

## INVESTIGATION OF THE PROBLEM BEHAVIORS EMERGING IN CHILDREN DURING THE COVID-19 PANDEMIC IN TURKEY

Semanur Sancili<sup>1\*</sup>, Mahmet Nur Tugluk<sup>2</sup>

<sup>1,2</sup>Preschool Education, Yildiz Technical University, Cifte Havuzlar, YTÜ-Davutpasa Campus, Esener/Istanbul, Turkey

semanursancili.ss@gmail.com<sup>1</sup>, mntugluk@yildiz.edu.tr<sup>2</sup>

\*Corresponding Author

**Received:** 28 April 2021; **Accepted:** 31 May 2021; **Published:** 04 June 2021

**To cite this article (APA):** Sancili, S., & Tugluk, M. N. (2021). Investigation of the problem behaviors emerging in children during the COVID-19 pandemic in Turkey. *Southeast Asia Early Childhood Journal*, 10(1), 101-116. <https://doi.org/10.37134/saecj.vol10.1.9.2021>

**To link to this article:** <https://doi.org/10.37134/saecj.vol10.1.9.2021>

### ABSTRACT

This study aimed to evaluate the effect of the COVID-19 pandemic on the problem behaviors of children within the framework of parental opinions. The study was conducted using case study design, one of the qualitative research methods. The study group was selected based on the criterion sampling method, one of the purposive sampling methods. The study group of this research consists of 20 Turkish parents with children between 4 and 6 years of age living in the province of Istanbul in Turkey. The analysis of parental opinions revealed that some favorable and unfavorable changes occurred in the children's playing, sleeping, eating, and hygiene habits during the COVID-19 pandemic. Emotional problems such as boredom, fear, anxiety, irritability, and impatience were found to be more common in children compared to the pre-pandemic period, together with behavioral problems such as non-obedience, desire to attract attention, aggression, hyperactivity, conflicts between siblings. According to the results, COVID-19 pandemic has not only physical but also psychological effects. This study emphasizes the importance of supporting and helping families in the psychological well-being of children during social isolation.

**Keywords:** problem behavior, pandemic, COVID-19, preschool period, parent

### INTRODUCTION

Coronaviruses are from a family of viruses that affect the human respiratory system, especially when transmitted from animals to humans (Rothan & Byrareddy, 2020). Many types of coronaviruses have emerged throughout history, but most have remained ineffective compared to the pandemics of this millennium [Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV), Middle East Respiratory Syndrome Coronavirus (MERS-CoV), and Coronavirus Disease 2019 (COVID-19)], which have had more severe symptoms and higher mortality rates (Türkiye Bilimsel Akademisi, 2020). COVID-19 is the third zoonotic coronavirus disease known, after SARS-CoV and MERS-CoV (Sun et al., 2020). It first emerged in the seafood market of Wuhan, China, in December 2019 (Bogoch et al., 2020). It is thought that the COVID-19 virus may have initially settled in bats, being transmitted to humans through various animals sold in the Huanan Seafood Market (Zu et al., 2020); however, it is also observed that the virus is transmitted from person to person through droplets and physical contact (Guan et al., 2020). The virus can spread through respiratory microdroplets released into the air when an infected individual speaks, coughs, or sneezes, and healthy individuals in close contact with

such respiratory microdroplets may be infected directly (World Health Organization, 2020a). The virus, which can survive for 4 hours on copper surfaces, 24 hours on cardboard surfaces, and 72 hours on plastic and stainless steel surfaces (van Doremalen et al., 2020), can be transmitted not only through direct contact with an infected individual but also indirectly through touching surfaces and objects contaminated with the virus by an infected person, followed by touching one's mouth, nose, or eyes (World Health Organization, 2020a). The most common symptoms of COVID-19 include fever, dry cough, joint pain, and a feeling of tiredness (Sohrabi et al., 2020). In addition, symptoms such as diarrhea, sore throat, headache, and loss of taste and smell can be observed (Saglik Bakanligi, 2020a). By 3 December 2020, more than 60 million COVID-19 cases and more than one million deaths worldwide were reported (World Health Organization, 2020b). In Turkey, the case toll was reported to be 513,656 on 2 December 2020 (Saglik Bakanligi, 2020b).

The new virus COVID-19 is highly contagious and has spread rapidly throughout the world (Cascella et al., 2020). In consequence of its spread to different cities of China as well as European countries in a few weeks, the World Health Organization declared an international public health emergency on 30 January 2020 (Sohrabi et al., 2020). On 11 March, it was defined as a pandemic, and the first case in Turkey was reported on the same day (Saglik Bakanligi, 2020a). With the increase of cases, strict measures have begun to be taken across the world, including the closure of intercity entrances and exits, curfew restrictions on certain days, postponement of sports competitions, cancellation of activities in public areas, closure of restaurants and cafeterias, closure of schools, transition to flexible working hours, and mandatory mask-wearing in public places (Türkiye Bilimsel Akademisi, 2020).

