Turkish Journal of Pediatric Surgery 2023;10(3):93-98
Doi: 10.62114/JTAPS.2023.72887

Turkish Journal of Pediatric Surgery

Original Article / Özgün Makale

Telemedicine practices in the pediatric urology department

Pediatrik üroloji biriminde teletıp uygulamaları

Ömer Barış Yücel[1], Ali Tekin[1], Denizay Avcı[2], Sibel Tiryaki[1], Uygar Bağcı[1], İbrahim Ulman[1]

Abstract

Objectives: In this study, we aimed to assess the perspective of the patients and the parents regarding their satisfaction with the televisits in our center.

Patients and methods: Between November 2019 and December 2021, a total of 247 participants (155 males, 92 girls, median age 76.9 months; range, 4.9 to 518.6 months) who met the inclusion criteria were analyzed. A questionnaire which was prepared to evaluate parents' satisfaction with telemedicine, was sent to parents of the children who were evaluated with televisits.

Results: There was no statistically significant difference between the groups in terms of the satisfaction and simplicity scores according to the diagnosis (p=0.099 and p=0.243, respectively). Also, 77% of parents in our study found televisits similar to face-to-face (in-person) visits.

Conclusion: Our study results show that patient satisfaction with televisit is high in terms of ease of use, shortened travel time and reduced cost. In addition, televisit provides parents with a positive opportunity to take time off from work. The majority of our participants reported that they desired to continue televisit after the end of the pandemic.

Keywords: COVID-19, pediatric urology, telemedicine.

Öz

Amaç: Bu çalışmada merkezimizde hastaların ve ebeveynlerin televizit memnuniyeti açısından görüşleri değerlendirildi.

Hastalar ve yöntemler: Kasım 2019 - Aralık 2021 tarihleri arasında dahil edilme kriterlerini karşılayan toplam 247 katılımcı (155 erkek, 92 kız; ort. yaş: 76.9 ay; dağılım, 4.9-518.6 ay) çalışmaya alındı. Ebeveynlerin televizit memnuniyetlerini değerlendirmek üzere hazırlanan bir anket, televizit ile değerlendirilen çocukların ebeveynlerine gönderildi.

Bulgular: Gruplar arasında memnuniyet ve kolaylık skorları açısından tanıya göre istatistiksel olarak anlamlı bir fark yoktu (sırasıyla p=0.099 ve p=0.243). Ayrıca çalışmamızdaki ebeveynlerin %77'si televiziti yüz yüze (bireysel) yapılan vizitlere benzer buldu.

Sonuç: Çalışma sonuçlarımız kullanım kolaylığı, kısalmış seyahat süresi ve azalmış maliyet açısından televizite ilişkin hasta memnuniyetinin yüksek olduğunu göstermektedir. Ayrıca televizit ebeveynlere işten izin alma konusunda da olumlu yönde olanak sağlamaktadır. Katılımcılarımızın birçoğu pandemi bitiminden sonra da televizite devam etmek istediğini bildirmiştir.

Anahtar sözcükler: COVID-19, pediatrik üroloji, teletıp.

The World Health Organization (WHO) declared the novel coronavirus disease 2019 (COVID-19) outbreak as a pandemic on March 2020. The response strategy included early diagnosis, patient isolation, symptomatic monitoring of contacts, suspected and confirmed cases, and public health quarantine.[1] The healthcare system was overwhelmed along with the abruptly increased patient load secondary to the pandemic. This led to the closure of elective medical and surgical clinics and disruption of the routine care for non-COVID-19 patients.[2] Nonetheless, healthcare workers faced with a high risk for disease considering their close contact with COVID-19 patients and repeated exposure.[3] During this process, telemedicine was promoted and scaled up to reduce transmission risk and maintain equitable access to essential healthcare services.[3]

Received: October 06, 2023
Accepted: November 20, 2023
Published online: December 29, 2023

Correspondence: Ömer Barış Yücel, MD.

