

The effects of the COVID-19 pandemic on children's lifestyles and anxiety levels

Mürşide Zengin PhD, RN¹  | Emriye Hilal Yayan PhD, RN² | Elanur Vicnelioğlu RN³

¹Department of Child Health and Diseases Nursing, Faculty of Health Sciences, Adiyaman University, Adiyaman, Turkey

²Department of Child Health and Diseases Nursing, Faculty of İnönü University, Malatya, Turkey

³Department of Nursing, Faculty of Nursing, İnönü University, Malatya, Turkey

Correspondence

Mürşide Zengin, PhD, RN, Department of Child Health and Diseases Nursing, Faculty of Health Sciences, Adiyaman University, Altınşehir Street, 02100, Adiyaman, Turkey. Email: mzengin@adiyaman.edu.tr

Abstract

Objective: This study was conducted to determine the effects of the coronavirus disease 2019 (COVID-19) pandemic on children's lifestyles and anxiety levels.

Methods: This study was designed as a descriptive, cross-sectional online questionnaire survey.

Results: Of the children, 91.9% reported that the pandemic had an important effect on their lifestyle. Children stated that they experienced changes in terms of nutrition, sleep, television-internet use, social activity, coursework time, and school success due to the pandemic.

Implication for Practice: It was determined that the COVID-19 pandemic caused changes in children's routines, and the children experienced moderate or high levels of anxiety. Primary healthcare providers should increase their attention to these issues to protect and improve children's mental health during the pandemic period.

KEYWORDS

anxiety, child, COVID 19, life style, pandemic

1 | INTRODUCTION

In December 2019, a novel coronavirus disease 2019 (COVID-19) emerged in Wuhan, Hubei Province, China. The disease spread worldwide before officially being declared a global pandemic by the World Health Organization on March 11, 2020 (Hong et al., 2020; Huang et al., 2020; Wang, Pan, Wan, Tan, Xu, McIntyre, et al., 2020). COVID-19 results in high levels of morbidity and mortality (Rundle et al., 2020).

Pandemics can result in unbearable psychological pressure along with the physical disorder associated with the infection (Cao et al., 2020). During this period, children are constantly exposed to news about the pandemic (Guan et al., 2020); media and social conversations are completely dominated by the outbreak. Children are exposed to large amounts of information, high levels of stress and anxiety transmitted through the surrounding adults (Dalton et al., 2020).

The outbreak could cause serious changes in the lifestyle of the pediatric population (Filipova et al., 2020; Hadley, 2020). Social isolation and home-living practices interrupt children's physical activity levels (Chen et al., 2020; Rundle et al., 2020). In this process,

changes occur in children's routines. While the education and friendships of children are interrupted, many also experience real anxiety and fear (Hadley, 2020). Pandemic and home isolation also cause a change in children's eating habits (Rundle et al., 2020; Wang, Zhang, et al., 2020), and their social infrastructure is completely affected (Dalton et al., 2020).

Due to the lower incidence of infection and mortality than adults, professionals may be less focused on the unique clinical features of COVID-19 and mental health status in children (Ma et al., 2020). There are a limited number of studies on the psychological effects of the pandemic in children and adolescents (Lee, 2020). However, evidence has shown that children and adolescents who experienced disasters might suffer from greater stress and trauma because of the lack of development of proper emotional reactions and coping techniques (Duan et al., 2020). Identifying psychological problems experienced during the pandemic is important in terms of reducing symptoms and developing evidence-based strategies (Wang, Pan, Wan, Tan, Xu, Ho, et al., 2020). This study was conducted to determine the effects of the COVID-19 pandemic on children's lifestyles and anxiety levels.

Research questions;

1. What are the effects of the COVID-19 pandemic on children's lifestyles?
2. What are the anxiety levels of children during COVID-19 pandemic?
3. Is there a significant relationship between sociodemographic variables and changes in lifestyles on children's anxiety levels?

2 | METHODS

2.1 | Study design

This study was designed as descriptive, cross-sectional research. An online questionnaire survey was administered during the spread of COVID-19. The study was carried out between May and June 2020. The study population consisted of children between the ages of 9 and 12 residing in a south-eastern Turkish province. During the study, the government was implementing some coronavirus measures, such as the complete closure of schools (distance learning) and a partial or full-time curfew for children under the age of 20. The sample size was calculated as 309 children (<https://www.surveysystem.com/>) with a 95% confidence level, 5% confidence interval, and an 1585 study population (number remaining after the villages and municipalities of the designated region have been removed). In the study, the purposive sampling method was used, and the data were collected with children in a central district in the province determined in terms of having similar socio-demographic and cultural characteristics.