These measures have globally affected many sectors such as the health, economy, tourism, and education sectors, and this both directly and indirectly affects the psychological well-being of individuals. The individual achieves adaptation as a result of his or her ability to establish and maintain a well-balanced relationship between his or her own characteristics and lived environment (Bakircioğlu, 2015). Children who have difficulty in establishing this balance exhibit maladaptive behaviors or various emotional and behavioral problems (Bakircioğlu, 2015; Cetinkaya, 2018). Problem behaviors are inappropriate behaviors containing signs of developing behavioral problems, which are contradictory, complex, and different from normal or expected behaviors; which threaten children's well-being and mental health; and which contain danger and threats or weaken the coping skills of caregivers (Papatheodorou, 2010).

In pandemic periods, there are several factors affecting the well-being of the individual, such as anxiety about the disease, problems experienced in accessing medical treatment or food, changing routines, separation from family and friends, inability to work, loss of income, quarantine and social distancing rules, and school closures (Okur & Demirel, 2020; Sabri et al., 2020; Taylor et al., 2020). Children with limited understandings of events and limited coping strategies are not physically or mentally able to avoid the harms of the pandemic period (Imran et al., 2020). As a result of school closures implemented within the scope of the pandemic measures taken worldwide, at least 40 million children were deprived of early childhood education (Gromada et al., 2020). In addition, children's areas of movement have been restricted due to situations such as social isolation and quarantine (Caliskan, 2020). Changes caused by the pandemic may lead to a number of problem behaviors in children. According to Achenbach et al. (1987), problem behaviors in children are observed as externalizing and internalizing behaviors. Externalizing behaviors are behaviors related to aggressive, impulsive, hostile, oppositional, and destructive actions (Achenbach et al., 1987).

Such behaviors are socially unacceptable behaviors, which may pose a potential threat to other individuals (Mesman et al., 2001). Children with such behaviors are lacking self-control, have an active attitude towards the environment, and are in constant conflict with the environment (Delfos, 2004). Externalizing behaviors are expressed in several forms, including aggression aimed at doing physical or psychological harm to others (American Psychological Association, 2020); criminal behaviors that reflect forms of non-violent antisocial behaviors such as lying, cheating, or stealing (Liu, 2004); and attention deficit and hyperactivity disorders, manifesting themselves as attention disorders, hyperactivity, and impulsivity (Cetinkaya, 2018). Internalizing behaviors are problems expressed inwardly, such as sadness, anxiety, fear, guilt, and social withdrawal, in which anxiety is at the center. Internalizing behavior may cause denial, impatience, intolerance, and anxiety (Campbell, 1995; Delfos, 2004). These problems may also be accompanied by somatic complaints such as headache, abdominal pain, and nausea (Liu et al., 2011). Macfarlane et al. (1954) on the other hand, classify behavioral problems within four categories as problems related to biological functioning and control, problems related to motor functioning, problems related to social standards, and problems related to personality characteristics. Problems related to biological functioning and control include disturbance problems, sleep disturbances, daily enuresis, fecal incontinence, insufficient appetite, food sensitivity, excessive embarrassment, exhibitionism, masturbation, and unusual sexual interest. Problems related to motor functioning include tics, artificial styles, nail biting, thumb sucking, hyperactivity, and speaking problems. Problems related to social standards include lying, leaving home, truancy, theft, and destructive behaviors. Problems related to personality characteristics include selfishness in sharing, quarrelsomeness, excessive emotional dependence, excessive demand for attention, and excessive sensitivity (Macfarlane et al., 1954). During this pandemic period, the sleep, eating, and toilet habits of children with normal development may change and some psychological conditions may be observed, such as proneness to crying and short temper that are heightened compared to the past, withdrawal, indifference to what is happening around them, obsessive behaviors, separation problems, and the fear of discussing epidemics (Jiao et al., 2020; Sabri et al., 2020). When staying home, an increase can be observed in aggressive behaviors of children with attention deficit, hyperactivity disorder, autism, or mental deficiencies (Sabri et al., 2020). Stressors such as boredom at home, disappointment, deprivation of personal space and outdoor activities, inability to communicate with peers and teachers, financial losses suffered by the family, and fear of infection can have permanent effects on children (Wang et al., 2020). In the study conducted by Sprang and Silman, (2013) with 586 parents affected by the H1N1 and SARS viruses, 33.4% of the parents stated that their children received support related to their experiences during and after the pandemic, while 16.7% reported acute stress disorder, 16.7% reported adaptation disorder, 16.7% reported grief, and 6.2% reported post-traumatic stress disorder suffered by their children. In addition, post-traumatic stress disorder was found to be more prevalent in children who experienced quarantine or isolation.

When the literature is reviewed, it is predicted that the COVID-19 pandemic may also create conditions such as anxiety, a sense of uncertainty, and stress in children. In addition, the curfew restrictions imposed on individuals under 20 years of age, quarantines imposed on families when any family member has had contact with an individual infected with COVID-19, and “stay home” messages may restrict children’s areas of movement and deprive them of social environments in which their peers are present. This situation can be predicted to trigger some problem behaviors in children. This study thus aimed to evaluate the effect of the COVID-19 pandemic on the problem behaviors of children within the framework of parental opinions.