E-mail: omerbarisyucel@gmail.com

[1]Department of Pediatric Surgery, Division of Pediatric Urology, Medicine Faculty of Ege University, Izmir, Türkiye

[2]Department of Pediatric Surgery, Medicine Faculty of Ege University, Izmir, Türkiye

Citation:

Yücel ÖB, Tekin A, Avcı D, Tiryaki S, Bağcı U, Ulman İ. Telemedicine practices in the pediatric urology department. Turkish J Ped Surg 2023;37(3):93-98. doi: 10.62114/JTAPS.2023.72887.

After three years of the pandemic, the WHO still considers COVID-19 a global emergency. Several questions arise with the changing situation. Should the solutions that we were obliged to adopt continue after the resolution of the pandemic? Did this necessity during the pandemic lead to a useful modification of the healthcare system or should these practices be left at the earliest opportunity?

Previous studies seeking answers to these questions found high levels of patient satisfaction with telemedicine in adult patients.[4,5] However, the answer to these questions may vary as each center and specialty had to adapt in different ways according to their conditions. Centers dealing with pediatric patients are particularly different considering the perspective of both the child and the parents.

In the present study, we aimed to assess the perspective of the patients and the parents regarding their satisfaction with the televisits in our center.

PATIENTS AND METHODS

Study design and study population

This survey study was conducted at Department of Pediatric Surgery, Division of Pediatric Urology of Medicine Faculty of Ege University between November 1st, 2019 and December 12th, 2021. The mean number of pediatric urology outpatient admissions in this department was ~4,500/year before the start of the pandemic. The telemedicine system was employed in November 2019 due to complete or partial closures during the pandemic and to reduce the burden on the healthcare system. Of a total of 444 patients, 247 (155 males, 92 girls, median age 76.9 months; range, 4.9 to 518.6 months) who met the inclusion criteria were recruited.

Our telemedicine system worked using a special phoneline, an institutional e-mail, and scheduled Teams meetings using our institutional account, when necessary. The telemedicine system was explained to all eligible patients and their parents, and has been employed with the ones who are consented since then. The parents were also informed that they can schedule an in-person visit any time they need and that they could leave the televisit system whenever they need. Parents were given the contact information and televisits were employed, unless the family requested discontinuation.

For scheduling a televisit, the parents sent their request with their complaints, if available. The physician on duty responded within working hours three days a week. If necessary, interviews (video call or telephone) were also conducted.

Telemedicine setting was also used in the perioperative period. The parents and patients were informed during their face-to-face visit where the decision was made. Then, the parents reached us using the telemedicine system for their decision and scheduling. Their further questions were answered using either phone or video-call visits. We also sent electronic messages or performed televisits one or two days before the surgery date to ask for symptoms, such as fever, rhinorrhea, or cough, which could result in cancellation. This provided postponement of the operation of patients with symptoms and replanning for patients waiting for surgery.

Assessment tools

This study was based on questionnaires performed with the patients and parents who used the telemedicine system between the study period. The variables that might affect satisfaction were analyzed.

A structured survey to assess patient and/or caregiver satisfaction with the telemedicine system was sent to the patients or their parents using the telemedicine system. The survey included questions regarding demographic information, time and money savings, how often it was used, ease of use, absence from school, lost workdays, comparison to in-person visits, overall satisfaction, and their opinion on the continuation of the system after the pandemic.

The patients were asked to rate the telemedicine system in terms of ease of use (min 1 very bad - max 5 excellent) and satisfaction (min 1 very bad - max 5 excellent), evaluate the similarity of telemedicine with face-to-face visits (Yes/No), and vote on whether they would like telemedicine to continue after the pandemic (Yes/No). If the patient was above the age of 18, they participated in the survey themselves; otherwise, the parents completed the survey. A retrospective review of patient files was performed to determine the effect of variables such as diagnosis, being a new patient, and surgery in process. Patient demographic data, diagnoses, televisit dates and number of visits, pre-telemedicine follow-up periods, whether a

face-to-face outpatient clinic was performed during this process, and if available, the reason were noted. The ratio of accommodation and transportation costs to the minimum wage in 2021 in Türkiye was calculated.

Statistical analysis

Statistical analysis was performed using the IBM SPSS for Windows version 23.0 software (IBM Corp., Armonk, NY, USA). Descriptive data were expressed in mean ± standard deviation (SD), median (min-max) or number and frequency, where applicable. Mean and median scores for each item in the survey were calculated by assigning points to each response as follows: 1= very bad, 2= bad, 3= not bad, 4= good 5= excellent. A *p* value of <0.05 was considered statistically significant.