Parents of 9–12 years old children attending primary schools in the designated region were reached via a social communication application and a link to the informed consent and questionnaire forms were sent to their mobile phone. The questionnaire form continued to be sent to potential participants until the calculated necessary sample size was reached. In the first stage, the questionnaire form was sent to 425 parents; 342 of these were returned by parents (return rate: 80.4%). Thirty-three questionnaires that were incomplete or incorrectly completed, or did not meet the inclusion criteria were excluded from the study (attrition rate: 9.6%). The inclusion criteria of the study follow: (1) children aged 9–12 years old; (2) living in the designated city; and (3) volunteering to participate after being informed about the study. Children (1) who did not complete the questionnaire entirely; and (2) who were diagnosed with any mental disorders were excluded from the study. Chosen by the purposive sampling method, the final study sample consisted of 309 children who met the inclusion criteria and completed the questionnaire.

2.2 | Data collection tools

The questionnaire form used in data collection had two parts: the first entitled the introductory information form consists of

22 questions to determine the sociodemographic characteristics of children (age, gender etc.) and the changes in their lifestyle (nutrition, sleep, television-internet use, social activity etc.) during the COVID-19 pandemic. To evaluate the children's anxiety levels, the second part included the state-trait anxiety inventory for children (STAIC). After the data collection form was prepared by the researchers, it was sent to three specialists who are also lecturers in Children's Health and Diseases Nursing for their review. The form was finalized by making the necessary corrections in line with the suggestions from the experts.

2.3 | The state-trait anxiety inventory for children (STAIC)

The STAIC was developed by Spielberger and Edwards in 1973 and adapted to Turkish by Özusta in 1995. It consists of two sub-scales (with 20 items each) that separately assess the child's level of state and trait anxiety. Children are asked to assess how they feel “at the moment” for the state anxiety inventory (SAI), and how they “generally” feel for the trait anxiety inventory (TAI). The total score of each subscale varies from 20 to 60. Higher scores indicate higher levels of anxiety. The Cronbach's alpha coefficient was found to be 0.82 for the state anxiety subscale, and 0.81 for the trait anxiety subscale, in a study conducted with 615 healthy children (Özusta, 1995). In this study, Cronbach's alpha was 0.87 for the SAI and 0.89 for the TAI.

2.4 | Data collection

A pilot study was conducted with 20 children to determine the validity of the data collection tools. In the pilot study, the adequacy and clarity of the questions created by the researchers to determine the changes in the lifestyles of the children during the pandemic were evaluated. The data obtained from the pilot study were not used due to corrections on the questions after the pilot study. The data collection form was transferred to an online format. The online environment was used for the collection of data owing compliance with isolation and quarantine suggestions during the pandemic as well as consideration of the efficiency of the data collection process and the ability to reach remote individuals.

The link address was shared with parents who have children between the ages 9 and 12 and it was requested that they complete the form with their children. As noted, parents were sent the consent and questionnaire via mobile phone. Before completing questionnaires, all participants and their parents were debriefed on the study purpose and contents. Once consented, participants filled out the set of questionnaires online. We also included our email addresses and phone number to the first page of questionnaires so that participants could consult and interact with us at any time. Children were to complete the form with the help of their parents. The data

collection form was completed in an average of 10 min by participants.

2.5 | Data analysis

Data were analyzed using the IBM SPSS Version 23 package program (IBM Corp.). The data analyzes were performed using descriptive and comparative analysis methods. For descriptive statistics, mean, standard deviation, frequency and percentage distribution were used. Shapiro–Wilk test was implemented to determine whether the sample data were normally distributed. From comparative statistics, independent groups *t* test, analysis of variance, and the Kruskal–Wallis test were used for comparing the anxiety levels of children considering select variables (age, gender, difference in games, change in communication with friends). The findings obtained were interpreted at a 95% confidence interval at a significance level of 0.05.

