



Evaluation of Parental Employment Status and Occupational Characteristics of Pediatric COVID-19 Cases

Pediatric COVID-19 Olgularının Ebeveyn İstihdam Durumu ve Mesleki Özelliklerinin Değerlendirilmesi

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ABSTRACT

Objective: This study examines the epidemiological characteristics, employment status, and professional characteristics of children and their parents who had been diagnosed with Coronavirus disease-2019 (COVID-19).

Methods: The study population consisted of 300 children with COVID-19 who applied to our hospital between October 2020 and January 2021. During the interviews, the working status of the parents, the sector they work in, occupational groups, household income levels, health insurance, COVID-19 expenditures, and income scores were recorded.

Results: The median age of the cases was 156 [minimum-maximum (min-max): 7-216] months and 157 (52.3%) were girls. There were 75 (25%) working mothers and 254 (84.7%) fathers among the parents. There were 11 (3.7%) parents who were unemployed due to the pandemic. The median household income was 3000 (min-max: 0-25000) Turkish liras/361 (min-max: 0-3012) US dollars, and 128 cases (42.7%) spent due to COVID-19. When the cases were compared according to their COVID-19 spending status, it was seen that permanent working fathers had more expenditures related to COVID-19 than non-permanent fathers ($p=0.019$). Participants with a household income score of 0-5 were found to spend less due to COVID-19 than participants with a household income score of 6-10 ($p=0.029$).

Conclusion: The population of our study consists of families with low household income and predominantly working in basic occupations. It is noteworthy that the economic burden on families has increased with COVID-19 infection. Moreover, families are negatively affected economically due to job losses and increased expenditures during the pandemic period.

Keywords: COVID-19, parent, occupational health, household income, expenditure

ÖZ

Amaç: Bu çalışma, Koronavirüs hastalığı-2019 (COVID-19) olan çocukların ve ebeveynlerinin epidemiyolojik özelliklerini, çalışma durumlarını ve mesleki özelliklerini incelemeyi amaçlamaktadır.

Yöntem: Araştırma evrenini Ekim 2020-Ocak 2021 tarihleri arasında hastanemize başvuran COVID-19 tanılı 300 çocuk olgu oluşturdu. Görüşmeler sırasında ebeveynlerin çalışma durumları, çalıştıkları sektör, meslek grupları, hane gelir düzeyleri, sağlık sigortası, COVID-19 harcamaları ve gelir puanları kaydedildi.

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Bulgular: Olguların ortanca yaşları 156 [minimum-maksimum (min-maks): 7-216] aydı ve 157'si (%52,3) kızdı. Ebeveynler arasında 75 (%25) çalışan anne ve 254 (%84,7) baba bulunmaktaydı. Pandemi nedeniyle işsiz kalan 11 (%3,7) ebeveyn vardı. Ortalama hane geliri 3000 (min-maks: 0-25000) Türk lirası/361 (min-maks: 0-3012) ABD doları idi. Olguların 128'i (%42,7) COVID-19 nedeniyle harcama yapmışlardı. Olgular COVID-19 harcama durumlarına göre karşılaştırıldığında, kadrolu çalışan babaların kadrosuz çalışan babalara göre COVID-19 ile ilgili harcamalarının daha fazla olduğu görüldü ($p=0,019$). Hane geliri puanı 0-5 olan katılımcıların, hane geliri puanı 6-10 olan katılımcılara göre COVID-19 nedeniyle daha az harcama yaptıkları görüldü ($p=0,029$).

Sonuç: Araştırmamızın evrenini, hane geliri düşük ve ağırlıklı olarak temel mesleklerde çalışan ailelerden oluşmaktadır. COVID-19 enfeksiyonu ile birlikte ailelerin üzerindeki ekonomik yükün artması dikkat çekicidir. Ayrıca pandemi döneminde iş kayıpları ve artan harcamalar nedeniyle ailelerin ekonomik olarak olumsuz etkilendiği anlaşılmaktadır.

