjected to verbal intimidation (Table 3).

## Discussion

The COVID-19 pandemic constituted and still constitutes a major challenge for all governments and health care policy makers around the world. The present study showed the dramatic effects of COVID-19 pandemic on the policies of the hospitals and urologists in the Arab world. In terms of the effects on hospitals' policies, consultations at outpatient clinics were closed in almost 15% of hospitals, restricted to certain cases in almost 40% of hospitals and replaced by telemedicine in almost quarter of hospitals. In a global survey, by UroSoMe work group, recruiting >1000 urologists from Europe, Asia, North and South America, it was evident that COVID-19 adversely affected urological services with a cut-down of outpatient clinics (28%) and outpatient investigations (30%).<sup>8</sup> Similarly, a cross-sectional study by Rajwa *et al.*<sup>9</sup> from Poland showed that 86.9% of respondents reported >25% declines in outpatient clinic consultations. Furthermore, a global survey by the SIU with almost 2500 participants from 76 countries around the world reported similar results in terms of the worldwide restrictions for outpatient clinics.<sup>7</sup> Another global web-based survey, recruited 620 urologists from 58 countries around the world, investigated the use of telemedicine (defined as video calls only) before and during COVID-19 and reported an increase in the use of telemedicine from 15.8% to 46.1% in the pre-COVID compared with COVID-19 era, respectively. Interestingly, urologists who used telemedicine during COVID-19 showed interest to continue using it.<sup>10</sup> Therefore, the European and the international associations have outlined the benefit of telemedicine in the current COVID era and its potential role in the future.<sup>11</sup>

Moreover, the current study showed major changes in the hospital policies for elective and emergency surgery. Elective cases which might require ICU admission were postponed and >55% were operated only if high risk such as obstructing stones and oncology cases (Figure 1). Similarly, in a study by Bozkurt *et al.*,<sup>12</sup> COVID-19 pandemic significantly changed urological practice in Turkey hospitals as priority was given to emergency cases and surgeries which if deferred the course of the disease would affect patient's life. The results of a study recruiting eight academic urological departments in Paris were congruent with our findings where there was a decrease in urological procedures by an overall of 55% in the first year of COVID-19 {oncology

surgeries (31%), emergency surgery (44%), reconstructive surgery (85%) and andrology surgery (81%)}.<sup>13</sup> Furthermore, the SIU global survey reported similar results in terms of the worldwide restrictions for non-emergency surgery.<sup>7</sup> Similarly, another survey showed that 85% of elective surgery was cancelled in the European Union.<sup>14</sup> In the present study, the decision of patient's assignment to OR was taken either by the urologist himself or by the chairman of the department in almost 50% and 20% of hospitals, respectively. This was congruent with the findings of the global survey by SIU where participants declared that urologists were responsible for decision making regarding the OR assignment in >40% of occasions.<sup>7</sup>

Regarding the impact on urologists, this study showed that the PPE was freely provided by half of the hospitals, was very limited in almost 40% of hospitals and was not provided at all by almost 10% of hospitals. In a survey by Heinze *et al.*,<sup>14</sup> >60% reported their centres were always or almost always able to provide PPE. Nevertheless, in the global survey by UroSoMe group, only 33% of the respondents reported that they received adequate PPE from their centres.<sup>8</sup> We think that the shortage of PPE during the early period of COVID-19 pandemic created severe anxiety and distress among urologists and their colleagues. This coincides with the opinion of 589 German urologists participated in an online survey between 27 March and 11 April 2020.<sup>15</sup>

In the current study, all participants believed that there was a modest effect on their mental and psychological health during this time of the pandemic. Similarly, another survey by Heinze *et al.*<sup>14</sup> recruited 107 participants from 22 European countries showed a bad impact on the quality of life (QoL) of 82.3% of respondents. Similarly, in the study by Rajwa *et al.*<sup>9</sup> from Poland, a negative psychological impact was reported by about 80% of respondents and anxiety was reported by almost 60% of respondents. In the European survey by Heinze *et al.*,<sup>14</sup> 82.3% of the participants reported negative impact on their QoL by the COVID-19 pandemic. This might have been due to the stress at work, fear from the epidemic, the lack of PPE in some regions, the lockdown and the reduced financial income in some countries. Gomes *et al.*<sup>16</sup> showed that 54.3% of the participant members from the Brazilian Urological Association reported  $\geq 50\%$