RESULTS

Approximately 2,300 visits were performed to 644 children (3.6 visits/patient). The response rate was 38%. The patients who received only one televisit were excluded from the study. A total of 247 of 444 patients completed the survey and were included in the study. Patient demographic characteristics are presented in Table 1.

The distribution of patients according to diagnosis was as follows: antenatal hydronephrosis (n=53), nephrolithiasis (n=44), neurogenic lower urinary tract dysfunction (n=52), hypospadias (n=30), posterior urethral valve (n=9), vesicoureteral reflux (n=24), bladder exstrophy (n=22), tumors (n=5), urinary incontinence (n=8).

There was no statistically significant difference between the groups in terms of patient satisfaction and convenience scores (p=0.099 and p=0.243, respectively). However, the highest mean satisfaction score was in the hydronephrosis group and the lowest in the incontinence group (4.66 and 3.75, respectively.) The mean rates according to diagnosis are presented in Table 2.

The mean satisfaction score of patients who were

TABLE 1
Characteristics of included studies

	n	Median	Min-Max	*p*
Number of patients Male Girl	 155 92			
Age in months		76.9	4.9-518.6	
Follow-up period before televisits in months		17	0.1-240	
Number of televisits	895			
Number of televisits per patient		3.62	1-15	
Travel time to the hospital (h)		2	0.5-6	
Time spent for every hospital visit (h)		8	2-48	
Working day lost		1.7	0-21	
Mean travel and accommodation cost for every hospital visit (TL)	496.3		10-10000	
		(18% of minimum wage in Türkiye)		
Can you evaluate the easiness of telemedicine? (1-5; 1: very bad, 5: excellent)	4.33			
Can you evaluate your satisfaction using telemedicine? (1-5; 1: very bad, 5: excellent)	4.36			
Was the televisit similar to face-to-face visit? Yes No	 184 63			<0.001
Should televisits continue after the pandemic? Yes No	 189 58			<0.001

TABLE 2
Satisfaction and convenience rates according to diagnosis

Diagnosis	n	Convenience (1-5)	Satisfaction (1-5)
Hydronephrosis	53	4.57	4.66
Nephrolithiasis	44	4.43	4.39
Neuropathic bladder	52	4.13	4.08
Hypospadias	30	4.03	4.50
Posterior urethral valve	9	4.89	4.56
Vesicoureteral reflux	24	4.33	4.25
Bladder exstrophy	22	4.45	4.36
Tumors (Bladder rhabdomyosarcoma, Wilms)	5	4.20	4.20
Incontinence	8	3.88	3.75
Total	247	4.33	4.36

operated (n=94, mean score: 4.52) was higher than the patients who were not operated (n=153, p=4.26) (p=0.04).

The simplicity scores of patients who were operated (n=94, mean score: 4.50) were also higher than the patients who were not operated (n=153, mean score: 4.24) (p=0.04).

The satisfaction rates of patients who came from ≥200 km were higher than those who came closer (4.49 and 4.23, p=0.043).

A total of 184 of parents thought that the televisits were similar to face-to-face visits. The highest rate was in the hydronephrosis group (89%) and the lowest in the incontinence group (63%).

A total of 77% of the parents (189/247) voted to continue of the televisits after the pandemic.

During this period, no physician or nurse from our team had COVID-19 originating from the outpatient clinic or was isolated due to contact.

DISCUSSION

After the declaration of the COVID-19 outbreak as a pandemic, an urgent response to prepare the healthcare system was imperative. Telemedicine was rapidly adopted as a way to deliver healthcare to non-COVID-19 patients.[6] Without being limited to geographic location, healthcare was provided while minimizing exposure to the virus, preserving personal protective equipment, and reducing travel time and expenses.[7]

The present study showed increases in patient satisfaction with telemedicine for convenience, decreased travel time and costs, and retrieval from work for parents. A majority of our patients voted for the continuation of televisits after the resolution of the pandemic. Previous studies have reported that telemedicine was associated with lower costs, including distance traveled, travel time, missed workdays, and money spent.[6] It could play also a role in accessing healthcare in areas with geographic disparities, particularly in a metropolitan area with significant travel times due to traffic.[8] As a referral center, many patients come to our outpatient clinic from the surrounding cities and rural areas.