Anahtar Kelimeler: COVID-19, ebeveyn, iş sağlığı, hane geliri, harcama

INTRODUCTION

The Coronavirus disease-2019 (COVID-19) emerged in Wuhan, China at the end of 2019, spread rapidly worldwide and was declared a pandemic by the World Health Organization on March 11, 2020. This epidemic continues to seriously affect life in our country and worldwide.

For the COVID-19 pandemic, vaccination applications and measures to prevent the spread are currently seen as the most effective methods. In this context, the World Health Organization has published recommendations covering health, transportation, education, security, and other sectors during the pandemic. Control measures taken to prevent the pandemic have resulted in significant socioeconomic consequences. Comparing the data between December 2019 and April 2020, it was seen that the industrial production decreased by an average of 20% in 93% of countries.¹

The COVID-19 pandemic and related restrictions have disrupted the daily routines of many families around the world and drastically changed their lifestyles. Undoubtedly, this process had negative repercussions on the working and economic conditions of families. These challenges are exacerbated for those living in low-income and crowded households. Infectious diseases and economics experts have stated that our lives will not return to pre-COVID-19 normalcy.²

This study examines the epidemiological characteristics of pediatric COVID-19 cases and their parents, their working status, and the parents' occupational characteristics.

METHODS

Participants

In this retrospective study, the patient population included 364 COVID-19 patients aged one month to 18 years between October 2020 and January 2021. It was planned to interview the subjects themselves, their parents, or other relatives with whom they lived. These interviews were conducted by reaching the phone numbers of the cases in the hospital registry system. Forty-two cases could not be reached by phone call twice. Eight cases refused to participate in the

study. Participants who agreed to participate in the survey were interviewed. As 14 cases were Syrian, communication could not be established and the questionnaire could not be applied. The remaining 300 cases were included in the study.

Procedures

In the interviews, the age, gender, school status, living conditions, the number of people in the household, and siblings going to school were questioned. The clinical findings of COVID-19 disease were recorded and the clinical classification of the disease was made by examining the notes in the hospital system. The ages, educational status, and smoking status of the parents of the cases were determined. Parents' working status, in which sector they work, occupational groups, and permanent employment status were questioned. Finally, household income, health insurance, and expenditures due to COVID-19 were determined.

Measures

Parents' education level was divided into two groups according to the duration of education, until high school education (i.e., eight years and less), high school education and attendance (i.e., over eight years). Parents' profession sectors include health and social services; education; agriculture, forestry and fishing; manufacturing, chemical, food, mineral, marketing; waste, purification, construction, electricity, gas; transportation; science, technique, communication; administrative and support and defense and security. Occupational groups of parents include manager; professional occupational group, technician, office service; service and sales staff; agriculture, forestry, livestock and fishing workers; artisan and craftsman; plant and machine operators and unqualified jobs.³ Household incomes were categorized according to minimum wage and amount of earnings. Based on the dollar rate, 1 US dollar was 8.3 Turkish lira. Health insurances were grouped as those with state insurance, green cards, and those without insurance. In the study population, there were no cases with private health insurance. Participants were asked to evaluate their economic situation relative to the general

population and to give a score between 0 and 10. Zero points represented 'very bad', and 10 points represented 'very good' in the scoring.

This study was approved by the ethics committee of University of Health Sciences Turkey, İzmir Tepecik Training and Research Hospital in accordance with the Declaration of Helsinki (decision number: 2020/14-50, date: 23.12.2020).

Statistical Analysis

Statistical data were analyzed with IBM Statistical Package for the Social Sciences for Windows version 25.0 (Chicago, IL). Values for numerical variables were given as median (interquartile range) or mean±standard deviation, depending on the normality distribution. Categorical variables were presented as numbers and percentages. Continuous variables following a normal distribution were compared using one-way analysis of variance or t-tests. When distribution was not expected, the Mann-Whitney U test was used. Categorical variables were compared using the chi-square test. A p value of <0.05 was considered statistically significant for all predictions.

