

Original Article

The Quality of Life and Depression Status of Healthcare Workers' Children in the COVID-19 Pandemic

MA DUNDAR, S OZMEN, H ASLANER, BN AKYILDIZ

Abstract

Introduction: COVID-19 disease has adversely affected almost all families and children's physical, psychosocial, and mental health. We wanted to find out how the pandemic affected the quality of life and depression levels of the children of healthcare workers. **Material and Methods:** A survey of 287 children was conducted to compare the children of healthcare professionals and other occupational groups. The Children's Depression Inventory and Paediatric Quality of Life Inventory tests evaluated children's depression and quality of life. **Results:** Children's Depression Inventory scores were higher in children of COVID-19 infected healthcare workers than in the children of non-infected ($p=0.04$). The total Paediatric Quality of Life, Physical and Psychosocial Health Scores were lower in the healthcare workers' children ($p=0.004, 0.01, 0.007$). **Conclusion:** Children of healthcare workers are more affected physically and psychosocially than other children during the pandemic. Healthcare workers and their children will be motivated and encouraged if they are supported during the pandemic.

Key words

Children's Depression; Children of healthcare workers; COVID-19; Paediatric Quality of Life

Introduction

Many studies have shown that adverse childhood experiences harm the child's mental health and productivity in adulthood.¹ The COVID-19 disease has rapidly spread worldwide, placing many in quarantine. This situation has

a significant impact on the upbringing of the children, affecting almost all families. Furthermore, school closures and social distancing can hurt children's physical, psychosocial, and mental health.²

Healthcare workers (HCWs) were required to work continuously despite the risk of infection with COVID-19. Therefore, health professionals can be considered the most vulnerable occupational group regarding mental stress and other mental health problems in this pandemic.³ In the study by Kisely et al, risk factors for the negative psychological impact on health workers during viral epidemics include being parents of dependent children and having an infected family member.⁴

Concerned about these risks, healthcare workers have isolated themselves from their families to avoid infecting their children.⁵ Various stress responses occur in children who face unexpected and unusual situations, such as the COVID-19 pandemic. In disasters like the pandemic, it is necessary to help children cope with everything from minor disappointments to major life traumas.⁶ The quality of life of children and adolescents was significantly lower during the COVID-19 pandemic, according to Siberer et al.⁷ Observational studies show that after acute COVID-

Department of Pediatrics, Pediatric Intensive Care Unit, Erciyes University, Faculty of Medicine, Kayseri, Turkey

MA DUNDAR MD

BN AKYILDIZ MD

Department of Child and Adolescent Psychiatry, Erciyes University, Faculty of Medicine, Kayseri, Turkey

S OZMEN MD

Department of Family Medicine, Health Sciences University, Faculty of Medicine, Kayseri, Turkey

H ASLANER MD

Correspondence to: Dr MA DUNDAR
Email: doktordundar1984@gmail.com

Received December 21, 2021

19 infection, psychological symptoms (such as anxiety and depression) are most common among families and children of HCWs.⁸

It may be possible to improve the situation by making recommendations to reduce the adverse effects of the COVID-19 pandemic on the psychosocial well-being and quality of life of HCWs and their families. We aimed to determine how the COVID-19 pandemic affects depression levels and the quality of life in the children of healthcare professionals.

Material and Methods

Study Design and Setting

This cross-sectional study is a web-based and multiple-choice questionnaire method to survey Kayseri province healthcare workers and other occupational groups. Our study was conducted on children of employees of the Ministry of Health and the Ministry of Education, for whom we obtained the necessary permissions. Surveys were conducted via an online application using mainstream media (Survey Monkey). Health care workers working in pandemic hospitals, primary health care centres, dental departments, schools, and government offices throughout the country were contacted by phone. The link to the questionnaire prepared in Turkish was sent via SMS or email and their consent was requested. Children completed all questions. Families were asked to assist the children only in completing the questionnaire and asking the questions. Children were asked to complete the Paediatric Quality of Life Inventory to assess their quality of life and the Child Depression Inventory to determine the extent of their depression. These scales are in the form of multiple-choice options and are scored according to the equivalents of each option among peers.