## METHODOLOGY

This section describes the research model, study group, data collection tools, data collection, and data analysis.

### Study Model

The study was conducted using case study design, one of the qualitative research methods. Qualitative research is a research method involving observation, interviewing, and document analysis used to reveal perceptions and events in a realistic and holistic manner, whereby the investigated subject is handled in an interpretive manner (Yildirim, 2010). Case study is a research design used to deeply investigate one or more events, environments, or social groups within their own realities (Karadeniz et al., 2020).

### Study Group

The study group was selected based on the criterion sampling method, one of the purposive sampling methods. A group selected with criterion sampling consists of people, events, objects, or situations with certain qualities suitable for the objective of the research (Karadeniz et al., 2020).

The study group of this research consists of 20 volunteer parents with children between 4 and 6 years of age living in the province of Istanbul in Turkey. The parents' demographic information, variables describing their experiences with contact with COVID-19, and variables regarding their income levels during the COVID-19 pandemic are given below, respectively.

Table 1  
*Demographic information about participating parents.*

		<i>f</i>	%
Gender	Female	18	90
	Male	2	10
Age	21-30	8	40
	31-40	9	45
	41-50	3	15
Educational level	Primary school	1	5
	Middle school	0	0
	High school	6	30
	Bachelor's degree	11	55
	Master's/postgraduate degree	2	10
Perceived income level	Low	4	20
	Middle	16	80
Number of children	1	12	60
	2	8	40

As shown in Table 1, 18 (90%) of the participating parents were female and 2 (10%) were male. Eight (40%) of the parents were between 21 and 30 years of age, 9 (45%) were between 31 and 40 years of age, and 3 (15%) were between 41 and 50 years of age. One (5%) of the parents had graduated from primary school and 6 (30%) from high school, while 11 (55%) had a bachelor's and 2 (10%) had a master's or postgraduate degree. Four (20%) of the parents perceived their income levels as low, while 16 (80%) perceived their income levels as medium. Among the parents who participated in the study, 12 (60%) had two children and 8 (40%) had one child.

As an answer to the question "Did any individual in your family and/or your close community test positive for COVID-19 during the COVID-19 pandemic?", 11 (55%) of the parents said "yes" and 9 (45%) said "no". Table 2 shows the distributions related to the status of positive test results in the family, close community, and both family and close community among these parents who answered "yes".

Table 2

*Positive COVID-19 test results in the family and/or close community among the 11 parents answering "yes".*

	<i>f</i>	%
Family	2	18.1
Close community	7	63.6
Family and close community	2	18.1

As shown in Table 2, there were individuals who tested positive for COVID-19 in the families of 2 (18.1%) of 11 parents, in the close communities of 7 (63.6%) parents, and in both the families and close communities of 2 (18.1%) parents.

As an answer to the question "Did any individual in your family and/or your close community die from COVID-19 during the COVID-19 pandemic?", also asked of the parents to describe experiences of contact with COVID-19, 6 (30%) of the parents said "yes" and 14 (70%) said "no". Table 3 shows the distributions related to the status of death in the family, close community, and both family and close community among the parents who answered "yes".

Table 3

*Deaths from COVID-19 in the family and/or close community among the 6 parents who answered "yes".*

	<i>f</i>	%
--	----------	---

Family	0	0
Close community	6	100
Family and close community	0	0

As shown in Table 3, the cases of death occurred in the close communities of all parents who answered “yes” to this question.

As an answer to the question “Did any individual in your family and/or your close community come into contact with any individual infected with COVID-19 during the COVID-19 pandemic?”, asked of parents to further describe experiences of contact with COVID-19, 9 (45%) of the parents said “yes” and 11 (55%) said “no”. Table 4 shows the distributions related to the status of contact with any individual infected with COVID-19 in the family, close community, and both family and close community among the parents who answered “yes”.

Table 4

*Contact with an individual infected with COVID-19 in the family and/or close community among the 9 parents who answered “yes”.*

	<i>f</i>	%
Family	4	44.4
Close community	4	44.4
Family and close community	1	11.1

Table 4 shows that there was an individual who came into contact with an individual infected with COVID-19 in the families for 4 (44.4%) parents, in the close communities for 4 (44.4%) parents, and in both the family and close community for 1 (11.1%) parent.

As an answer to the question “Did any change occur in your income level during the COVID-19 pandemic?”, 9 (45%) of the parents said “yes” and 11 (55%) said “no”. Table 5 shows the distribution related to increases or decreases in income levels among the parents who answered “yes”.

Table 5

*Changes that occurred in income levels among the 9 parents who answered “yes”.*

	<i>f</i>	%
Increase in the income level	1	11.1
Decrease in the income level	8	88.8

As shown in Table 5, 1 (11.1%) of the 9 parents who stated that there was a change in their income levels during the pandemic period reported an increase in income level, while 8 (88.8%) reported a decrease.