In the current study, the median travel time to the hospital was 2 h (range, 0.5 to 6 h). The median time spent was 8 h (range, 2 to 48 h). The majority of our patients agreed that telemedicine visits saved them time compared to traveling to the clinic; 86.2% of patients who came from ≥200 km demanded televisits to continue after the pandemic and their satisfaction rates were higher than the patients who came from <200 km.

Ellimoottil[9] reported that telemedicine reduced patients' total time of a clinical encounter with a 72% reduction in duration without any significant change in the quality of care. The parents in our study reported that the median number of work days lost was 1.7 days for face-to-face visits.

Furthermore, there was no statistically significant difference between the groups according to the diagnosis in the satisfaction and simplicity rates

(p=0.099 and p=0.243, respectively). However, the highest satisfaction rate was in the hydronephrosis group and the lowest in the incontinence group (4.66 and 3.75, respectively.) This can be explained by the fact that the follow-up of hydronephrosis is mainly based on radiological findings. The lowest satisfaction rates were in the patients with incontinence and neurogenic bladder. This is probably due to the importance of patient compliance with lifestyle modifications in the management and the need for long-term treatment rather than radiological follow-up of these patients. Satisfaction scores were higher in patients who had surgery. The benefit of providing perioperative information via electronic message has been reported previously.[10,11] In this way, a written record of the information can be reviewed by the patient/parents several times and it is possible to illuminate the problems that come to mind later. In addition to the satisfaction scores, the telemedicine system also contributed to more efficient use of the resources both for the patients and the hospital decreasing the number of in-person visits for family and enabling us for rescheduling.

There could be concerns that the lack of in-person interaction would decrease the quality of healthcare. There are reports showing that physicians and patients indicated that telemedicine visits were not the same as in-person visits due to the lack of physical examination and lack of "human touch"[12] However, several studies have shown equivalent efficiency, similar satisfaction, and significantly reduced patient costs for televisits.[6,13] Also, 77% of parents in our study found televisits similar to face-to-face (in-person) visits.

Besides these advantages for the patients and parents, the televisit system has additional benefits for healthcare workers. Healthcare workers are in the highest risk group for COVID-19.[14,15] Twenty-nine percent of the initial patients in Wuhan, China were healthcare workers. In addition, of the initial 77,262 patients infected with COVID-19 in China, 3,387 were healthcare workers (4.4%), and of these, 23 died with a median age of 55 (range, 29 to 72) years.[14] In Italy, 20% of healthcare professionals were infected and some of them died.[15] During the pandemic, the majority of our visits to pediatric urology were via telemedicine to comply with social distancing. During this period, no physician or nurse from our team had COVID-19 originating from the outpatient clinic or was isolated due to contact.

The main limitation to our study is the use of a non-validated survey. Also, the parents or patients might have answered the questions with the fear of the deterioration of their relationship with the physicians. It is difficult to understand whether the high satisfaction given by the patients in our study and in the literature is biased or true. Although cost-effectiveness and time savings are objective measures, it can be difficult for patients and parents to mention their dissatisfaction with their physicians. It is also doubtful that they would be able to evaluate the quality of the healthcare they received. In addition to these possible biases, there can also be a selection bias. Patients and parents who responded to our survey were those who were able to use technology.

In conclusion, our study results show that telemedicine has a high satisfaction rate from the parent's perspective. The majority of parents found the use of televisit simple and were willing to continue after the pandemic. High satisfaction, particularly in certain patient groups and under certain conditions, shows that telemedicine applications can continue to become widespread. The abruptly changing conditions during the pandemic have also shown us that the healthcare system should be an active establishment adapting to new circumstances over and over again. More effort should be made for improving our systems to accommodate the changing needs.