RESULTS

Demographic Characteristics of Participants

A total of 300 cases, 143 (47.7%) male and 157 (52.3%) female, were included in the study. The median age of the cases was 156 [minimum-maximum (min-max): 7-216] months. When the educational status of the COVID-19 cases was examined, 221 (73.7%) went to school, while two (0.7%) went to kindergarten. The median number of household persons was four (min-max: 0-9). The median number of siblings attending school was one (min-max: 0-7). While 221 (73.7%) of the cases lived in an apartment, 13 (4.3%) lived in a site, and 66 (22%) lived in private.

The mean age of the mothers of the cases was 39.8±6.48 years. When the educational status of the mothers was examined, 237 (79%) had received education until high school, and 63 (21%) had received high school or higher education. The median age of the fathers of the cases was 45 (min-max: 26-65) years. When the fathers' educational status was examined, 177 (59%) had received education until high school, and 123 (41%) had received high school or higher education. Demographic data of COVID-19 cases and parents are shown in Table 1.

The parents of the cases were questioned in terms of COVID-19 infection. Two hundred (66.7%) of the mothers had COVID-19 in the same period and 146 (73%) of them became sick concurrently with our cases. Twenty-seven (13.5%) mothers had COVID-19 infection before the child and 27 (13.5%) mothers after the child. Hundred and fifty (50%) of the fathers had COVID-19 in the same period, and

106 (70.7%) of them became sick concurrently with our cases. Thirty (20%) fathers had COVID-19 infection before the child and 14 (9.3%) fathers after the child.

Economic and Professional Data of Participants

It was learned that eight (2.7%) of the cases with COVID-19 were working professionally. There were 75 (25%) mothers and 254 (84.7%) fathers working in any profession. There were 11 (3.7%) parents who were unemployed due to the pandemic. There were six (2%) parents who started working from home during the pandemic period.

According to profession sectors; 15 (34.1%) of the mothers had health and social services; 17 (38.6%) of them manufacturing, chemical, food, mineral, marketing; eight (18.2%) were waste, purification, construction, electricity, gas; three (6.8%) were administrative and support; one mother (2.3%) was in the defense and security group. When the occupational groups of the mothers were examined, two (2.7%) were managers; 13 of them (17.3%) were professional occupational group; three (4%) were technicians; seven (9.3%) were service and sales staff; 11 (14.7%) were artisan and craftsman; eight (10.7%) were

Gender*	
Male	143 (47.7)
Female	157 (52.3)
Age (month)**	156 (7-216)
Education*	
Kindergarten	2 (0.7)
School	221 (73.7)
Mother's age (year)***	39.8±6.48
Father's age (year)**	45 (26-65)
Mother's education*	
Until high school education	237 (79)
High school education and attendance	63 (21)
Father's education*	
Until high school education	177 (59)
High school education and attendance	123 (41)
Household person**	4 (0-9)
Sibling going to school**	1 (0-7)
House type*	
Site	13 (4.3)
Apartment	221 (73.7)
Private	66 (22)
*n, %; **median (min-max); ***mean±SD. COVID-19: Coronavirus disease-2019, SD: Standard deviation, min-max: Minimum-maximum	

found to be in unqualified jobs groups. Thirty-one (42.3%) cases did not report their occupational groups in the questionnaire.

According to profession sectors; 14 (6.9%) of the fathers had health and social services; two (1%) of them had education; two (1%) of them had agriculture, forestry, and fishing; 111 (55%) of them had manufacturing, chemical, food, mineral, and marketing; 22 (10.9%) had waste, purification, construction, electricity, and gas; 32 (15.8%) had transportation; five (2.5%) had science, technique, communication; eight (4%) were administrative and support; six (3%) were in the defense and security group. When the occupational groups of the fathers were examined, three (1.2%) were managers; 17 of them (6.7%) were professional occupational group; three (1.2%) were technicians; eight (3.1%) were office service; 60 (23.6%) were service and sales staff; six (2.4%) were agriculture, forestry, livestock and fishing workers; 60 (23.6%) were artisan and craftsman; 34 (13.4%) were plant and machine operators; 11 (4.3%) were found to be in unqualified jobs groups. Fifty-two (20.5%) cases did not report their occupational groups in the questionnaire.