## Data Collection Tool

In this study, a semi-structured interview form was used as a data collection tool. In order to ascertain whether the interview form was suitable for its purpose, opinions of three field experts were obtained, and the final form of the questions was determined accordingly. The first part of the Parent Interview Form includes questions about the demographic characteristics of the

parents who participated in the study, the second part includes questions about characteristics of the household, and the third part includes questions about the pandemic period.

### Data Collection

The questions prepared to investigate the effect of the COVID-19 pandemic on the problem behaviors of children were asked by the researcher to 20 parents via telephone, and the answers of the parents were recorded on the form after receiving their consent.

### Data Analysis

The data obtained through the Parent Interview Form were analyzed using the content analysis method, and then the results were presented. Content analysis is a technique used to make inferences with the intent of knowing certain properties of the content in an objective and systematic way. In this technique, researchers identify the existence, meanings, and relationships of certain concepts and then analyze them to make inferences about the message in the text (Karadeniz et al., 2020). The parents who participated in this study were kept anonymous by assigning them numbers combined with the letter "P".

## RESULTS

In this section, the results of the research are presented. These results were analyzed within two subgroups as "results on characteristics of the households" and "results on the pandemic period".

### Results on Characteristics of the Households

Table 6

*Household characteristics.*

	Status	<i>f</i>	%
Possessing a detached house	Yes	20	100
	No	0	0
Possessing a garden	Yes	11	55
	No	9	45
A private room for each individual	Yes	14	70
	No	6	30
Internet access	Yes	20	100
	No	0	0

As shown in Table 6, 20 (100%) parents had no detached house, i.e. all of them lived in multi-family residential buildings. Eleven (55%) parents stated that they lived in a home

with garden access, while 9 (45%) stated that they had no garden. Each individual had his/her own private room in 14 (70%) of the parents' homes, while there was not a private room for each individual in 6 (30%) of the homes. All of the parents (100%) stated that they had Internet access at home.

## Results on the Pandemic Period

The rate of difficulties that the children experienced in comprehending the COVID-19 pandemic is given in Table 7.

Table 7

*Difficulty that the children experienced in comprehending the pandemic period.*

	Status	<i>f</i>	%
Having difficulty in comprehending the pandemic period	Yes	1	5
	No	19	95

Only 1 (95%) of the parents stated that his or her child could not comprehend the pandemic, while 19 (95%) stated that their children had no difficulty in comprehending this period. The opinion of the parent who stated that the child could not comprehend the pandemic period was as follows:

*“In fact, they could not comprehend it, so they could not take it seriously. We told about it the same way everyone else did it. They were scared, but also could not comprehend it” (P7).*

Some of the opinions of the parents who stated that their children had no difficulty in comprehending the pandemic were as follows:

*“He/she continued to go to school as long as it was open. He/she was given information on this subject. However, I told him/her ‘it is a disease that emerged in China’ and added that we therefore had to wear our masks and pay attention to hand hygiene. Believe me, he/she acts more consciously than most adults” (P5).*

*“I had to explain it clearly. There is an epidemic called a pandemic. The situation being experienced in the world has also come to our country. We pay attention to him/her because he/she is a child with a clear perception” (P6).*

*“Actually, when it started in March, I thought it would be difficult to explain, but he/she understood when I told about it, and also quickly got used to the practice” (P8).*

*“We said there was an infectious disease, and therefore we had to pay attention to that. He/she comprehended the seriousness of the situation also as a result of what he/she heard from television broadcasts” (P11).*

Table 8 shows the children's habits that changed during the COVID-19 pandemic.



Table 8  
*Changed habits of the children.*

Themes	Sub-themes	Participants	<i>f</i>
Games	Electronic devices	P1, P2, P4, P5, P6, P7, P10, P11, P20	9
	Solo games	P1, P9, P10, P12, P13, P16, P20	7
	Getting bored with playing games	P1, P9, P11, P18, P19, P20	6
	Game content	P3, P14	2
Sleep	Late sleep	P2, P4, P11, P18	4
	Desire to sleep together with the parent	P3, P6, P14, P17	4
	Nightmares	P19	1
	Bed-wetting	P17	1
Eating	Lack of appetite/not eating	P10, P13, P16, P18, P20	5
	Diet	P3, P9, P12	3
Hygiene	Meticulous behaviors	P1, P7, P14, P18	4

The changed habits of the children were examined under the themes of games, sleep, eating, and hygiene. The theme of “games” consists of electronic devices, solo games, getting bored with playing games, and game content. Some of the parental opinions were as follows:

*“He/she is a sociable person who usually likes to play. Playing games alone was not so enjoyable. He/she got bored quickly, for example” (P1).*

*“They couldn’t go to the children’s park. They could not get out. They mostly preferred to spend time watching television” (P7).*

*“He/she could not go to kindergarten and got bored at home. He/she could rarely go to the children’s park. He/she spends a lot of time with screens” (P10).*

*“He/she always wants to be a doctor and tries to rehabilitate people when playing games. He/she finds the vaccine and makes injections in line with the agenda” (P14).*

*“He/she got bored with the toys in the house because he/she stayed home for a long period of time. He/she began to spend more time with screens, and his/her screen addiction increased” (P20).*

