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The effect of the first wave of COVID-19 pandemic on urology practice and anxiety scores of patients awaiting surgery

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Abstract

Objective: We aimed to determine the effect COVID-19 pandemic on the daily urology practice of the level 3 centre located in one of the most affected regions in Turkey. We also aimed to assess anxiety and depression levels of patients whose procedures and surgeries had to be postponed due to COVID-19-related restrictions.

Methods: The number of patients admitted to the outpatient clinic, outpatient procedures, emergency consultation requests, hospitalised patients and the total number of surgeries between March 10, 2020 and June 15, 2020 were evaluated. These numbers were compared with the same period of 2019. Subsequently, patients who could not be operated or whose elective surgeries were postponed between March 10, 2020 and June 15, 2020 were determined(n:96). These patients were asked to fill out Beck Depression Inventory(BDI) and State-Trait Anxiety Inventory(STAI). The presence of difference between the baseline anxiety levels and the anxiety levels during the COVID-19 pandemic was investigated. Afterwards, these patients were divided into two groups based on planned procedures as oncological group (group1) and non-oncological group (group2). The presence of a difference between the anxiety and depression levels between the groups was investigated.

Results: There was a drastic decline in number of patients in all assessed parameters. The least amount of change was seen in the number of emergency consultations. The evaluation of anxiety and depression scores of the patients showed a significant difference between their STAI-S and STAI-T scores (51.8 ± 9.3, 38.2 ± 7.5, respectively) ($P < .001$). STAI-S scores of the patients were found to be compatible with severe anxiety. The patients' mean BDI score was found to be 15 ± 8.9, which indicated mild depression. However, the age and STAI-S values were significantly higher in group1.

Conclusion: We noted that anxiety and depression levels increased in patients whose operations were delayed because of pandemic-related restrictions, especially in oncological patients. We believe that an important contribution can be made to the protection of public health by planning advance psychosocial interventions for high-risk groups during pandemics.

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What's known

- We detected a dramatic decrease in the number of patients applying and being admitted to the outpatient clinic, number of emergency consultations, number of hospitalized patients, total number of operations, and number of emergency operations compared to the same period of the previous year.
- In our study, patients whose procedures had to be postponed due to COVID-19 restrictions had mild depression and increased anxiety.
- We think that mental health support should be considered as a part of the treatment in this patient group.

What's new

- In this study we aimed to determine the effect COVID-19 pandemic on the daily urology practice of the level three center located in one of the most affected regions in Turkey.
- We also aimed to assess anxiety and depression levels of patients whose procedures and surgeries had to be postponed due to COVID-19-related restrictions.

1 | INTRODUCTION

A severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) mainly causes cough, fever and myalgia, and results in coronavirus disease 2019 (COVID-19), which is highly infectious.[1] COVID-19 is not directly related to the urinary system; however, since even asymptomatic carriers could transmit COVID-19 to another person during the incubation period, patients visiting urology clinics can still be at risk for transmission.[2] The high risk of transmission and rapid spread of the virus have caused a great burden on health systems worldwide and caused widespread economic and social deterioration.[1] As in the whole world, because of the measures taken by Turkish state and health system administrators, all hospitals in Turkey stopped performing elective surgeries only allowing emergency and priority surgeries. This has led to a significant decrease in outpatient clinic admissions. In this context, the urology clinic of our hospital continued to carry out emergency, priority cancer surgeries and outpatient procedures according to the guideline published by the European Association of Urology during the Covid-19 period (Table 1).[3] Although urgent and priority procedures continued in our

TABLE 1 Stepwise approach to cancellations of urological surgeries

Non-essential	Low priority	High priority	Emergency
Circumcision	Robotic Prostatectomy	Orchiectomy for testicular cancer	Testicular torsion
Vasectomy	Cystectomy for low-risk tumour	TURBT for high-risk tumour	Scrotal abscess/ Fournier's gangrene
Surgery for BPH	Ureteroscopy	Nephrectomy (high risk/IVC invasive)	Urinary tract trauma
Incontinence surgery	Nephroureterectomy (low risk)	Ureteroscopy for obstructive/infection ureteric stones	Clot retention
Benign scrotal surgery	Transperineal Prostate Biopsy	Nephroureterectomy (high risk)	Obstructed/Infected Kidney
Infertility and Andrology	Asymptomatic ureteric calculi TURBT for low-risk tumour	Penile cancer	
		RPLND post-chemotherapy	
		Infected artificial urinary sphincters and penile prosthesis	
		Urinary tract trauma	
		Intravesical therapy for high-risk bladder cancer	

Abbreviations: IVC, ınferior vena cava; RPLND, retroperitoneal lymph node dissection; TURBT, transurethral resection of bladder tumour.

clinic during this pandemic, quarantine process and social isolation have caused some patients to delay their applications to the clinic or postpone their elective treatments.