Study Participants

This study was conducted with a total of 300 subjects. Thirteen subjects who did not give consent were excluded from the study, leaving 287 subjects who gave consent and completed the online questionnaire between 1 April 2021 and 30 January 2021. Two hundred thirteen healthcare workers participated in the study, including doctors, nurses, emergency medical technicians or paramedics, laboratory, radiology, and dental personnel between the ages of 20 and 65. Seventy-four individuals were from the other occupational groups, including teachers, civil servants, engineers, and labourers/tradesmen. The case

group consisted of children of healthcare workers aged 8-18 years, while the control group consisted of children of other occupational groups in the same age range. The sociodemographic survey included the following: Gender, age, number of siblings, smoking, significant other, whether they cared for a patient with COVID-19, whether they went to school, health profession, whether their children were afraid of becoming infected with COVID-19. Children of HCWs were also compared as parents with and without COVID-19 infection.

The Paediatric Quality of Life Inventory (PedsQL)

PedsQL is a quality-of-life scale developed by Varni et al to measure health-related quality of life in children and adolescents. PedsQL is a quality-of-life scale suitable for use in large populations such as schools and hospitals, for both healthy and sick children and adolescents. This scale asks about the last month of children and adolescents. It was developed as a Likert-type scale with 3 options for children aged 5-7 years and 5 options for children and adolescents aged 8-18 years. The age limit that children can complete the PedsQL score is 8 years. In this study, a self-report form was used for children aged 8-18 years. The scale used has no cut-off point. The higher the total score, the better the health-related quality of life is perceived. In this study, statistical evaluation was done by comparing the total scores between the groups. The 23-item PedsQL™ Version 4.0 Generic Core Scales include physical functioning (8 items), emotional functioning (5 items), social functioning (5 items), and school functioning (5 items). Physical Health Score corresponds to the sum of the eight items of the physical functioning subscale. The Psychosocial Health Score equals the sum of 15 items belonging to the emotional, social, and school functioning subscales. A five-point scale is used to answer (0=never a problem, 4=almost always a problem). Items are scored in reverse order and linearly transformed into a 0-100 scale (0=100, 1=75, 2=50, 3=25, and 4=0), with higher scores indicating better health-related quality of life. Scale scores are calculated by dividing the number of items by the number of items answered. The scale score is not calculated if more than half of the items are missing from the scale.⁹

Children's Depression Inventory (CDI)

The CDI is a self-report questionnaire designed to assess depression symptoms in children and adolescents aged 7 to 17 years in the previous two weeks. The CDI was administered to all participants, regardless of their current

age, to ensure continuity between them and previous waves of the survey. The CDI consists of 27 items, each rated on a 0 to 2 scale. The CDI scale can be completed by reading it to the child or by the child completing it themselves. Children aged 7 to 17 are asked to assess the situation over the last two weeks and tick the most appropriate of the three options. It was preferred in this study because the age range of the study group was 8-18 years. The items are summed to obtain a composite score of current depressive symptoms. The cut-off point of the scale is 19, and the highest possible score is 54. The higher the total score, the more severe the depression. The CDI is a relevant and valuable tool for assessing depression symptoms in children and adolescents.¹⁰

Statistical Analysis

Statistical analyses were performed using the programme SPSS (Statistical Package for Social Sciences) for Windows 22.0. Histogram, q-q plots, and the Shapiro-Wilk Normality Test were used to check whether the data had a normal distribution. Normally distributed parameters were expressed as mean \pm standard deviation, and abnormally distributed parameters were expressed as median (25th quartile-75th quartile). Categorical data (sex distribution, COVID-19 transmission rate of parents, the education style of the child, the presence of persons above 65 years of age living together at home, etc.) were compared using the Chi-Square test. For numerical data, Student's t-test was applied to binary groups that conformed to the normal distribution. The Mann Whitney U-test was applied to groups that did not conform to the normal distribution. The Kruskal Wallis test was used to compare of more than two non-normally distributed groups (to assess the status of distance education). Binary logistic regression analysis was used to determine the significant variables that contributed to the child's fear of getting COVID-19 infection. A forward and backward method of variable entry was performed. The statistical significance limit was taken as $p < 0.05$.