The theme of “sleep” consists of late sleep, desire to sleep together with the parent, nightmares, and bed-wetting. Some of the parental opinions were as follows:

*“Bedtime got pushed back a little bit more because he/she could not expend as much of his energy in the house, so began to sleep later” (P11).*

*“He/she began to sleep together with me during the pandemic. I try to fix it but he/she doesn’t want to” (P6).*

*“The virus haunted his/her dreams. He/she was very scared” (P19).*

*“When I went to work for a period of 14 days during the intensive part of the pandemic period, he/she was very affected by that. When I got back home, he/she said he/she was afraid to sleep. He/she began to act like I would leave suddenly, and bed-wetting began in that period” (P17).*

The theme of eating consists of lack of appetite/not eating and diet. Some of the parental opinions were as follows:

*“As for eating, he/she did not get too hungry because he/she could not burn much energy, and that situation caused some problems. I had to urge him/her” (P20).*

*“The most important thing for us was his/her reluctance to eat. We had lots of problems in the family regarding this, and then my child began to eat voluntarily, with the intent being not to get sick. This was a great favorable result for us” (P3).*

The theme of hygiene consists of meticulous behaviors. Some of the parental opinions were as follows:

*“He/she does not sit on the toilet seat in the house without getting it washed or wiped” (P1).*

*“He/she began to be extremely meticulous. Everything is dirty according to him/her, so he/she uses disinfectant for cleaning everything. He/she is psychologically affected because he/she always asks whether I wiped or disinfected things” (P18).*

Table 9 shows the problem behaviors that emerged in the children during the COVID-19 pandemic.

Table 9  
*Problem behaviors that emerged in children.*

Themes	Sub-themes	Participants	<i>f</i>
Emotional problems	Boredom	P1, P8, P9, P10, P11, P12, P13, P15, P20	9
	Fear	P2, P3, P7, P9, P10, P14, P17	7
	Anxiety	P5, P10, P13, P14, P18	5
	Tantrums	P4, P13, P18	3
	Irritability	P16, P17, P20	3
	Impatience	P6, P11	2

	Disobedience	P1, P3, P13, P16	4
	Desire to attract attention	P2, P5, P10, P12	4
	Aggression	P4, P5, P10, 18	4
Behavioral problems	Excessive speaking	P2, P3, P9	3
	Hyperactivity	P9, P13, P15	3
	Conflicts between siblings	P1, P18	2
	Speaking loudly	P1	1
	Increase in impulses	P6	1

Table 9 shows the problem behaviors that emerged in the children during the COVID-19 pandemic. Emotional problems included boredom, fear, anxiety, tantrums, irritability, and impatience in descending order of frequency. Some of the parental opinions were as follows:

*“We had difficulties with boredom in the quarantine days. There was crying due to the restrictions. When they were forbidden from going out, he/she wanted to go out and had crying jags” (P1).*

*“He/she wanted to sleep together with me in March and April. There were days when he/she didn’t sleep because he/she was scared, especially during the quarantine period” (P2).*

*“He/she was just scared. He/she could not sleep alone, and could not go to the toilet alone. He/she cried to come with me when I went to the toilet. In short, he/she was afraid of staying alone, constantly asking me ‘Mom, you’re not going to die, are you?’” (P3).*

*“He/she says ‘I don’t want distance education’. He/she is very bored. He/she cried too many times, and still keeps doing the same. He/she tries to solve everything by crying. He/she is also impatient” (P6).*

*“He/she says ‘you may have the virus because you have just come from the hospital’. Mine and the children’s anxiety levels really increased too much” (P10).*

*“He/she definitely gets more bored. He/she wants to play more games with me due to his/her need for socialization. He/she even carries his/her painting activities into the room where I am at that moment” (P12).*

*“He/she does not allow me to talk to anyone even on the phone, shouting ‘put down it, what if they have corona...’” (P3).*

*“I observed anxiety and fear. He/she used sentences like ‘Let’s not go out, mom, there is corona. Mom, microbes are very small, how we will be able to see them?’ or ‘What will we do if there are microbes here?’” (P14).*

*“He/she is now angrier, cries quicker, and follows me like my shadow. He/she saw people dying from this disease on the television news, so he/she is afraid that I will die” (P17).*

*“He/she says ‘I feel like a bird in a cage’. He/she began to constantly give examples from animals. There was no such thing before, for example. He/she says ‘Mom, I can’t breathe like this. Mom, I can’t contact my friends, and I can’t share anything with them’. His/her psychology was affected considerably” (P18).*

*“He/she got very bored because of staying home, and as a result, he/she became more aggressive” (P20).*

Behavioral problems observed in children during the COVID-19 pandemic process include non-obedience, desire to attract attention, aggression, excessive speaking, hyperactivity, conflicts between siblings, speaking loudly, and increased impulses in descending order of frequency. Some of the parental opinions were as follows:

*“He/she does not obey me. He/she uses sentences like ‘I’m tired of it, let COVID go away’. He/she speaks too loudly and now there are too many conflicts between [the children] because they got bored with each other, I guess” (P1).*