The median household income of the cases was 3000 (min-max: 0-25000) Turkish liras/361 (min-max: 0-3012) US dollars. While the household income of 261 (87%) of the participants was above the minimum wage, the household income of 39 (13%) was below the minimum wage. The participants' household income scores of 239 (79.7%) was 0-5 points, and 61 (20.3%) were 6-10 points. While 259 (86.3%) of the participants had state-guaranteed health insurance, 33 (11%) had a green card. Eight (2.7%) cases did not have any health insurance. There were 128 (42.7%) participants spending due to COVID-19, and the median amount of spending was 250 (min-max: 10-5000) Turkish liras/30 (min-max: 1-602) US dollars. Economic and professional data of the participants are shown in Table 2.

Demographic and Economic Data of Participants by COVID-19 Spending

Both groups were found to be similar in terms of gender, age, clinical findings, and clinical severity. Parents' education levels and smoking status were similar in both groups. Expenditures related to COVID-19 were detected more frequently among permanent working fathers, whereas it was observed that the expenditures of non-employed fathers were less ($p=0.019$). No difference was found in COVID-19 expenditures in terms of household income and health insurance ($p=0.793$, $p=0.401$, respectively). However, participants with a household income score of 0-5 had less spending, while participants with a household income score of 6-10 were found to spend more on COVID-19 ($p=0.029$) (Table 3).

Table 2. Economic and professional data of COVID-19 cases and parents

Child's employment status*	
Not working	292 (97.3)
Mother's employment status*	
Working	75 (25)
Not working	225 (75)
Father's employment status*	
Working	254 (84.7)
Not working	46 (15.3)
Not working due to pandemic*	
Mother	1 (9.1)
Father	10 (90.9)
Mother's profession sector*	
Health and social services	15 (34.1)
Manufacturing, chemical, food, mineral, marketing	17 (38.6)
Waste, purification, construction, electricity, gas	8 (18.2)
Administrative and support	3 (6.8)
Defense and security	1 (2.3)
Mother's occupational group*	
Manager	2 (2.7)
Professional occupational group	13 (17.3)
Technician	3 (4)
Service and sales staff	7 (9.3)
Artisan and craftsman	11 (14.7)
Unqualified jobs	8 (10.7)
Unknown	31 (41.3)
Father's profession sector*	
Health and social services	14 (6.9)
Education	2 (1)
Agriculture, forestry and fishing	2 (1)
Manufacturing, chemical, food, mineral, marketing	111 (55)
Waste, purification, construction, electricity, gas	22 (10.9)
Transportation	32 (15.8)
Science, technique, communication	5 (2.5)
Administrative and support	8 (4)
Defense and security	6 (3)
Father's occupational group*	
Manager	3 (1.2)
Professional occupational group	17 (6.7)
Technician	3 (1.2)
Office service	8 (3.1)
Service and sales staff	60 (23.6)
Agriculture, forestry, livestock and fishing workers	6 (2.4)

Table 2. Continued

Artisan and craftsman	60 (23.6)
Plant and machine operators	34 (13.4)
Unqualified jobs	11 (4.3)
Unknown	52 (20.5)
Household income*	
Below the minimum wage	39 (13)
Minimum wage and above	261 (87)
Household income score*	
0-5 points	239 (79.7)
6-10 points	61 (20.3)
Health insurance*	
State insurance	259 (86.3)
Green card	33 (11)
No health insurance	8 (2.7)
COVID-19 spending*	
Spent	128 (42.7)
No expense	172 (57.3)
COVID-19 spending amount (Turkish liras)**	250 (10-5000)
COVID-19 spending amount (US dollars)**	361 (0-3012)
*n, %; **median (min-max). COVID-19: Coronavirus disease-2019, SD: Standard deviation, min-max: Minimum-maximum	

DISCUSSION

Worldwide, the economies of countries have been devastated during the pandemic period. Occupational losses occurred in families. There was an increase in household expenditures. Although the focus was mostly on the symptoms and severity of the disease in children during the pandemic, economic difficulties seriously affected daily life and formed the invisible part of the iceberg. This study examines the working life of the parents of pediatric COVID-19 cases, examine the economic interaction of the disease, and determine the affecting factors. To our knowledge, there is no similar study in the literature on COVID-19 cases.

