Zeynep Kamil Med J 2023;54(3):159–164
DOI: 10.14744/zkmj.2023.20092

ORIGINAL ARTICLE

Behavioral characteristics of pediatric surgery patients and their parents and treatment planning during the closure period of the COVID-19 pandemic

[1]Olga Devrim AYVAZ
[1]Ayşenur CELAYİR
[2]Erkan PEHLİVAN

[1]Department of Pediatric Surgery, University of Health Sciences, Türkiye. Zeynep Kamil Maternity and Children's Training and Research Hospital, İstanbul, Türkiye

[2]Department of Public Health, İnönü University Faculty of Medicine Malatya, Türkiye

ORCID ID
ODA : 0000-0002-4465-0975
AC : 0000-0002-7809-4137
EP : 0000-0002-4361-3355

ABSTRACT

Objective: We aimed to determine the behavioral attitudes and diagnostic/interventional characteristics of the patients relatives who applied to our polyclinic during the closure period of COVID-19 pandemic.

Material and Methods: This prospective study was conducted between June and July 2020. All results were statistically analyzed.

Results: Hundred and five (61.8%) male, 65 (38.2%) female patients who applied to our outpatient clinic. The median age was 2 years. A total of children came with their parents, and 99.4% were wearing masks. Although 93.5% of the parents were wearing their masks correctly. At least one of the additional protective outfits was used by 7.1% of parents. Forty (23.5%) parents adapted at least one of the health protective behaviors. About 52.4% of patients were not wearing masks; and 92.6% of masked people were wearing them correctly. Surgery was performed in 10.5% of the patients under general anesthesia.

Conclusion: The use of masks in children of working mothers and elderly fathers was increased; and correct use of masks in children was affected by the father's professions. The use of additional health protective methods in patients in those who come by their own vehicle was decreased. In the rate of mask use as the child's age gets older, they were found to be statistically significant parameters.

Keywords: COVID-19, elective surgery, emergency surgery, pandemic, pediatric surgery, pediatric.

II. International Child and Women's Birth Diseases Congress.
October 21–24, 2021. Antalya, (oral presentation) and 38th National Pediatric Surgery Congress and 24th National Pediatric Surgery Nursing Congress.
November 25–28, 2021. Antalya, (poster).

Cite this article as: Ayvaz OD, Celayir A, Pehlivan E. Behavioral characteristics of pediatric surgery patients and their parents and treatment planning during the closure period of the COVID-19 pandemic. Zeynep Kamil Med J 2023;54(3):159–164.

Received: December 20, 2022 **Revised:** June 21, 2023 **Accepted:** September 18, 2023 **Online:** September 29, 2023
Correspondence: Olga Devrim AYVAZ, MD. Türkiye Sağlık Bilimleri Üniversitesi, Zeynep Kamil Kadın ve Çocuk Hastalıkları Eğitim ve Araştırma Hastanesi, Çocuk Cerrahisi Kliniği, İstanbul, Türkiye.
Tel: +90 506 702 35 83 **e-mail:** olga_ozbay@yahoo.com

INTRODUCTION

In the early stages of the COVID-19 pandemic as mid-March 2019, surgeons and other health professionals recommended that all elective cases be canceled due to perioperative concerns, and the risk of infecting operating room personnel, and the need to redirect resources to treat COVID-19 patients. Triaging the surgical interventions according to their priority gained importance during this period.[1]

Preparedness against spreads of increased COVID-19 variant infections and future pandemics begins with the detection of the current situation. In this study, we aimed to determine the diagnostic/interventional characteristics of patients who applied to the pediatric surgery outpatient department of a tertiary hospital lacking facilities of a pandemic hospital during the COVID-19 pandemic period. When elective operations were canceled, the behavioral attitudes of the patients/patients relatives, with the belief that this approach will contribute to the management of the current pandemic process and to the efficient programming of resources in future pandemics, were determined.