*“When we prevented him/her from meeting with his/her friends, we observed crying, aggression, and inability to calm down” (P4).*

*“He/she has an endless demand for attracting attention. He/she tries to attract our attention by doing things that he/she knows we will get angry about” (P12).*

*“He/she began to speak too much. He/she lets his/her mouth run. In addition, they began to play very active games at home” (P10).*

*“He/she usually attacks me and his/her sibling physically. He/she behaves angrily with everyone in the house... He/she hurts himself. The other day he/she cut his/her eyebrow with scissors at home” (P18).*

## **DISCUSSION**

The results of this study are divided into two categories as “results on household characteristics” and “results on the pandemic period”. The results on household characteristics show that none of the parents live in a detached house, that more than half of them have a garden, that more than half of them have a private room for each individual in their household, and that all of them have home Internet access. Within the scope of this study, no relationship was found between the qualities of the households and the children’s habits and problem behaviors. In line with the parental opinions, it is observed that the children did not have difficulty in comprehending the pandemic process and that they even took the process seriously, obeying the mask, hygiene, and social distancing rules. Patrick et al. (2020) emphasized that parents and children were affected by the COVID-19 pandemic to a considerable extent and that 1 out of every 7 parents reported deterioration in their children’s behavioral health. According to our results, this process has caused some changes in children’s play, sleep, eating, and hygiene habits and has prompted them to develop various problem

behaviors. In line with the parental opinions, it is observed that the school closures, social isolation, and children's inability to spend time with their peers affect the children particularly adversely. Parents stated that their children particularly grew bored with playing games and began to use electronic devices such as phones, tablets, and televisions more than before. Concordantly, Duan et al. (2020) revealed in their study that 29.58% of children spent more than 5 hours a day online using electronic devices during the pandemic. This study shows that children cannot burn their energy sufficiently due to their limited range of movement in the house; consequently, bedtimes get pushed back to later hours. In addition, it is observed that some of the children had problems such as reluctance to sleep alone and fear of the dark from the beginning of the pandemic. One child had nightmares about the virus, while another child began to experience bed-wetting. Situations that create anxiety and stress, such as changes to lifestyle and physical activity, fear, sadness, and anxiety, may affect the sleep quality of children (Agca Bilmenoglu, 2019). In this study, the eating habits of the children changed in two directions. In the first group, the children experienced lack of appetite, while in the second group, the children ate normally and also asked for supplements such as fish oil to avoid getting sick. The parents in the first group stated that their children had difficulties in eating. During the COVID-19 pandemic, the children were observed to exhibit more meticulous behaviors than before, and some of them were observed to exhibit more obsessive behaviors such as using excessive amounts of disinfectant and trying to play without touching toys in children's parks due to the possibility of being infected with the virus.

Children are experiencing fears, uncertainties, and social isolation during the COVID-19 pandemic. This study, involving children between 4 and 6 years of age, has revealed that the children exhibited emotional problems such as boredom, fear, anxiety, tantrums, irritability, and impatience in descending order of frequency and they exhibited behavioral problems such as disobedience, the desire to attract attention, aggression, excessive speaking, hyperactivity, conflicts between siblings, speaking loudly, and increased impulses, again in descending order of frequency. As a result of this study, it was found noteworthy that the children experienced fear and anxiety not only about the risk of being infected with the virus but also about losing their parents. Therefore, the children are observed to stay with and follow their parents "like their shadows" and ask them questions about death. A Chinese study of 320 children and adolescents reported similar results. That study conducted in China revealed that children between 3 and 6 years of age exhibited the fear that family members may be infected, while children between 6 and 18 years of age exhibited carelessness and persistent questioning. The most severe psychological conditions were attachment, carelessness, and irritability in both groups (Liu et al., 2020). The children were observed to cry more frequently, get angry more easily, and exhibit more aggressive behaviors compared to their behaviors before the pandemic period. These aggressive behaviors progressed so much that one child self-harmed.

In another study, higher rates of depression, anxiety, and sleep disturbances were found in children who often quarreled with each other; in children who spent 2-4 hours a day with devices such as televisions and telephones; in children whose parents did not attempt to engage their children in anything; in children with parents who shouted or exhibited violent behaviors during the quarantine period; and in children with a relative/neighbor who tested positive for COVID-19. In the same study, the vulnerable groups involved children living in rural areas, children having highly educated parents, children having parents with both higher and lower family income, children having parents who smoked, and children exposed to parental depressive symptoms (Yeasmin et al., 2020). In this study, no significant relationship was found between the education levels of the parents, perceived income levels, contact with an individual infected with COVID-19, positive COVID-19 test results in the family and/or close

community, or death from COVID-19 in the family and/or close community and children's changed habits and problem behaviors.

## Declarations

### Ethics approval and consent to participate

All participants provided written informed consent.

### Consent for publication

Not applicable.

### Availability of data and materials

The data that support the results of this study are available from the corresponding author upon request.

### Competing interests

The authors have declared that they have no competing or potential conflicts of interest.

### Funding

None.