Results

The children of 213 healthcare workers who worked in hospitals during the COVID-19 pandemic and the children of 74 families from other occupational groups were included in the study. Children of healthcare workers who

had COVID-19 infection ($n=61$) were also compared with children of healthcare workers who did not have an infection ($n=152$). The occupational fields of healthcare workers: were doctor 90 (42%), dentist 15 (7%), nurse 98 (46%), laboratory technician/radiologist/paramedic 10 (4.6%). The work areas of the control group were teacher 29 (39%), civil servant 21 (28%), engineer 9 (12%), labourer/manual worker 15 (20%) (Table 1). Thirty-four of the healthcare workers had a high school diploma, 179 had a university degree, 13 of the other occupational groups had a high school diploma, and 61 had a university degree ($p=0.71$, chi-square Fisher exact test). Since the individuals we surveyed were working in public institutions, there was no statistical difference between their monthly incomes ($p=0.95$, Table 1). No significant difference was found between groups in educational level and socioeconomic status.

Analysis of Demographic Data of HCWs' Children and Other Occupational Groups' Children

The mean age of children of HCWs was 11.43 ± 3.04 years, 116 (54%) girls and 97 (46%) boys. There were 36 (51%) girls and 38 (49%) boys with a mean age of 11.5 ± 2.83 years in children of other occupations. There was no statistical difference between the groups in terms of the age range ($p=0.67$) and gender ratios ($p=0.64$) (Table 1). There was no statistically significant difference between the two groups in the proportion of people over 65 years in the family ($p=0.55$) and the proportion of receiving those distance learning ($p=0.88$). The fear of contracting COVID-19 was higher among the children of HCWs ($p=0.002$). The rate of COVID-19 transmission in HCWs (29%) was higher than in the control group (18%) ($p=0.04$). At the same time, the proportion of children of HCWs who have siblings was lower than in the control group ($p=0.008$, Table 1).

Comparing of CDI and PedsQL Scores Between HCWs' Children and Other Occupational Groups' Children

The results of the PedsQL subscales and CDI of the HCWs' children were compared to the children of other occupational groups. Although the CDI score in both groups was above the cut-off point of 19,¹¹ there was no statistically significant difference between them ($p=0.18$). It was found that the total PedsQL (tPedsQL) score ($p=0.004$), total physical health score ($p=0.01$) and psychosocial health score ($p=0.007$) were statistically significantly lower in the HCWs children (Table 2).

Comparison of Scores in Children of HCWs According to Whether Their Parents Have COVID-19 Infection

Children of HCWs were also compared as to whether their parents had COVID-19 infection (n:61) or not (n=152). No children had a COVID infection; only their families did. There was no significant difference in the distribution of occupational groups, education status and income of healthcare workers with and without COVID-19 ($p=0.17$, $p=0.76$, $p=0.76$, Pearson chi-square test was applied). The CDI score was higher in the children of HCWs who had COVID-19+ infection than in the children of HCWs who did not have a COVID-19 infection ($p=0.04$, Table 3). While the total PedsQL score ($p=0.012$) and psychosocial health score ($p=0.016$) were significantly lower in the children of HCWs who had a COVID-19 infection, the difference in the total physical health score ($p=0.07$) was not statistically significant (Table 3).