A study in the Netherlands found that parents working in a basic profession experienced high levels of work pressure during quarantine. These workers are also less likely to work from home. Those who work in basic occupations, often with lower education, continue to work largely in their usual workplaces.⁴ In our study, the population mainly consisted of parents working in basic occupations. Even though job loss appears low in this situation, families are forced to limit their COVID-19 spending because household income levels are low. In the same study, it was stated that workers in basic occupations are at greater risk of being exposed to COVID-19 infection because they use public transportation to go to work or interact closely with

Table 3. Demographic and economic data of the cases according to COVID-19 expenditure status

	COVID-19 spending group (n=128, %)	COVID-19 non-spending group (n=172, %)	p value
Gender			0.353
Male	57 (44.5)	86 (50)	
Female	71 (55.5)	86 (50)	
Age group			0.108
0-6 years	22 (17.2)	23 (13.4)	
7-14 years	54 (42.2)	58 (33.7)	
15-18 years	52 (40.6)	91 (52.9)	
Clinical findings			
Fever	54 (42.2)	71 (55.5)	0.906
Cough	35 (27.3)	55 (32)	0.230
Rhinorrhea	11 (8.6)	13 (7.6)	0.831
Nasal congestion	13 (10.2)	9 (5.2)	0.120
Throat ache	14 (10.9)	28 (16.3)	0.239
Headache	29 (22.7)	33 (19.2)	0.474
Diarrhea	15 (11.7)	10 (5.8)	0.090
Myalgia	32 (25)	51 (29.7)	0.434
Anosmia-ageusia	19 (14.8)	32 (18.6)	0.439
Clinical severity			0.449
Asymptomatic	23 (18)	24 (14)	
Mild	105 (82)	147 (85.5)	
Moderate/severe	0 (0)	1 (0.6)	
House type			0.706
Site	7 (5.5)	6 (3.5)	
Apartment	93 (72.7)	128 (74.4)	
Private	28 (21.9)	38 (22.1)	
Mother's education			0.154
Until high school education	96 (75)	141 (82)	
High school education and attendance	32 (25)	31 (18)	
Father's education			0.125
Until high school education	69 (53.9)	108 (62.8)	
High school education and attendance	59 (46.1)	64 (37.2)	
Mother's smoking status			0.676
Smoking	27 (21.1)	41 (23.8)	
Not smoking	55 (43)	82 (47.7)	
Father's smoking status			0.647

Table 3. Continued			
	COVID-19 spending group (n=128, %)	COVID-19 non-spending group (n=172, %)	p value
Smoking	73 (57)	90 (52.3)	
Not smoking	55 (43)	82 (47.7)	
Mother's permanent employment status			0.647
Permanent employment	18 (14.1)	18 (10.5)	
Non-permanent employment	17 (13.3)	22 (12.8)	
Father's permanent employment status			0.019
Permanent employment	53 (41.4)	45 (26.2)	
Non-permanent employment	60 (46.9)	96 (55.8)	
Household income			0.793
0-2500 Turkish liras (0-301 US dollars)	31 (24.2)	50 (29.1)	
2501-3000 Turkish liras (302-361 US dollars)	39 (30.5)	46 (26.7)	
3001-4500 Turkish liras (362-542 US dollars)	33 (25.8)	44 (25.6)	
4501-25000 Turkish liras (543-3012 US dollars)	25 (19.5)	32 (18.6)	
Household income score			0.029
0-5 points	94 (73.4)	145 (84.3)	
6-10 points	34 (26.6)	27 (15.7)	
Health insurance			0.401
State insurance	111 (86.7)	148 (86)	
Green card	12 (9.4)	21 (12.2)	
No health insurance	5 (3.9)	3 (1.7)	
COVID-19: Coronavirus disease-2019, SD: Standard deviation, min-max: Minimum-maximum			