MATERIAL AND METHODS

This study was conducted in accordance with the Helsinki declaration and approval in the ethics committee of the our hospital clinical researches dated June 3, 2020, numbered 105. The patients who applied to the pediatric surgery outpatient department in June and July 2020 and agreed to fill out the questionnaire forms (25-question survey) were included in this study. There were no selection criteria, only the patients who did not agree to fill out the questionnaire forms were excluded from the study. Only three patients did not agree to fill out the questionnaire forms. First 16 questions inquired demographic characteristics: The age, gender, parent's ages, parents' occupations, the number of siblings in the family, which sibling was sick, the number of people living at home, the presence of an elderly person over 65 years old or a person with a chronic disease living in the same household; from where and how the participants came to the hospital; medical and surgical history of the patient, medications – if any – used, and responded by patients or their relatives).

Questions 17–25 determining the behavioral attitudes of the patient or patient's relatives/parents inquired the person who accompanied the patient, whether the relatives, parents, and the patients were wearing masks and wearing them properly, the use of additional health protective equipment such as gloves, visors, face shields, and glasses, health protective measures used by all of them such as not touching around, bringing a cloth cover with them; whether they made an appointment to come to the hospital, or just applied to our clinic when they came for another reason or referred by a physician, and were responded by the physician after observing the patients and their relatives.

The section regarding medical diagnosis and treatment plan of the patient was filled out by the doctor. The doctor first decided whether the patient's diagnosis had a surgical need, and then whether her/his surgery could be planned electively. Data were loaded into the SPSS 20 statistical program and analyzed. Chi-square test, Post hoc test with Bonferroni correction, and Fisher's exact test were used for statistical analysis.

RESULTS

A total of 170 patients including 105 (61.8%) male, and 65 (38.2%) female cases were evaluated within 2 months participated in the study. The median age of the patients was 2 years (1 month–17 years) and 78 (45.9%) patients were under 1 year old. Mean maternal and paternal ages were 31.68±5.977 years (18–53 years), and 35.52±6.928 years (20–58 years), respectively. Most (n=153: 90%) of the mothers of the children were housewives, while 17 (10%) of them were working. The fathers of the children were self-employed (n=134; 78.8%) (working in their own or other private workplaces), public employees (n=26; 15.3%), unemployed (n=8; 4.8%), and retired (n=2; 1.1%).

Our patients were most often the second born children (min: 1st, and max: 6th) of the families. On an average four peoples (4.29±1.149 Standard deviation – min: 3, max: 8) were living in the same household.

The mean distance traveled by our patients from their district to reach our hospital was 18.45±13.4 km (2 km–65 km), while the participants used their own (n=79; 46.5%) vehicles or other means of transportation such as taxi/neighbor's vehicle was (n=38; 22.4%), bus was (n=32; 18.8%), minibus (n=6; 3.5%), metrobus (n=2; 1.2%), more than one vehicle (n=5; 3%), and to arrive to the hospital or walked on foot (n=8; 4.7%), (Table 1).

There was no history of chronic disease in 123 (72.4%) of them, while 12 patients (7.1%) were using medication (s) due to their chronic diseases.

A total of children came with their parents, and 99.4% of them were wearing masks. Although 93.5% of the parents were wearing their masks correctly. At least one of the additional protective outfits was used by 7.1% of parents. Forty (23.5%) parents adapted at least one of the health-protective behaviors. About 52.4% of patients were not wearing masks; and 92.6% of masked people were wearing 15 of them correctly (Table 2).

While 164 (96.5%) patients came to our outpatient clinic with an appointment, 5 (2.9%) patients came to our polyclinic without an appointment with a doctor's referral, and 1 (0.6%) patient who came to the hospital for other reason applied to our outpatient clinic without an appointment. Eight (4.7%) patients were called for their first control visits after surgery/surgical intervention.

Surgery under general anesthesia was recommended to 22 (26.5%) of 83 patients (48.8%) with surgical pathology as a result of the medical examination performed in the polyclinic. Among them 4 (2.4%) patients refused surgical procedures, and 18 (10.6%) patients underwent surgery under general anesthesia. In 24 (14.1%) patients with a surgical pathology detected on examination underwent minor interventional procedures under local anesthesia in the polyclinic. Elective surgeries required for 37 patients (21.7%) were postponed to a later date.