The extent of the pandemic and its final impact on the health and well-being of the population in the future remain uncertain. During these times, uncertainty brings out fear, anxiety, terror and despair.[4] Previous studies have explored the psychological consequences, its prevalence and related factors of the past outbreaks on healthcare workers.[5] In their study conducted in three hospitals in Toronto, Maunder et al found higher anxiety scores in nurses and healthcare workers who came into contact with patients with severe acute respiratory syndrome.[5] Studies on the COVID-19 outbreak have also reported that both healthcare workers[6] and general population[7] experienced mood and sleep disorders during the pandemic and that their depression and anxiety levels increased.[6,7]

According to the data from Turkish Ministry of Health, the first COVID-19 case was seen on March 10, 2020 and since then until June 15, 2020 a total of 199 906 cases and 5131 death were observed in Turkey.[8] During the pandemic, our hospital, which provides level 3 services, has been declared a pandemic hospital. This has caused the patients' admission to be delayed, their treatment being interrupted or their elective treatments to be postponed. To the best of our knowledge, there is no study evaluating the anxiety levels of patients whose clinic applications or elective surgeries were delayed during the COVID-19 period. In this study, we compared the number of urology outpatient admissions, emergency consultations, total number of surgeries and outpatient procedures during the COVID-19 pandemic with the same period of 2019. At the same time, we aimed to evaluate the change in anxiety scores of patients whose procedures and operations were delayed due to pandemic-related restrictions.

2 | MATERIALS AND METHODS

This research was approved by the ethics committee of our hospital and Turkish Ministry of Health (Institutional Review Board approval number: 2020/9-29). Informed consents were obtained from all patients before the study. The number of outpatient visits, outpatient procedures (cystoscopy, prostate biopsies, intravesical therapy, urodynamics, percutaneous nephrostomy and cystostomy), urgent consultation requests, number of hospitalised patients, number of total surgeries (oncological: transurethral resection of bladder tumour (TUR-BT), radical nephrectomy (RN), radical nephroureterectomy (RNU), radical prostatectomy (RP), radical cystectomy (RC), radical orchiectomy (RO)), number of non-oncological surgeries (transurethral resection of prostate (TURP), endoscopic urethrotomy, ureterorenoscopy (URS), percutaneous nephrolithotomy (PNL)) and emergency operations (surgery for Fournier's gangrene, acute scrotum, trauma (kidney, bladder, ureter and testicle)) and penile fracture between March 10, 2020, which was the date of the first COVID-19 case in Turkey, and June 15, 2020 were obtained using the hospital database system and compared with the data of the same period in 2019. Operations including female urology, andrology and some other elective surgical operations were not included in the study because they were not performed during the study period. Patients whose procedures and surgeries were postponed due to COVID-19 restrictions between March 10, 2020 and June 15, 2020 were prospectively registered from June 15, 2020, when the routine operation began at our hospital, until August 15, 2020. These patients were re-evaluated in the urology outpatient clinic between these dates and were scheduled for surgeries. The study included 96 patients. After recording patients' demographic characteristics (age, gender, body mass index) during the face-to-face interview, the patients' anxiety and depression levels were determined. It was examined whether there was an increase in anxiety scores during the COVID-19 period and those scores were compared with the patient's baseline anxiety scores. Depression scores of the patients were also evaluated. Afterwards, 96 patients were divided into two groups according to the planned surgery: oncological patients (group 1) (n: 40) and non-oncological patients (group 2) (n: 56). The difference between anxiety scores and depression scores between groups was examined.

2.1 | Anxiety assessment

State-Trait Anxiety Inventory (STAI), which assesses baseline (trait) and situational (state) anxiety via self-reported questionnaire was used to evaluate patients' anxiety levels.[9] Each part of this questionnaire consists of 20 multiple choice questions and the overall score ranges from 20 to 80, with higher scores indicating higher level of anxiety. Patients with the STAI scores of ≤35 were considered as having "no anxiety", patients with scores between 35 and 42 were considered as having "moderate anxiety", while patients with scores of ≥42 were considered as "severely anxious" as recommended by the guidelines.[10] The validation of this inventory in Turkish population was conducted by Le-Compte and Oner.[11]

Depression scores of the patients were evaluated with Beck Depression Inventory (BDI)-II.[12] Turkish validation was done by Akturk et al[13] Patients who were thought to be incapable of filling these forms were excluded from the study.