reduction in their income. This was similar to the findings in the Rajwa *et al.*<sup>9</sup> survey where 55.9% of the participant colleagues from Poland claimed over 25% reduction in income. In our study, more than half of respondents had their own private practice and almost 90% of them continued private practice during the crisis, of whom 79% reported severe shortage in patients and this might have had a negative contributing factor to the impact on psychological health as most urologists in the Arab world get part of their own income from private practice. Moreover, this study showed that 38% of respondents were exposed to some sort of intimidation for being doctors, of whom about 75% were subjected to emotional intimidation and around 20% were subjected to verbal intimidation, and 5% were even subjected to physical intimidation. This was very serious finding and the whole world has seen several cases of intimidation for HCPs in some Arab countries during the pandemic. This should alert governmental authorities to put the required regulations and laws to protect their HCPs.

In terms of education during the COVID-19 era, the present study showed that almost 99% (253) of respondents reported a change in their urological education, with about 95% relying on online webinars. It was evident that urological education faced major challenges during this period due to the lockdown and cessation of clinical activities and cancellation of most international meetings. However, it was interesting that urological education rapidly adapted to the COVID-19 pandemic and web-based virtual platforms rapidly started to fill the gap.

Our findings are supported by the results of a recent review by Faridi *et al.*,<sup>17</sup> where they reported that COVID-19 pandemic was a big challenge to the urology community and resulted in suspension of outpatient visits and elective surgeries, and disruption of education activities.

This study has some limitations. First, like any cross-sectional study, a small number of invited urologists responded to this survey. Second, participation from some Arab countries was very limited and this could have been due to some ongoing conflicts, war and political issues in these countries. Moreover, we think that the psychological impact and the stress during this period of the COVID-19 pandemic prior to the introduction of

the vaccines might have had a role in this low participation rate. Nevertheless, the number of participants in this survey exceeds the number of participants in a published survey from 22 European countries.<sup>14</sup> Furthermore, this survey followed the Checklist for Reporting Results of Internet E-Surveys (CHERRIES),<sup>18</sup> and a CHERRIES checklist has been provided as a supplementary file (Supplement 2). Finally, an important strength of this study is that it is the first study to report the effects of the COVID-19 on urology practice in the Arab world during the first year of the pandemic.

### Conclusion

This study discloses dramatic effects of the first year of the COVID-19 pandemic on urological practice and urologists in the Arab world. This was evident in the changes of hospitals policies regarding outpatient consultations, elective and emergency operative cases, and the shift to telemedicine. Most hospitals were able to provide PPE and COVID testing for their patients despite some constraints. Arab urologists faced major challenges in both governmental and private sectors, and some of them were exposed to emotional, verbal and even physical intimidation.

### Authors' Note

Yasser Noureldin, Yahia Ghazwani, Abdullah Alkhayal, Saeed Bin Hamri and Khalid Alrabeeah are now affiliated to King Abdullah International Medical Research Center (KAIMRC), Riyadh, Saudi Arabia.

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### Author contributions

**Yasser A. Noureldin:** Conceptualization; Data curation; Formal analysis; Methodology; Writing – original draft; Writing – review & editing.

**Basheer Elmohamady:** Conceptualization; Data curation; Formal analysis; Methodology.

**Amr S. El-Dakhakhny:** Conceptualization; Writing – review & editing.

**Mohamed Omar:** Conceptualization; Writing – review & editing.

**Esam E.A. Desoky:** Conceptualization; Writing – review & editing.

**Yahia Ghazwani:** Conceptualization; Writing – review & editing.

**Saeed Bin Hamri:** Conceptualization; Writing – review & editing.

**Abdullah Alkhalaf:** Conceptualization; Writing – review & editing.

**Khalid Alrabeeah:** Conceptualization; Writing – review & editing.

**Wissam Kamal:** Conceptualization; Writing – review & editing.

**Fawzy Farag:** Conceptualization; Writing – review & editing.

**Yasser Farahat:** Conceptualization; Data curation; Methodology; Writing – review & editing.

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### Supplemental material


Supplemental material for this article is available online.

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