All of the parents were using masks (169 peoples + 1 patient without a parent). When the distribution of children's use of masks by age is examined (Table 3), as the children got older, the rate of using masks also increased. While only 15.4% of children under the age of 1 were using masks, this rate raised to 93% in the 5–10 age group, and to 88% at the age of 11 and above. At the same time, these groups were found to be the groups causing intergroup differences in the statistical analysis (<0.0001).

Table 1: Distribution of pediatric patients and their parents participating in the study according to some sociodemographic characteristics

Sociodemographic characteristics	n	%
Gender (n=170)		
Male	105	61.8
Female	65	38.2
Age groups of pediatric patients (n=170)		
≤1 year	78	45.9
2–4 yrs	30	17.6
5–10 yrs	45	26.5
≥11 yrs	17	10.0
Which child is COVID-19 patient in the family (n=170)		
1	54	31.8
2	59	34.7
≥3	57	33.5
Maternal age groups (n=170)		
≤24 years	18	27.1
25–29 years	46	27.1
30–34 years	54	31.8
≥35 years	52	30.6
Mother's profession (n=170)		
Housewife	153	90.0
Employed	17	10.0
Father's profession (n=170)		
Unemployed, retired	10	5.9
Worker, self-employed	116	68.2
Craftsman, tradesman	19	11.2
Officer, police, instructor military personnel, director	25	14.7
Distance to the hospital (n=170)		
≤10 km	44	31.8
11–20 km	64	34.7
≥21 km	62	33.5
Means of transportation to the hospital (n=165)		
On foot	8	4.7
Public transportation	40	23.5
One's own vehicle	79	46.5
Other	38	22.4

Furthermore, 45.7% of male, and 50.8% of female pediatric patients were using masks (Table 4). A proportional, but not statistically significant difference, existed between both genders in terms of wearing masks (>0.05).

We determined that 89.6% of male and 97% of female pediatric patients were using their masks correctly (Table 5) without any statistically significant difference between both genders (p>0.05).

Table 2: Mask use status of the patients and their parents and their history of surgery and chronic disease

Characteristics	n	%
Was the child wearing a mask? (n=170)		
Yes	81	47.6
No	89	52.4
Was the child wearing the mask properly? (n=81)		
Yes	75	92.6
No	6	7.4
Was the parent wearing a mask? (n=170)		
Yes	169	99.4
No	1	0.6
Was the parent wearing a face shield, glasses?		
Yes	12	7.1
No	158	92.9
Was the parent wearing the mask properly? (n=170)		
Yes	159	93.5
No	11	6.5
The parent was not touching around and brought a cloth cover with him/her (n=170)		
Yes	40	23.5
No	130	76.5
History of surgery in the child (n=170)		
Yes	30	17.6
No	140	82.4
History of a chronic disease in an individual aged >65 years living in the same household (n=170)		
Yes	10	5.9
No	160	94.1

At the same time, the correct use of the masks by the mothers was evaluated and it was determined that 11 (7.2%) mothers who were all housewives were not using their masks correctly. In the statistical analysis of this parameter using Fisher's exact test, χ^2 was found to be 1307 indicating lack of any statistical significance (p>0.05). Besides, in our study, a statistically significant difference was found between the following parameters: (1) The age of the father and the use of mask by the patient (p=0.000); (2) the father's occupation and the patient's correct wearing of the mask (p=0.015); (3) the means of transportation used by the patient to arrive at the hospital and the use of additional protective measures against COVID-19 such as wearing gloves, face shields, or glasses (p=0.002).

DISCUSSION

The first patient with COVID-19 was reported from our country on March 10.[1] Many measures were taken across the country, such as suspending education and curfew to slow down the spreads of

Table 3: Distribution of correct use of masks according to age groups of pediatric patients

Age groups	Masks were used correctly					
	Yes		No		Total	
	n	%*	n	%*	n	%**
≤1 year[a]	12	15.4	66	84.6	78	45.9
2–4 years	12	40.0	18	60.0	30	17.6
5–10 years[a]	42	93.3	3	6.7	45	26.5
11+[a]	15	88.2	2	11.8	17	10.0
Total	81	47.6	89	52.4	170	100.0

*: Percentage of the row; **: Percentage of the column; a: The groups that caused the intergroup differences. p<0.0001. χ^2=82.131. Standard deviation =3 (Chi-square Test, Post hoc test with Bonferroni correction).