2.6 | Ethical consideration

Before conducting the study, necessary permissions were obtained from the IU Clinical Investigations Ethical Committee (Decision No: 2020/674). To conduct the study, the necessary permission was obtained from T.C. General Directorate of Health Services of the Ministry of Health, COVID-19 Scientific Research Evaluation Commission (2020-05-07T18_25_59). The informed consent of both children and parents were taken in the digital environment. Due to ethical requirements on anonymity and confidentiality, we did not collect contact details and personal information from the respondents.

3 | RESULTS

The average age of the children in the study was 10.3 ± 1.2 ; 52.1% of participants were male. It was determined that 82.2% of the children lived in a nuclear family, and 75.4% had middle income. Some sociodemographic characteristics of children and parents in the study are provided in Table 1.

In this study 96.4% of children reported they were aware of the COVID-19 pandemic. Main contributors to knowledge of the pandemic were reported as television (47.2%), family elders (30.4%), and the internet (18.1%). 91% of respondents reported that the pandemic has had an important effect on their lifestyle. During the COVID-19 pandemic, 36.6% of children spent 3–4 h and 32.0% spent more than 4 h with a television, tablet, or phone. Approximately sixty percent (60.8%) of the children reported that they slept for 8–10 h per night. Approximately forty one (41.2%) stated that their sleeping habits have become irregular and more than half of respondents reported that they go to bed late (56.8%). 75.4% of participants reported, compared to before the pandemic, that the time they

TABLE 1 Some sociodemographic characteristics of children and parents

Variables	n	%
Gender		
Female	148	47.9
Male	161	52.1
Mother's age (years)		
Under 30	22	7.1
30–45	254	82.2
Over 45	33	10.7
Mother's profession		
Housewife	205	66.3
Health employee	28	9.1
Public employee—continues to work in the outbreak	17	5.5
Public employee—not working because of the outbreak	27	8.7
Unemployed	32	10.4
Father's age (years)		
Under 30	4	1.3
30–45	224	72.5
Over 45	81	26.2
Father's profession		
Health employee	19	6.1
Public employee—continues to work in the outbreak	86	27.8
Public employee—not working because of the outbreak	41	13.3
Unemployed	13	4.3
Other	150	48.5
Total	309	100

allocated for social activity was decreased; 43.4% of the children said they never went out and 53.1% of them went out to the yard only. It was found that 48.9% of the children contacted their friends via phone, 18.8% made contact via the internet and 27.2% haven't met with friends since the pandemic. The distribution of the changes in some areas of the daily lifestyles of children is provided in Table 2.

Children stated that due to the pandemic they experienced changes in terms of nutrition (54.0%; $n = 167$), sleep (61.5%; $n = 190$), television-internet use (71.8%; $n = 222$), social activity (duration, form; 76.7%; $n = 237$), course work time (71.5; $n = 221$), and school success (45.3; $n = 140$). To the question “what do you want to do first when the pandemic is over,” the children answered “going to school,” “meeting with friend,” “leaving home,” and “hugging their loved ones.”

The mean anxiety scores of the children were 43.44 ± 6.80 for the SAI and 34.84 ± 7.75 for the TAI. A comparison of the STAIC levels of children in terms of select variables is provided in Table 3.

TABLE 2 Distribution of changes in some areas of daily lifestyles of children

Variables	n	%
Change in eating habits ^a		
They are not affected	72	23.3
I eat healthier since the beginning of the outbreak	72	23.3
Frequency/amount of meals increased	152	49.2
Frequency/amount of meals decreased	27	8.7
Junk food consumption increased	116	37.5
Junk food consumption decreased	60	19.4
Fruit/vegetable consumption increased	137	44.3
Fruit/vegetable consumption decreased	19	6.1
Difference in sleep habits ^a		
They are not affected	64	20.8
They have become irregular	127	41.2
Sleep time increased	143	46.4
Sleep time decreased	23	7.5
I'm sleeping late	175	56.8
I'm getting up late	120	39
Difference in games ^a		
They are not affected	45	14.5
I can play limited games at home	179	57.9
I discover more creative games at home	55	17.8
I can't play because there is no one to play with	30	9.7
Going out from home		
I have not been out since the outbreak	134	43.4
I occasionally go to the yard	164	53.1
We sometimes meet my friends outside	9	2.9
No difference compared to before the outbreak	2	0.6
Thoughts about distance education ^a		
I have difficulty	133	43.6
It is inefficient	144	47.2
I have difficulty concentrating	155	50.8
I do not get stuck	71	23.3
I think it's effective and efficient	44	14.4
Feeling because of the outbreak ^a		
I'm afraid to be sick	181	58.6
I'm afraid for one of my family members to get sick	233	75.4
I'm afraid of losing my family or friends because of the outbreak	200	64.7
I feel lonely/unhappy	98	31.7
I miss my life before the outbreak	254	82.2
I miss my friends and teachers	249	80.6
Total	309	100

^aThe participants marked more than one option.