2.2 | Statistical analysis

IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.) software package was used for data analysis. The descriptive statistical data were expressed as frequency, percentage, mean and standard deviation. The suitability of the data for normal distribution was evaluated with the Kolmogorov-Smirnov test. When all patients whose procedures or elective surgeries were postponed due to COVID-19 restrictions were evaluated, the variables fitting to the normal distribution were evaluated by the paired sample T test. When the patients were evaluated as group 1 and group 2, after checking whether the data conformed to the normal distribution

(with the Kolmogorov-Smirnov test); the variables fitting to the normal distribution were evaluated by the Student's *t* test. In addition, Chi-squared test was used to evaluate categorical data. *P* value below .05 was considered significant.

3 | RESULTS

The mean age of all our patients (34 females, 62 males) was 55.9 ± 11.4 years and their mean body mass index (BMI) was 25.2 ± 2.4 kg/m^2. When the periods of March 10-June 15 2019 and March 10-June 15 2020 were compared with each other, there was a decrease in the number of patients admitted to the outpatient clinic (19 793-4730; −76.1%), number of outpatient procedures (557-60; −89.2%), number of emergency consultations (330-250; −24.2%), number of hospitalised patients (386-166; −57%), total number of operations (355-126; −64.5%) and number of emergency operations (38-22; −42.11%) (Figures 1 and 2). The least amount of change was seen in the number of emergency consultations.

The evaluation of anxiety and depression scores of the patients showed a significant difference between their STAI-S and STAI-T scores (51.8 ± 9.3, 38.2 ± 7.5, respectively) ($P < .001$). STAI-S scores of the patients were found to be compatible with severe anxiety. The patients' mean BDI score was found to be 15 ± 8.9, which indicated mild depression.

The evaluation between group 1 (n: 40) and group 2 (n: 56) showed no significant difference in the gender, STAI-T and BDI scores, while the age and STAI-S values were significantly higher in group 1 (Table 2).

Baseline anxiety scores (STAI-T) were similar in both groups, but there was an increase in STAI-S scores in both groups during COVID 19 period. This increase was significant in the oncological patient group (Table 2).

4 | DISCUSSION

The COVID-19 pandemic has brought unprecedented medical and economic challenges.[1] It is known that any COVID-19 carrier who is in the incubation period or asymptomatic can transmit the disease.[2] Therefore, any patient who applies to the urology outpatient clinic for examination is likely to be a COVID-19 carrier. Since patients with urological problems have a higher average age and higher morbidity rates, it is essential to take precautionary measures against COVID-19 in the urology department.[14] During the pandemic, oncological and non-oncological surgeries were rearranged with certain algorithms in line with the updates published by the American College of Surgeons and European Association of Urology. Within the scope of the measures taken by government officials, hospital clinics have also recommended that elective operations be postponed during the COVID-19 pandemic.[3,15] According to most studies, COVID-19-related decrease in outpatient services ranged from 40% to 80%.[16,17] Since in-person visits were restricted, some healthcare professionals provided services via telemedicine.[16,17] A number of genitourinary cancer surgeries performed in eight hospitals in Paris decreased by 31% during the evaluated pandemic period (March 12-27) compared with the same period in 2019.[18] In Turkey, Tinay et al reported a decrease in surgeries related to urothelial carcinoma, as well as prostate and kidney cancer (from 200 cases in 2019 to 90 cases in 2020) in tertiary hospitals during the early period of the COVID-19 pandemic (March 11-April 11).[19] The authors suggested implementing centralisation of all oncological operations during such pandemic periods.[19]