Table 4: Distribution of mask use status of pediatric patients by gender

Gender	Were the pediatric patients wearing masks?					
	Yes		No		Total	
	n	%*	n	%*	n	%**
Male	48	45.7	57	54.3	105	61.8
Female	33	50.8	32	49.2	65	38.2
Total	81	47.6	89	52.4	170	100.0

*: Percentage of the row; **: Percentage of the column. p>0.05. χ^2=0.411. Standard deviation=1.

Table 5: Distribution of correct use of masks by pediatric patients by gender

Gender	The masks were used properly					
	Yes		No		Total	
	n	%*	n	%*	n	%**
Male	43	89.6	5	10.4	48	59.3
Female	32	97.0	1	3.0	33	40.7
Total	75	92.6	6	7.4	81	100.0

*: Percentage of the row; **: Percentage of the column. p>0.05. χ^2=1.556. Standard deviation=1 (Fisher's exact test).

the epidemic. The province with the highest number of patients was Istanbul, and our study was conducted on 170 patients and their parents who applied to the pediatric surgery outpatient clinic of a tertiary education and research hospital in Istanbul. Our study is the first and the only study investigating preventive behaviors throughout Türkiye in the process of normalization.

COVID-19 can be transmitted by droplets or by direct contact with infected persons to other healthy persons.[2] The patient should be questioned about clinical signs of COVID-19 in the first admission to a hospital in terms of viral spreads.[3,4] To prevent overcrowd, to accept of patients by appointment only and in compliance with the social distance, rules were started during this period. Body temperatures of the patients were measured at the admission, and relevant symptoms and suspicious contacts were inquired. Patients with fever, symptoms, or suspicious contact history were directed to the special sections reserved for them, and they were not taken to the waiting room of our outpatient clinic. While 96.5% of our patients came by appointment, a few of them (2.9%) were called by a doctor without an appointment, and by us (0.6%) following surgery or surgical intervention.

Since pre-symptomatic and asymptomatic transmission may occur, symptom screening alone is not sufficient to identify individuals with COVID-19.[5] Masking which is known to reduce transmission of COVID-19 from suspected virus carriers recommended from all patients, visitors, and healthcare workers in the health-care setting.[6] Almost all patients of us (99.4%) came to our outpatient department with their parents, and all of their parents were worn masks. In fact, at the time of our study was planned, universal masking had not yet been implemented in our country, and the results we obtained from responses to this question during the application phase of our survey did not reflect the patients' initiatives about wearing a mask. However, 93.5% of the parents were wearing their masks correctly, and 6.5% of them were using them incorrectly without covering their noses or they tended to open their masks while talking.

The WHO and UNICEF recommend the same approach for children aged 12 and over as advised for adults.[7] The median age of our patients who applied to our surgical outpatient clinic was 2 years, and 74 patients (43.5%) were over 2 years old. Our 89 (52.4%) patients were not wearing masks, and 7 patients (4.2%) were using masks even though they were under 2 years old. Most (n=75; 92.6%) of 81 masked people were wearing their masks correctly.

A face shield or glasses provide additional protection if the patient is unable or unwilling to wear a mask. It is recommended that healthcare workers wear face shields instead of glasses. They provide eye protection and double-layer protection for the nose and mouth. They also prevent the masks from getting dirty. Face shields are reusable as long as they can be adequately cleaned with an approved disinfectant.[8] In our study, 7.1% of the parents used at least one additional protective measures such as wearing gloves, face shields, or glasses, while the others did not.

The mean distance of hospital was 18.45±13.4 km (2 km–65 km) by their own vehicles (46.5%). Other transportation vehicles were such as taxi/neighbor's vehicles (22.4%) accompanied by another people, bus (18.8%), shared taxi (5%), metrobus (1.2%), more than one vehicle (3%), and to arrive to the hospital or walked on foot (4.7%).