Ethics Committee Approval: The study protocol was approved by the Medical Research Ethics Committee of Ege University (date: 13.01.2022, no: 22-1T/26). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Patient Consent for Publication: A written informed consent was obtained from the patients and/or parents of the patients.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Idea/concept: S.T.; Design: Ö.B.Y., A.T., S.T.; Control/supervision: İ.U.; Data collection and/or processing: Ö.B.Y., D.A., U.B.; Analysis and/or interpretation: Ö.B.Y., A.T.; Literature review: Ö.B.Y., S.T.; Writing the article: Ö.B.Y., A.T., S.T.; Critical review: A.T., S.T., İ.U.; References and fundings: Ö.B.Y.

Conflict of Interest: The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding: The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Ohannessian R, Duong TA, Odone A. Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: A call to action. JMIR Public Health Surveill 2020;6:e18810. doi: 10.2196/18810.
2. Fu SJ, George EL, Maggio PM, Hawn M, Nazerali R. The consequences of delaying elective surgery: Surgical perspective. Ann Surg 2020;272:e79-80. doi: 10.1097/SLA.0000000000003998.
3. Andrews E, Berghofer K, Long J, Prescott A, Caboral-Stevens M. Satisfaction with the use of telehealth during COVID-19: An integrative review. Int J Nurs Stud Adv 2020;2:100008. doi: 10.1016/j.ijnsa.2020.100008.
4. Prasad A, Brewster R, Newman JG, Rajasekaran K. Optimizing your telemedicine visit during the COVID-19 pandemic: Practice guidelines for patients with head and neck cancer. Head Neck 2020;42:1317-21. doi: 10.1002/hed.26197.
5. Ramaswamy A, Yu M, Drangsholt S, Ng E, Culligan PJ, Schlegel PN, et al. Patient satisfaction with telemedicine during the COVID-19 pandemic: Retrospective cohort study. J Med Internet Res 2020;22:e20786. doi: 10.2196/20786.
6. Viers BR, Lightner DJ, Rivera ME, Tollefson MK, Boorjian SA, Karnes RJ, et al. Efficiency, satisfaction, and costs for remote video visits following radical prostatectomy: A randomized controlled trial. Eur Urol 2015;68:729-35. doi: 10.1016/j.eururo.2015.04.002.
7. Orlando JF, Beard M, Kumar S. Systematic review of patient and caregivers' satisfaction with telehealth videoconferencing as a mode of service delivery in managing patients' health. PLoS One 2019;14:e0221848. doi: 10.1371/journal.pone.0221848.
8. Geng-Ramos G, Taneja R, Challa C, Vazquez-Colon C, Cronin J, Campos A, et al. Telemedicine for the pediatric preoperative assessment during the COVID-19 pandemic: Evaluating patient and provider satisfaction. Perioper Care Oper Room Manag 2022;27:100252. doi: 10.1016/j.pcorm.2022.100252.
9. Ellimoottil C. Implementing telemedicine in urology: An overview of the benefits and barriers. J Urol 2019;202:47-8. doi: 10.1097/JU.0000000000000285.
10. Chen ZW, Fang LZ, Chen LY, Dai HL. Comparison of an SMS text messaging and phone reminder to improve attendance at a health promotion center: A randomized controlled trial. J Zhejiang Univ Sci B 2008;9:34-8. doi: 10.1631/jzus.B071464.
11. Schubbe ME, Edman J, Williams J, Cooper CS, Lockwood G, Storm DW. Implementation of electronic messaging protocol for pediatric urology preoperative scheduling: A pilot study. J Pediatr Urol 2022;18:789.e1-6. doi: 10.1016/j.jpurol.2022.04.003.
12. Nguyen M, Waller M, Pandya A, Portnoy J. A review of patient and provider satisfaction with telemedicine. Curr Allergy Asthma Rep 2020;20:72. doi: 10.1007/s11882-020-00969-7.
13. Portnoy JM, Waller M, De Lurgio S, Dinakar C. Telemedicine is as effective as in-person visits for patients with asthma. Ann Allergy Asthma Immunol 2016;117:241-5. doi: 10.1016/j.anai.2016.07.012.
14. Zhan M, Qin Y, Xue X, Zhu S. Death from Covid-19 of 23 health care workers in China. N Engl J Med 2020;382:2267-8. doi: 10.1056/NEJMc2005696.
15. Remuzzi A, Remuzzi G. COVID-19 and Italy: What next? Lancet 2020;395:1225-8. doi: 10.1016/S0140-6736(20)30627-9.