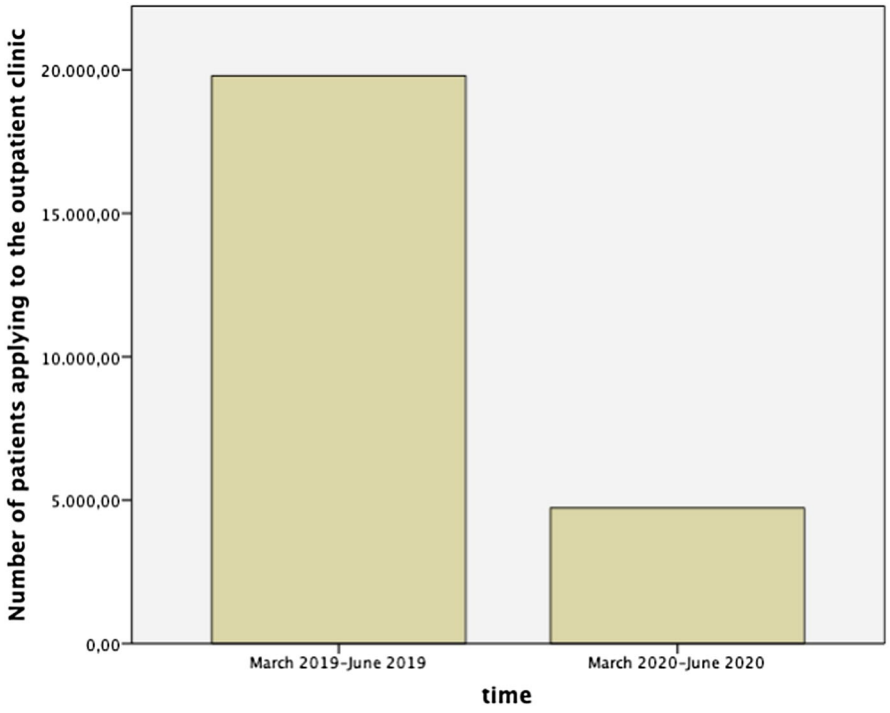


FIGURE 1 Comparison of number of patients applying to the outpatient clinic during the pandemic period and the same period in 2019

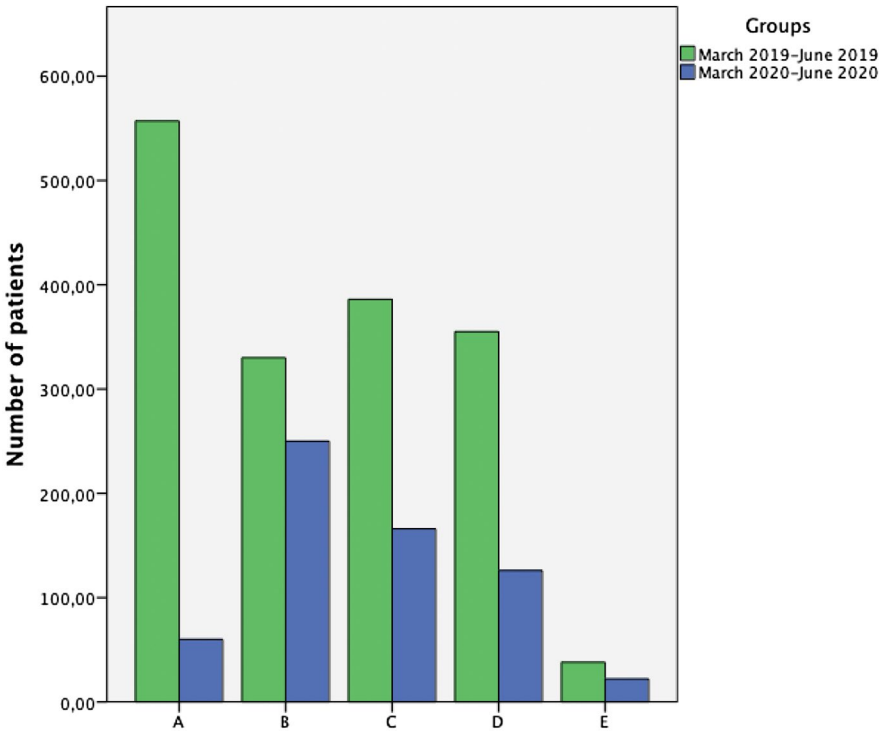


FIGURE 2 Comparison of the number of daily patients, number of emergency consultations, number of hospitalised patients, total number of operations and number of emergency operations during the pandemic period and the same period in 2019. A, number of daily patients; B, number of emergency consultations; C, number of hospitalised patients; D, total number of operations; E, number of emergency operations

The results of our study indicated that the number of patients applying and being treated in outpatient clinics, hospitalised patients, total surgery and emergency admissions have decreased as expected. When we look at this decrease proportionally, it was observed less in emergency operations and consultation, as well as oncology surgeries. It is not surprising that the decrease in the number of emergency consultations and cases during the COVID-19 period is less than the number of normal cases. Since our hospital was designated as a pandemic hospital, many patients had fear of contracting COVID-19 and anxiety of not being able to receive treatment during this period and thus preferred other non-pandemic hospitals. Meanwhile, oncological surgeries proceeded in line with the guidelines, thus not showing as drastic decrease as with other procedures.