### Authors' contributions

We hereby declare that all authors have contributed to this work. All authors provided critical revisions to the manuscript and approved the final version. All authors read and approved the final manuscript.

### Acknowledgements

We are grateful to the participating parents.

## REFERENCES

- Achenbach, T. M., Edelbrock, C., & Howell, C. T. (1987). Empirically based assessment of the behavioral/emotional problems of 2- and 3- year-old children. *Journal of Abnormal Child Psychology*, 15(4), 629–650. <https://doi.org/10.1007/BF00917246>
- Agca Bilmenoglu, S. (2019). *Çocuklar İçin Uyku Bozuklukları Ölçeği | TOAD*. <https://toad.halileksi.net/olcek/cocuklar-icin-uyku-bozukluklari-olcegi>
- American Psychological Association. (2020). *APA Dictionary of Psychology*. <https://dictionary.apa.org/aggression>
- Bakircioğlu, R. (2015). *Çocuk Ve Ergende Ruh Sağlığı — E-kitap — Turcademy*. <https://www.turcademy.com/tr/kitap/cocuk-ve-ergende-ruh-sagligi-9786054434145>
- Bogoch, I. I., Watts, A., Thomas-Bachli, A., Huber, C., Kraemer, M. U. G., & Khan, K. (2020). Pneumonia of unknown aetiology in Wuhan, China: Potential for international spread via commercial air travel. *Journal of Travel Medicine*, 27(2). <https://doi.org/10.1093/jtm/taaa008>
- Caliskan, Y. (2020). Covid-19 pandemisi ve karantina sürecinde çocuk ve ruh sağlığı. *Medical Research Reports*, 3(Supp 1), 149–154.
- Campbell, S. B. (1995). Behavior Problems in Preschool Children: A Review of Recent Research. *Journal of Child Psychology and Psychiatry*, 36(1), 113–149. <https://doi.org/10.1111/j.1469-7610.1995.tb01657.x>
- Cascella, M., Rajnik, M., Cuomo, A., Dulebohn, S. C., & Di Napoli, R. (2020). Features, Evaluation and Treatment Coronavirus (COVID-19). In *StatPearls*. StatPearls Publishing.

<http://www.ncbi.nlm.nih.gov/pubmed/32150360>

- Cetinkaya, B. (2018). *Çocuk Ruh Sağlığı: Sağlıklı Aile, Sağlıklı Çocuk — E-kitap — Turcademy*. <https://www.turcademy.com/tr/kitap/cocuk-ruh-sagligi-saglikli-aile-saglikli-cocuk-9786053186663>
- Delfos, M. F. (2004). Children and behavioural problems : anxiety, aggression, depression and ADHD - a biopsychological model with guidelines for diagnostics and treatment. In *Jessica Kingsley*.
- Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *Journal of Affective Disorders*, 275(July), 112–118. <https://doi.org/10.1016/j.jad.2020.06.029>
- Gromada, A., Richardson, D., & Rees, G. (2020). *Childcare in a Global Crisis: The Impact of COVID-19 on work and family life*. <https://www.unicef-irc.org/publications/1109-childcare-in-a-global-crisis-the-impact-of-covid-19-on-work-and-family-life.html>
- Guan, W., Ni, Z., Hu, Y., Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D. S. C., Du, B., Li, L., Zeng, G., Yuen, K.-Y., Chen, R., Tang, C., Wang, T., Chen, P., Xiang, J., ... Zhong, N. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*, 382(18), 1708–1720. <https://doi.org/10.1056/nejmoa2002032>
- Imran, N., Zeshan, M., & Pervaiz, Z. (2020). Mental health considerations for children & adolescents in covid-19 pandemic. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), S67–S72. <https://doi.org/10.12669/pjms.36.COVID19-S4.2759>
- Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. In *Journal of Pediatrics* (Vol. 221, pp. 264-266.e1). Mosby Inc. <https://doi.org/10.1016/j.jpeds.2020.03.013>
- Karadeniz, S., Buyukozturk, S., E. Akgun, O., & Kılıc Cakmak, E. (2020). *Eğitimde Bilimsel Araştırma Yöntemleri — E-kitap — Turcademy*. <https://www.turcademy.com/tr/kitap/egitimde-bilimsel-arastirma-yontemleri-9789944919289>
- Liu, J., Chen, X., & Lewis, G. (2011). Childhood internalizing behaviour: Analysis and implications. *Journal of Psychiatric and Mental Health Nursing*, 18(10), 884–894. <https://doi.org/10.1111/j.1365-2850.2011.01743.x>
- Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet Child and Adolescent Health*, 4(5), 347–349. [https://doi.org/10.1016/S2352-4642\(20\)30096-1](https://doi.org/10.1016/S2352-4642(20)30096-1)
- Liu, J. (2004). Childhood externalizing behavior: Theory and implications. *Journal of Child and Adolescent Psychiatric Nursing*, 17(3), 93–103. <https://doi.org/10.1111/j.1744-6171.2004.tb00003.x>
- Macfarlane, J. W., Allen, L., & Honzik, M. P. (1954). A developmental study of the behavior problems of normal children between twenty-one months and fourteen years. *Publications in Child Development. University of California, Berkeley*, 2, 1–222. <https://doi.org/10.1037/h0039446>
- Mesman, J., Bongers, I. L., & Koot, H. M. (2001). Preschool developmental pathways to preadolescent internalizing and externalizing problems. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(5), 679–689. <https://doi.org/10.1017/S0021963001007351>
- Okur, İ., & Demirel, Ö. F. (2020). COVID-19 ve Psikiyatrik Bozukluklar. *REWİE Med Res Rep*, 3(Supp 1), 86–99.
- Papatheodorou, T. (2010). Behaviour problems in the early years. In *Behaviour Problems in the Early Years*. [https://doi.org/10.4324/9780203464656\\_chapter\\_1](https://doi.org/10.4324/9780203464656_chapter_1)
- Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., Letterie, M., & Davis, M. M. (2020). Well-being of Parents and Children During the COVID-19 Pandemic: A National Survey. *Pediatrics*, 146(4), e2020016824. <https://doi.org/10.1542/peds.2020-016824>
- Rothan, H. A., & Byrareddy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of Autoimmunity*, 109(February), 102433. <https://doi.org/10.1016/j.jaut.2020.102433>
- Sabri, E., Türkiye, E., Ve, Ç., Psikiyatrisi, G., LastNameLastNameLastNameBaşkanı, D., Üniversitesi, E., Fakültesi, T., Psikiyatrisi, E., Üyesi, Ö., Rodopman, A., Marmara, A., Tıp, Ü., Çocuk, F., LastNameLastNameLastNameDalı, A., Prof, B., İnal, N., Dokuz, E., Üniversitesi, E., Bilimleri, S., ... Yalçın, Ö. (2020). *TÜRKİYE ÇOCUK ve GENÇ PSİKİYATRİSİ DERNEĞİ COVID-19 (KORONA) VİRÜS SALGINI SIRASINDA AİLE, ÇOCUK VE ERGENLERE YÖNELİK PSİKOSOSYAL ve RUHSAL DESTEK REHBERİ Ankara Üniversitesi Tıp Fakültesi Çocuk ve Ergen Psikiyatrisi Öğretim Üyesi*.
- Saglik Bakanligi. (2020a). *COVID-19 (SARS-CoV-2 ENFEKSİYONU)*.
- Saglik Bakanligi. (2020b). *Covid19*. <https://covid19.saglik.gov.tr/>
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery*, 76, 71–76. <https://doi.org/10.1016/j.ijssu.2020.02.034>
- Sprang, G., & Silman, M. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Medicine and Public Health Preparedness*, 7(1), 105–110. <https://doi.org/10.1017/dmp.2013.22>