CDI and PedsQL Scores of All Participants with Different Survey Questions Compared

Children of parents who provided care for patients with probable COVID-19 had low tPedsQL Score ($p=0.001$),

Physical Health ($p=0.006$), and Psychosocial Health Score ($p=0.001$). Children with siblings had a higher Physical Health ($p=0.006$) and tPedsQL Score ($p=0.048$) than children without siblings. Children who were afraid of getting COVID-19 infection had significantly lower tPedsQL ($p=0.001$), Physical Health ($p=0.001$), and Psychosocial Health ($p=0.001$) scores. Children with a smoker at home had significantly lower tPedsQL ($p=0.008$), Physical Health ($p=0.018$), and Psychosocial Health ($p=0.010$) scores. There were no significant differences in quality of life between genders, distant education status, and living with over 65 years old family members (Table 4).

Binary Logistic Regression Analysis Was Used to Determine the Significant Variables That Contributed to a Child's fear of Getting COVID-19 Infection

In binary logistic regression analysis, the variables that had a significant association with fear of getting COVID-19 infection in children were the tPedsQL score ($p=0.001$), Psychosocial health score ($p<0.001$), and CDI score ($p=0.06$). Children with a low tPedsQL score were

Table 1 Analysis of demographic data of healthcare workers' children and other occupational groups' children

	Children of healthcare professionals (n=213)	Children of other occupational groups (n=74)	P
Age (year)	11.43 ± 3.04	11.5 ± 2.83	0.67
Gender (F/M n(%))	116 (54%) / 97 (46%)	36 (51%) / 38 (49%)	0.64
COVID-19 transmission rates of parents	61 (29%) / 152 (71%)	13 (18%) / 61 (82%)	0.04
The frequency of having siblings	133/213 (63%)	58/74 (78%)	0.008
Is your child afraid of being infected with COVID-19? (n%)	Yes, 168 (78.8%) No, 34 (16%) Undecided, 11 (5.2%)	Yes, 48 (64.9%) No, 20 (27%) Undecided, 6 (8.1%)	0.025 0.88
How is your child getting his education?	Distance education, 101 (47%) Some days go school, 94 (44%) Everyday go school, 18 (8%)	Distance education, 38 (51%) Some days go school, 30 (40%) Everyday go school, 6 (8%)	
Proportion of individuals over 65 years of age living together at home	29/213 (13.6%)	12/73 (16.2%)	0.55
Business field of the child's parents (n%)	Doctor, 90 (42%) Dentist, 15 (7%) Nurse, 98 (46%) Technician/Radiologist/Paramedic, 10 (4.6%)	Teacher, 29 (39%) Civil servant, 21 (28%) Engineer, 9 (12%) Labourer/Manual worker, 15 (20%)	–
Parental educational status (n%)	High school, 34 (16%) University, 179 (84%)	High school, 13 (17.6%) University, 61 (82.4%)	0.71
Income (monthly) of the child's parents (Turkish lira)	4000-6000, 34 (16%) 6000 and above, 179 (84%)	4000-6000, 12 (16.2%) 6000 and above, 62 (84.6%)	0.95

1.06 times and a low Psychosocial health score 1.05 times more likely to fear becoming infected with COVID-19 (Table 5).

Discussion

Our study found that the total PedsQL score, physical health score, and psychosocial health score were statistically significantly lower in the children of healthcare workers. The healthcare worker self-assessment also showed that the CDI score was lower in the HCWs children who had COVID-19 infection. These data showed us that the children of healthcare workers are affected physically and psychosocially much more than the general society.

The psychosocial impact of the outbreak of the COVID-19 pandemic on Dutch children with cancer and

their caregivers was studied between January and May 2020, when the COVID-19 pandemic broke out. According to the Child Surrogates Report, a significant decrease in overall quality of life, school function, and psychosocial function was observed between the pre-COVID-19 and initial stages of COVID-19 children's health-related quality of life scales.¹¹ Onal et al found that the quality of life and occupational performance levels of children with cancer declined significantly during the pandemic COVID-19.¹² In the context of the COVID-19 pandemic, we could not find any specific study in the literature on children of HCWs. In our study, the children of HCWs were compared with the children of other occupational groups in terms of quality of life. It was found that HCWs' children had poorer perceptions of quality of life in the areas of physical and psychosocial health. In assessing the physical activity status of the children participating in the study, the total physical health score of