Sudden changes in everyday life, such as the COVID-19 outbreak, are one of the risk factors that can significantly affect mental health. Some psychosocial stress factors such as health threats to oneself and loved ones are associated with the pandemic.[20] Psychosocial responses to infectious disease outbreaks are variable and may include feelings of anxiety, depression or fatigue, overestimation of the possibility of infection, excessive and inappropriate adoption of precautionary measures and increased demand for healthcare services.[20-22]

In their meta-analysis, S. Pappa et al noted that a significant proportion of healthcare workers experienced mood and sleep disturbances during the COVID-19 outbreak. They also stated that female healthcare professionals and nurses showed higher rates of affective symptoms compared with male medical staff, revealing gender and occupational differences.[6] In another population-based study aimed to evaluate the depression and anxiety of people in Hong Kong during the COVID-19 pandemic, 19% of the 500 participants had depression and 14% had anxiety. In addition, 25.4% of participants reported that their mental health has deteriorated since the pandemic.[7] Bohlken et al reported that during the COVID-19 pandemic, doctors in Germany were more anxious and showed depressive symptoms.[23] Another study that compared healthcare workers and members of the society during the COVID-19 pandemic reported that the levels of hopelessness and anxiety in healthcare workers were higher than non-healthcare workers. They also noted that among healthcare professionals those levels were higher among nurses compared with physicians and other healthcare professionals.[24]

When the COVID-19 epidemic is evaluated in all these aspects, it is not surprising that it affects the society as a whole for similar reasons and manifests itself with symptoms of anxiety and depression. As mentioned above, there are many studies reporting the symptoms of anxiety and depression in healthcare professionals and the general public.[7,23,24] In this study, where we evaluated the anxiety and depression scores of patients whose procedures or elective surgeries were postponed due to COVID-19 restrictions, we found that the anxiety levels of the patients increased and were higher than their baseline anxiety scores. Anxiety scores of oncological patients in group 1 were found to be higher. Fear of cancer progression in these patients is thought to be the main source of this concern. On the other hand, when the BDI of all patients were evaluated, the depression scores were compatible with mild depression, which might be because of the prolonged waiting times that may have deepened anxiety and depression.

Our study covers a specific group of patients whose procedures or operations were postponed due to COVID-19 restrictions. This is the first study in the literature that examines the change in anxiety

TABLE 2 Statistical data of patients in the study groups

Groups	n	Mean	SD	*P*
Gender				
Group1	40 (F:16, M:24)			.28[a]
Group2	56 (F:18, M:38)			
Age				
Group1	40	60.1	9.6	.002[b]
Group2	56	52.9	11.7	
BMI (kg/m^2)				
Group1	40	24.7	2.3	.074[b]
Group2	56	25.6	2.4	
STAI-T				
Group1	40	36.4	6.6	.053[b]
Group2	56	39.4	8	
STAI-S				
Group1	40	55.4	9.2	.001[b]
Group2	56	49.2	8.4	
BDI				
Group1	40	14.8	6.3	.79[b]
Group2	56	15.2	10.4	

Abbreviations: BMI, body mass index; STAI-T, State-Trait Anxiety Inventory-Trait; STAI-S, State-Trait Anxiety Inventory-State; BDI, Beck Depression Inventory; F, female; M, male

[a]Chi-squared test.

[b]Student's *t* test.

scores of patients whose surgery was delayed as a result of the pandemic. It is the biggest strength of our study. A single-centre design and relatively low number of patients in the groups are limitation of our study. In addition, an important limitation of the study is that it did not fully evaluate other factors that may have affected anxiety scores. For example, a significant number of patients lost their relatives during the pandemic and this may have contributed to their anxiety.

5 | CONCLUSION

The COVID-19 pandemic has caused serious changes in healthcare systems around the world. We detected a dramatic decrease in the number of patients applying and being admitted to the outpatient clinic, number of emergency consultations, number of hospitalised patients, total number of operations and number of emergency operations compared with the same period of the previous year. In addition, elective surgeries were postponed and priority was given to emergency urological situations and high-grade malignancies. In our study, patients whose procedures had to be postponed due to COVID-19 restrictions had mild depression and increased anxiety. We hope that our findings will provide data to support targeted interventions in mental health for Turkish and worldwide population during such pandemics. We think that mental health support should be considered as a part of the treatment in this patient group.

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None.

DISCLOSURE

All authors declared that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

UM and EK: study design, data analysis, manuscript writing. UM, EK, BO and CY: manuscript editing. UM, MHÖ and EK: data collection. UM, EK, MCC and YOI: participated in designing the study, study coordination, data collection and supervision. All authors have critically reviewed the manuscript and have approved the final version submitted for publication.

ETHICS APPROVAL

This study was conducted in accordance with the declaration of 1964 Helsinki and also with approval from the institutional ethics committee.

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

DATA AVAILABILITY STATEMENT

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

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