Although the median transportation distance was 18.45 km in our patients, public transport vehicles were used by only 23% of our patients which may be due to the fact that these patients see themselves at risk in such public transport vehicles. Besides, those who came by their own vehicles used additional preventive measures less often because they felt themselves safer in their own environment. Therefore, these people might use additional preventive methods less frequently.

A research study has predicted that people prone to infection exhibit greatly improved preventive behaviors, and risk perception for infectious diseases which support the implementation of appropriate preventive behaviors. It is clear that the perception of risk may contribute to controlling the spreads of the pandemic. Perceiving oneself at a greater risk was associated with stronger adherence to preventive measures during the current pandemic.[9]

Therefore, we found that those at high risk were particularly less likely to engage in activities such as meeting other people, going for a walk or shopping. Other findings obtained from multinational studies have highlighted the role that fear from COVID-19 plays in promoting application of certain preventive behaviors during the current pandemic.[10]

Studies have shown that young people are less likely to participate in preventive measures due to their low perception of this risk. In the previous pandemics, such as the severe acute respiratory syndrome pandemic in 2003 and the H5N1 and H1N1 pandemics in 2012, have been learned that beyond the pandemic, perceived susceptibility has a significant impact on the use of face masks.[11]

In our study, the mean maternal and paternal ages were 31 and 35 years, respectively. Our parents were individuals who, by age, were less likely to see themselves at high risk of morbidity and mortality related to COVID-19 infections. Since COVID-19 is often asymptomatic in children, and 72.4% of the parents did not have a chronic disease and 92.9% of them were not chronic medication users, they probably did not consider their children to be in the risky category. Families were mostly (n=54, 31.8%) composed of four individuals, and generally family members consisted of parents and children. When the presence of an older person at home was questioned, an individual (mean 1.94±0.236 min: 1, max: 2) with a risk factor was living in the same household of only 5.9% (n=10) of the patients.

Hand washing is always an important personal preventive health behavior.[12] This study was performed in the surgical outpatient clinic conditions, and the sinks in the outpatient clinic rooms are primarily intended for the use of a physician. For this reason, this parameter was not used in examining the behavioral attitudes of patients/patients relatives.

Small proportion (23.5%) of the parents who came to our outpatient clinic exhibited at least one of the additional preventive behaviors such as not touching anything around them, bringing or laying a cloth cover to sit on while others did not.

A significant relationship has been observed between gender, level of education, economic status, and preventive behaviors such as wearing masks and protective gloves.[12] Many studies have concluded that women are more cautious and preventative about infectious diseases.[13] In addition, housewives tend to display greatly improved preventive behaviors.[12] Within the scope of the measures against the spread of pandemic in our polyclinics, only one parent was taken to the polyclinic room with the patient. Most (90%) of the parents were mothers and 153 (90%) mothers were housewives. All parents were wearing masks. In our study, the rate of mask use was higher in the sick children of working mothers and older fathers which may be due to the good socioeconomic status as well as the fact that these individuals see themselves at a higher risk. The study of Wolf et al.[14] shows that women take this viral disease more seriously and people with lower economic status do not.

As the child got older, masks were used more frequently. Although long-term social isolation and curfew affected negatively in the physical and mental health of children, the interactive relationships between the child and his/her caregiver, and role modeling of healthy behaviors of the caregiver can also be encouraged. Involving children in family activities and development of self-discipline and self-sufficiency skills can also be important.[15] Fathers of the children were self-employed (78.8%), public employees (15.3%), retired (1.1%), or unemployed (4.8%). In our study, the correct use of the masks by the children of retired and unemployed fathers might be associated with fathers spending more time at home with their children, role modeling of healthy behaviors, and encouragement of self-discipline.

Encouraging and maintaining social distancing and preventive behaviors are important solutions to break the chain of spreads and flatten the epidemic curve.

While examining the pediatric surgery practices in our institution during the COVID-19 pandemic in three categories as elective, emergency surgeries, and outpatient treatments, we investigated the behavioral attitudes of the patients/patients relatives who applied to our polyclinic during this period. A total of 170 patients applied to our outpatient clinic and surgical pathology was detected in 48.8% of them as a result of medical examination in the polyclinic. Accordingly surgery was performed under general anesthesia for 10.6% of the patients in the operating room, and a minor interventional procedure under local anesthesia for 14.1% of the patients in the polyclinic. Since 21.7% of the patients required elective surgery, their relatives were informed about this issue, and elective operations were postponed to a later date.