- Sun, P., Lu, X., Xu, C., Sun, W., & Pan, B. (2020). Understanding of COVID-19 based on current evidence. *Journal of Medical Virology*, 92(6), 548–551. <https://doi.org/10.1002/jmv.25722>
- Taylor, D., Lindsay, A. C., & Halcox, J. P. (2020). c o r r e s p o n d e n c e Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *Nejm*, 0–2.
- Türkiye Bilimsel Akademisi. (2020). (No Title). <http://www.tuba.gov.tr/files/yayinlar/raporlar/6. Versiyon TÜBA COVID-19 Küresel Salgın Değerlendirme Raporu 4 Haziran 2020.pdf>
- van Doremalen, N., Bushmaker, T., Morris, D. H., Holbrook, M. G., Gamble, A., Williamson, B. N., Tamin, A., Harcourt, J. L., Thornburg, N. J., Gerber, S. I., Lloyd-Smith, J. O., de Wit, E., & Munster, V. J. (2020). Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *New England Journal of Medicine*, 382(16), 1564–1567. <https://doi.org/10.1056/nejmc2004973>
- Wang, G. H., Zhang, Y. T., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Journal of Shanghai Jiaotong University (Medical Science)*, 40(3), 279–281. <https://doi.org/10.3969/j.issn.1674-8115.2020.03.001>
- World Health Organization. (2020a). *Transmission of SARS-CoV-2: implications for infection prevention precautions*. <https://www.who.int/publications/i/item/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>
- World Health Organization. (2020b). *WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data*. <https://covid19.who.int/>
- Yeasmin, S., Banik, R., Hossain, S., Hossain, M. N., Mahumud, R., Salma, N., & Hossain, M. M. (2020). Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. *Children and Youth Services Review*, 117(May), 105277. <https://doi.org/10.1016/j.childyouth.2020.105277>
- Yildirim, K. (2010). Nitel Araştırmalarda Niteliği Artırma. *İlköğretim Online*, 9(1), 79–92. <https://dergipark.org.tr/tr/pub/ilkonline/106955>
- Zu, Z. Y., Di Jiang, M., Xu, P. P., Chen, W., Ni, Q. Q., Lu, G. M., & Zhang, L. J. (2020). Coronavirus Disease 2019 (COVID-19): A Perspective from China. *Radiology*, 296(2), E15–E25. <https://doi.org/10.1148/radiol.2020200490>