Table 2 Comparison of Paediatric Quality of Life Inventory (PedsQL) and Children's Depression Inventory (CDI) scores between Groups

	Children of healthcare professionals (n=213)	Children of other occupational groups (n=74)	P
	Mean±Sd	Mean±Sd	
Total PedsQL score	67.5±19.7	76.12±19.7	0.004
Physical health score	77.6±19.2	84.4±15.9	0.01
Psychosocial health score	64.1±21.8	72.8±18.4	0.007
Total CDI score	26.7±4.3	25.2±5.6	0.18

Table 3 Comparison of Paediatric Quality of Life Inventory (PedsQL) and Children's Depression Inventory (CDI) scores between children of healthcare workers not infected with COVID-19 and children of healthcare workers infected with COVID-19

	Children of healthcare workers not infected with COVID-19 (n=152)	Children of healthcare workers infected with COVID-19 (n=61)	P
	Mean±Sd	Mean±Sd	
Total PedsQL score	69.57±19.95	63.02±18.72	0.012
Physical health score	78.9±19.4	74.6±18.3	0.07
Psychosocial health score	66.4±21.9	59.1±20.8	0.016
Total CDI score	26.3±4.4	27.5±4.1	0.04
Business field of the healthcare workers (n%)	Doctor, 65 (42.7%) Dentist, 10 (6.5%) Nurse, 70 (46%) Technician/ Radiologist/ Paramedic, 7 (4.7%)	Doctor, 25 (41%) Dentist, 5 (8%) Nurse, 28 (46%) Technician/ Radiologist/ Paramedic, 3 (5%)	0.17
Parental educational status (n%)	High school, 25 (16.4%) University, 127 (83.6%)	High school, 9 (14.7%) University, 52 (85.3%)	0.76 0.76
Income (monthly) of the child's parents (Turkish lira)	4000-6000, 25 (16.4%) 6000 above, 127 (83.6%)	4000-6000, 9 (14.7%) 6000 above, 52 (85.3%)	

the PedsQL was used. As shown in the studies, although all children were physically and psychosocially affected by the pandemic, the children of HCWs were significantly more affected. This situation may have transferred the burden and stress of HCWs to the children, affecting their quality of life.¹³ As found in our study, the children of healthcare workers who were ill with COVID-19 infection felt these adverse effects more. Children stay home for extended periods during the pandemic due to mandatory

isolation and school closures, limiting contact with classmates and decreased physical activity.⁶ Another interesting finding from our research is that children with siblings have significantly better physical performance. Sibling games and activities may have improved children's physical performance. In the study of adults by Wang et al, smoking also showed a negative relation with depression in COVID-19.¹⁴ In our study, the quality-of-life scores of children with smoking parents were lower than those of

Table 4 Comparison of Paediatric Quality of Life Inventory (PedsQL) and Children's Depression Inventory (CDI) scores in the survey