their colleagues. Our study observed that mothers had a higher rate of COVID-19 than fathers, and approximately 70% of family members were infected simultaneously. According to the data in our study, it is not possible to say that a parent working outside is a risk factor for COVID-19 infection. Conversely, mothers may be considered more infected than fathers, given that their working status is lower and they are more active in domestic roles.

In a study of occupational risk factors for Severe acute respiratory syndrome-Coronavirus-2 (SARS-CoV-2)

susceptibility, work was recognized as a key determinant of infection risk. It has been reported that the groups at highest occupational risk are health workers, emergency responders, social services, and caregivers.⁵ Outbreaks of COVID-19 have been reported in factories with the meat and poultry processing industry.⁶ Therefore, crowded living and transportation conditions, difficulties in maintaining physical distance in the workplace are thought to cause a high risk for SARS-CoV-2 transmission.

It is still unclear whether and to what extent the impact of COVID-19 on different sociodemographic groups varies according to country-level characteristics.⁷ However, economically vulnerable individuals are more likely to be unemployed due to COVID-19.⁸ In our population, some parents lost their jobs due to the pandemic. In addition, it is seen that our population, especially fathers, is highly non-permanent employment and is at risk of losing their jobs. During this period, countries announce various support packages for their citizens. Since these aids cannot be provided in poor countries, families face economic difficulties. If this situation is not taken into account by governments, it can lead to the exacerbation of existing social inequalities.

In a study dealing with household chaos during the COVID-19 outbreak in the United States, it was reported that mothers were more at risk of job loss and reduced working hours than fathers.⁹ On the contrary, in our study, it was observed that fathers were unemployed approximately nine times more often than mothers. The reason for this may be that fathers are predominantly employed in our population.

The impact of COVID-19 on non-poor households is lower compared with poor households with low socioeconomic status.¹⁰ A Canadian study reported that reduced working hours and job losses, job stability, and financial concerns were key causes of stress within the family for many Canadians. In the same study, about 8% of families reported concerns about not having enough money to buy food for their family in the next six months. This low rate was also attributed to the fact that most of the sample in the study consisted of families with high household incomes.¹¹ The population in our study consisted of families with a lower household income. Due to the COVID-19 pandemic, it is thought that the purchasing power of households has decreased significantly due to the loss of income, unemployment, rising food prices, and high debt, increasing poverty.

Study Limitations

Our study had some limitations. This study was conducted in a single center, and only children admitted to our hospital

were included in the study. Depending on this situation, the population of the study consisted of a population with similar characteristics. Multicenter studies are needed to confirm our data.

CONCLUSION

As a result, our study population consists of families with low household income and predominantly working in basic occupations. It is noteworthy that the economic burden on families has increased with COVID-19 infection. Moreover, families are negatively affected economically due to job losses and increased expenditures during the pandemic period. To obtain more precise information and understand how COVID-19 affects parents economically, studies with large case series in which household income levels are homogeneously distributed are needed.

Ethics

Ethics Committee Approval: This study was approved by the ethics committee of University of Health Sciences Turkey, İzmir Tepecik Training and Research Hospital in accordance with the Declaration of Helsinki (decision number: 2020/14-50, date: 23.12.2020).

Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: A.E-T., E.K-Ö., S.T., Design: E.E., Y.E-K., A.Ş., Data Collection or Processing: A.E-T., E.E., E.K-Ö., Y.E-K., Analysis or Interpretation: A.Ş., G.Ü., S.T., Literature Search: S.T., A.K-A., D.Y., Writing: A.E-T., S.K.

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