CONCLUSION

As a result; in our study, the using of masks in children of working mothers and elderly fathers was increased; and correct use of masks in children were affected by the father's professions. Those who came to the hospital with their own vehicles used additional preventive methods less frequently. As the child got older, masks were used more frequently.

Statement

Ethics Committee Approval: The Zeynep Kamil Maternity and Children's Training and Research Hospital Clinical Research Ethics Committee granted approval for this study (date: 03.06.2020, number: 105).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – ODA; Design – ODA; Supervision – ODA, AC, EP; Resource – ODA, AC, EP; Materials – ODA, AC, EP; Data Collection and/or Processing – ODA, AC; Analysis and/or Interpretation – ODA, AC, EP; Literature Search – ODA, AC; Writing – ODA, AC, EP; Critical Reviews – ODA, AC, EP.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Şimşek F. The pandemic of COVID-19 and its impact on Turkey. Eur Arch Med Res 2020;36(Suppl 1):4–9.
2. Özer ZY, Özcan S. COVID-19 infection in primary health care: Prevention and control recommendations. Arch Med Review J 2020;29(Suppl 1):67–72.
3. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395:497–506.
4. T.C. Sağlık Bakanlığı. COVID-19 (SARS-CoV-2 ENFEKSİYONU) Çocuk hasta yönetimi ve tedavi. 2022. Available at: https://covid19.saglik.gov.tr/Eklenti/42283/0/covid-19rehbericocukhastayonetimivetedavi06012022v1pdf.pdf. Accessed Sep 19, 2023.
5. Wei WE, Li Z, Chiew CJ, Yong SE, Toh MP, Lee VJ. Presymptomatic transmission of SARS-CoV-2 - Singapore, January 23-March 16, 2020. MMWR Morb Mortal Wkly Rep 2020;69:411–5.
6. Centers for Disease Control and Prevention. Interim ınfection prevention and control recommendations for healthcare personnel during the coronavirus disease 2019 (COVID-19) pandemic. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html. Accessed Sep 19, 2023.
7. World Health Organization. Advice on the use of masks for children in the community in the context of COVID-19. Annex to the Advice on the use of masks in the context of COVID-19. Available at: https://www.who.int/publications/i/item/WHO-2019-nCoV-IPC_Masks-Children-2020.1. Accessed Sep 19, 2023.
8. Palmore TN, Smith BA. COVID-19: General approach to infection control in the health care setting. Uptodate 2021. Available at: https://www.uptodate.com/contents/covid-19-general-approach-to-infection-prevention-in-the-health-care-setting. Accessed Sep 19, 2023.
9. Brewer NT, Weinstein ND, Cuite CL, Herrington JE. Risk perceptions and their relation to risk behavior. Ann Behav Med 2004;27:125–30.
10. Mendoza-Jiménez MJ, Hannemann TV, Atzendorf J. Behavioral risk factors and adherence to preventive measures: Evidence from the early stages of the COVID-19 pandemic. Front Public Health 2021;9:674597.
11. Sim SW, Moey KS, Tan NC. The use of facemasks to prevent respiratory infection: A literature review in the context of the Health Belief Model. Singapore Med J 2014;55:160–7.
12. Firouzbakht M, Omidvar S, Firouzbakht S, Asadi-Amoli A. COVID-19 preventive behaviors and influencing factors in the Iranian population; A web-based survey. BMC Public Health 2021;21:143.
13. Galasso V, Pons V, Profeta P, Becher M, Brouard S, Foucault M. Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries. Proc Natl Acad Sci U S A 2020;117:27285–91.
14. Wolf MS, Serper M, Opsasnick L, O'Conor RM, Curtis L, Benavente JY, et al. Awareness, attitudes, and actions related to COVID-19 among adults with chronic conditions at the onset of the U.S. Outbreak: A Cross-sectional survey. Ann Intern Med 2020;173:100–9.
15. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. Lancet 2020;395:945–7.