Questions	CDI score Median (Q1-Q3)	PedsQL score Median (Q1-Q3)			P values			
		tPedsQL	Physical Health Score	Psychosocial Health Score	p1	p2	p3	p4
Gender								
Female (n=154)	28 (25-29)	72 (55-82)	81 (65-93)	70 (51-80)	0.67	0.89	0.19	0.64
Male (n=133)	27 (24-30)	72 (53-85)	87 (71-94)	69 (47-82)				
Does anyone smoke at home?								
Yes (n=69)	27 (23-30)	68 (47-77)	78 (63-90)	63 (43-76)	0.55	0.008	0.018	0.010
No (n=218)	25 (28-29)	74 (57-86)	84 (63-96)	70 (51-85)				
Live with over 65 years old family member?								
Yes (n=42)	28 (25-30)	62 (49-84)	79 (56-93)	58 (45-83)	0.49	0.17	0.15	0.22
No (n=265)	27 (24-29)	73 (57-83)	84 (69-93)	70 (51-81)				
Does your child have siblings?								
Yes (n=191)	27 (25-29)	73 (57-86)	84 (71-96)	71 (52-84)	0.83	0.048	0.006	0.107
No (n=96)	28 (24-30)	71 (50-80)	78 (59-90)	68 (46-78)				
How is your child's education going?								
Distance learning (n=139)	28 (25-30)	69 (52-82)	81 (68-93)	66 (48-80)	0.14	0.07	0.83	0.09
Occasionally going (n=94)	28 (24-29)	77 (70-86)	84 (68-96)	75 (64-86)				
Everyday going (n=54)	27 (25-29)	87 (71-96)	87 (71-96)	70 (53-83)				
Do you provide care to suspected COVID-19 patient?								
Yes (n=150)	28 (24-30)	68 (50-81)	78 (62-93)	65 (41-80)	0.14	0.000	0.006	0.000
No (n=137)	27 (24-29)	75 (64-86)	87 (71-96)	73 (60-86)				
Is your child afraid of getting COVID-19 infection?								
Yes (n=216)	27 (24-29)	68 (52-79)	81 (65-92)	66 (48-76)	0.40	0.000	0.000	0.000
No (n=71)	28 (24-30)	84 (73-92)	93 (81-100)	81 (70-93)				

Table 5 Binary logistic regression analysis for risk factor associated with a child's fear of getting COVID-19 infection

	β	SE	Wald	df	P	OR	OR 95% CI
Total PedsQL score	-0.055	0.012	21.973	1	0.000	0.947	(0.92-0.96)
Total CDI score	-0.076	0.041	3.459	1	0.063	0.927	(0.85-1.004)
Psychosocial health score	-0.047	0.010	21.139	1	0.000	0.955	(0.93-0.97)
Constant	7.430	1.534	23.459	1	0.000	1685.936	

β : estimated value of the regression coefficient. SE: Standard error. Wald: Wald statistic. df: degrees of freedom. P: level of significance. OR: Odds Ratio. OR 95% CI Odds ratio with a 95% confidence interval. CDI: Children's Depression Inventory

children with non-smoking parents. However, no difference was found in depression scores.

In addition to the specific psychological effects of quarantine, uncertainty about the impact of COVID-19 creates additional concern. Adult preoccupation with the effect of COVID-19 can lead to problems in identifying and understanding children's fears. It is well known that children are very sensitive to adults' emotional states. When children are exposed to unexplained and unpredictable behaviour, it is perceived as threatening and triggers anxiety. Understanding children's feelings and reactions are critical to appropriately managing their needs during the pandemic.¹⁵ When we perform a regression analysis on the parameters that may cause fear of COVID-19 infection in children, we see that the psychosocial health score and quality of life scores are essential. In our study, tPedsQ, Physical Health Score, and Psychosocial Health Score were low in children of individuals who cared for patients with COVID-19. In the study by Celmece et al, the stress, anxiety, and burnout of health care workers caring for COVID-19 patients were found to have increased, affecting their quality of life.¹⁶

In the Hawes et al study, adolescents experienced increased symptoms of depression and anxiety during the COVID-19 pandemic. Concern about the pandemic at school and home detention were independently associated with changes in symptoms. A significant increase was found in CDI scores compared to the pandemic's beginning.¹⁷ In our study, the CDI score was higher than the cut-off value of 19 in all the children. While there was no increased depression in the children of healthcare workers in the short term, as the pandemic continues and exposure increases, the likelihood of developing depression will increase. Indeed, the increased level of depression in the children of healthcare workers with COVID-19 infection in our study can be used to support this.

Limitations of our study include sample size and selection bias, as participants were recruited through random selection in the mass media.

Pandemics can affect the children of societies with diverse cultural backgrounds and social support. Using our own society, we have attempted to demonstrate the impact of the COVID-19 pandemic on children's psychosocial health. Therefore, it is essential to help reduce fear, anxiety, and depression in healthcare workers and their families during the pandemic. It is vital to develop strategies that strengthen the quality of life in health professionals' families during pandemics. In our study, we

suggest that additional support should be provided for the children of health professionals. Interventions such as online counselling and additional financial support for home-schooling and caregiver support in underprivileged families should also be considered. In this way, healthcare workers will be more motivated to do their jobs, bringing more benefits to patients.