According to the table, as the age of the children increased, the state anxiety levels decreased and the trait anxiety levels increased ($p < .05$). While the state anxiety levels of boys were determined to be significantly higher than girls', there was no difference between the genders in terms of the trait anxiety score. The state anxiety levels of children who said they play more creative games at home and the trait anxiety levels of children who said that there was no one to play with were found to be higher compared to other participants. The state anxiety score of children who could easily contact their friends on the Internet and the trait anxiety score of children who could never contact their friends since pandemic were found to be significantly higher than the other participants.

4 | DISCUSSION

Little is known about changes in the levels of psychological impact, stress, anxiety, and depression during this pandemic outside of China (Wang, Pan, Wan, Tan, Xu, McIntyre, et al., 2020). This study was conducted to determine the effects of the COVID-19 pandemic on Turkish children's lifestyles and anxiety levels. In our study, it was found that children's lifestyles changed in many respects during the COVID-19 pandemic. Areas determined to have changed included nutrition, sleep, play, communication with friends, and the amount of screen time. In a study conducted by YoungMinds with 2111 young individuals, participants reported that their routines were disrupted during the pandemic (Thomas, 2020). One noteworthy finding of the present study was that the frequency and amount of meals increased in 50% of the participating children. Some of the children in the present study stated that their sleeping habits have become irregular, and the majority of them had reduced their time for social activity. These findings are similar to our results.

The imbalance of nutritional and sleep habits during the pandemic can harm children's physical and psychological health. Rundle et al. (2020) pointed out that unbalanced nutrition, decreased physical activity, and closure of schools may result in unhealthy weight gain in children during the pandemic (Rundle et al., 2020). Wang and colleagues also emphasized that the interaction between lifestyle changes and psychosocial stress caused by home confinement could have negative effects on children's physical and mental health (Wang, Zhang, et al., 2020). Changes in children's lives along with differences in parental behaviors due to the pandemic may be perceived as a threat by the child and cause anxiety (Dalton et al., 2020).

In our study, we also examined the state/trait anxiety levels of children. Factors, such as changing routines, moving away from school and friends within the scope of quarantine and isolation measures, limited physical activity opportunities, and frequent hearing of concepts, such as disease, virus, and death may be can affecting the anxiety level of children. In a study investigating the psychological effects of COVID-19 in China, 53.8% of the participants rated the psychological effect of the pandemic as moderate or severe, and 28.8% reported symptoms of moderate or severe anxiety (Wang, Pan, Wan, Tan, Xu, Ho, et al., 2020). Similarly, in a longitudinal

TABLE 3 Comparison of the STAI levels of children in terms of select variables

Variables	State anxiety				Trait anxiety			
	n	$\bar{x} \pm SD$	F/t	p	n	$\bar{x} \pm SD$	F/t	p
Age (years)								
9	106	44.83 ± 6.18	5.148	.002	98	33.62 ± 7.02	3.223	.023
10	72	43.98 ± 6.55			76	33.15 ± 7.45		
11	49	43.61 ± 5.85			53	35.28 ± 7.21		
12	82	41.07 ± 7.74			82	36.65 ± 8.68		
Gender								
Female	148	42.36 ± 6.37	1.254	.007	148	35.74 ± 8.17	1.857	.051
Male	161	44.43 ± 7.04			161	34.01 ± 7.27		
Difference in games								
They are not affected	45	42.56 ± 6.82	2.658	.048	44	34.75 ± 7.74	3.989	.008
I can play limited games at home	179	43.31 ± 6.64			179	35.18 ± 7.98		
I discover more creative games at home	55	45.54 ± 7.13			55	32.09 ± 6.96		
I can't play because there is no one to play with	30	41.76 ± 6.62			30	37.80 ± 6.48		
Change in communication with friends								
Communication with friends has not been affected	15	43.00 ± 6.08	8.057 ^a	.045	15	29.86 ± 6.67	14.967 ^a	.002
I never contact friends	85	43.26 ± 7.56			85	36.83 ± 6.68		
I sometimes talk via phone	151	42.77 ± 6.74			151	34.48 ± 8.39		
I can easily contact friends on the internet	58	45.62 ± 5.63			58	34.08 ± 7.04		

Abbreviation: STAI, state-trait anxiety inventory.