Declaration of Interest

The authors have no relevant financial or non-financial interests to disclose. This study was performed in line with the principles of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in the study. The Ethics Committee of Erciyes University granted approval.

References

1. IP P. Physical and Mental Well-being of Children and the Way Forward. *HK J Paediatr (new series)* 2021;26:123-4.
2. Şimşek İ, Şimşek T, Erel S, Uysal SA. Factors affecting health related quality of life and depression levels of mothers in families having children with chronic disabilities. *HK J Paediatrics (new series)* 2020;25:71-8.
3. Lai J, Ma S, Wang Y, et al. Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Netw Open* 2020;3:e203976.
4. Kisely S, Warren N, McMahon L, Dalais C, Henry I, Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. *BMJ* 2020;369:m1642.
5. Babore A, Lombardi L, Viceconti ML, et al. Psychological effects of the COVID-2019 pandemic: Perceived stress and coping strategies among healthcare professionals. *Psychiatry Res* 2020;293:113366.
6. Jiao WY, Wang LN, Liu J, et al. Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. *J Pediatr* 2020;221:264-6.e1.
7. Ravens-Sieberer U, Kaman A, Otto C, et al. Mental Health and Quality of Life in Children and Adolescents During the COVID-19 Pandemic-Results of the Copsy Study. *Dtsch Arztebl Int* 2020;117:828-9.
8. Pettoello-Mantovani M, Pop TL, Mestrovic J, et al. Fostering Resilience in Children: The Essential Role of Healthcare Professionals and Families. *J Pediatr* 2019;205:298-9.e1.
9. Varni JW, Burwinkle TM, Jacobs JR, Gottschalk M, Kaufman F, Jones KL. The PedsQL™ in Type 1 and Type 2 Diabetes. Reliability and validity of the Pediatric Quality of Life Inventory™ Generic Core Scales and Type 1 Diabetes Modul The PedsQL in type 1 and type 2 diabetes: reliability and validity of the Pediatric Quality of Life Inventory Generic Core Scales and type 1 Diabetes Module. *Diabetes Care* 2003;26: 631-7.

10. Kovacs M. Rating scales to assess depression in school-aged children. *Acta Paedopsychiatr* 1981;46:305-15.
11. van Gorp M, Maurice-Stam H, Teunissen LC, et al. No increase in psychosocial stress of Dutch children with cancer and their caregivers during the first months of the COVID-19 pandemic. *Pediatr Blood Cancer* 2021;68:e28827.
12. Önal G, Güney G, Huri M. Quality of life and occupational performance of children with cancer in the era of the COVID-19 pandemic in terms of rehabilitation. *Qual Life Res* 2021;30:2783-94.
13. Tso WWY, Wong RS, Tung KTS, et al. Vulnerability and resilience in children during the COVID-19 pandemic. *Eur Child Adolesc Psychiatry* 2022;31:161-76
14. Wang GY, Tang SF. Perceived psychosocial health and its sociodemographic correlates in times of the COVID-19 pandemic: a community-based online study in China. *Infect Dis Poverty* 2020;9:148.
15. Dalton L, Rapa E, Stein A. Protecting the psychological health of children through effective communication about COVID-19. *Lancet Child Adolesc Health* 2020;4:346-7.
16. Celmece N, Menekay M. The Effect of Stress, Anxiety and Burnout Levels of Healthcare Professionals Caring for COVID-19 Patients on Their Quality of Life. *Front Psychol* 2020;11:597624.
17. Hawes MT, Szenczy AK, Klein DN, Hajcak G, Nelson BD. Increases in depression and anxiety symptoms in adolescents and young adults during the COVID-19 pandemic. *Psychol Med* 2022;52:3222-30.