^aKruskal-Wallis test was used.

study conducted with a large sample, it was found that the participants experienced moderate or severe stress, anxiety and depression during the pandemic (Wang, Pan, Wan, Tan, Xu, McIntyre, et al., 2020).

Despite children seeming to have more positive outcomes in relation to the physical progression of COVID-19 they should still be classed as a vulnerable group during the pandemic for several reasons. One they are being exposed to a process that they have not experienced before and two they are often hearing about illness and death. Also, as part of the measures taken to prevent the spread of the virus, children are kept at home for long periods and are forced to stay away from their school and friends (Jiao et al., 2020). In this study, it was determined that staying away from friends was related to an increase in the children's trait anxiety level. It was also determined that the state anxiety level of children who stated that they frequently contact their friends via the Internet were higher than the other participating children. Although this result may seem a little confusing, it may be a result of these children's need for frequent meetings with friends because of their high anxiety.

In this study, close to half of the children reported that they never went out (43.4%) or occasionally went out to the yard only (53.1%). Sprang and Silman (2013) reported that isolation and quarantine measures taken during pandemics cause children to

experience trauma. These researchers reported that posttraumatic stress developed in 30% of children and 25% of parents (Sprang & Silman, 2013). In a recent study conducted with 1143 parents in Italy and Spain, it was determined that quarantine implementation significantly affected children's lives, and 85.7% of the parents perceived changes in their children's emotional state and behaviors during quarantine. Here, the most common symptoms in children were difficulty concentrating, boredom, irritability, restlessness, nervousness, feelings of loneliness, uneasiness and worry (Orgilés et al., 2020). The results of a study conducted with 7143 university students showed that 0.9% of the participants experienced severe anxiety, 2.7% had moderate anxiety, and 21.3% had mild anxiety (Cao et al., 2020). Thus, the impact of quarantine on youth can be widespread and significant.

4.1 | Limitations

This study also has several limitations. First, data collection was completed by distributing questionnaires to children online. The results and conclusions may be influenced by the degree of understanding and cooperation of the respondents, especially the younger children who needed help of their parents. Second, as the study was

conducted at a south-eastern Turkish province that was exercising a curfew, the results cannot be generalized to all children in the country.

5 | IMPLICATIONS FOR PSYCHIATRIC NURSING PRACTICE

It was determined in this study that the pandemic caused significant changes in children's routines and that many of these same children experienced moderate or high levels of anxiety. To minimize the psychological impact of the pandemic on children, it is recommended that governments and parents take institutional and individual steps, respectively. Parents need to support maintaining their children's pre-pandemic routines as much as possible. To minimize emotional problems during the pandemic, parents need to carefully monitor their children's emotional well-being and seek help when necessary. Collaborative games with children and engaging in activities that promote physical activity can help reduce anxiety.

6 | CONCLUSION

Due to the COVID-19 pandemic, curfews have been imposed in different countries around the world and at different times (Gostin & Wiley, 2020; Lasry et al., 2020; Oksanen et al., 2020). Turkey is the only country worldwide to apply a unique age-stratified curfew; this first started for seniors older than 65 years and followed by the curfew order for children and youth younger than 20 years (Kanbur & Akgül, 2020). After a circular was issued by Ministry of Interior (Date: 03.03.2020; Number: 89780865-153), individuals under the age of 20 were prohibited from leaving home (T. C. Ministry of Interior, 2020). Although strict isolation and quarantine measures for children reduce the spread of the disease, they have negative effects on children's psychological well-being (Liu et al., 2020) and these must also be recognized. Primary healthcare providers and psychiatric nurses should increase attention to children's mood and intervene to protect and improve children's mental health during and after immediately the pandemic. Since the anxiety experienced by parents may also have an impact on children, studies that evaluate the stress level of the parents are necessary.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

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

ORCID

Mürşide Zengin  <http://orcid.org/0000-0003-1453-6028>

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