

## **POSITIVE IMPACT OF FAMILY PHYSICIANS IN PROVIDING PRIMARY HEALTH CARE OF IRAQI CHILDREN PATIENTS WITH COVID 19**

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### **Abstract**

**Background:** Although children have been mostly unaffected by the immediate health implications of COVID-19, the crisis has had a significant impact on their overall well-being. **Objective:** Our study was aimed to assess outcomes related to the positive impact of family physicians in the provision of primary health care to Iraqi children with COVID-19. **Patients and methods:** Clinical data was collected from different hospitals in Iraq between 15th July 2022 and 9th March 2023. The outcomes associated with paediatric patients, including age, sex, body mass index, symptoms, duration, comorbidities, treatment, and economic status of the parents, were summarised through clinical and demographic data characteristics. Quality of life outcomes of paediatric patients were evaluated using the Peds QL scale. Patient satisfaction ratings were derived from medical performance in relation to patients' quality of life, which were categorized

as excellent, satisfactory, or poor. Results: Clinical demographic data indicated a higher incidence of Coronavirus infection among males (57.83%) compared to females (42.17%). Although not all children display symptoms, our study found that fever (27.21%), cough (22.89%), headache (13.25%), and nasal congestion (14.46%) were the most common symptoms in pediatric patients. This study used the Peds QL scale to evaluate the quality of life of pediatric patients infected with COVID-19. This study played a constructive role in enhancing the quality of life of patients during healthcare, with specific emphasis on physical ( $92.78 \pm 5.3$ ) and school functioning ( $86.81 \pm 8.52$ ). Conclusion: Clinical results showed that health care has significantly contributed to improving the quality-of-life rates of pediatric patients infected with COVID-19. The physical aspect and school functioning were the most prominent successes in the health condition of patients after Corona.

**Key words:** COVID-19; Obesity; Peds QL scale; and Post covid-19 symptoms.

**Introduction.** The early years of life play a pivotal role in children's development, rendering it a significant public health issue [1,2]. In this period, formative experiences build the foundation for children's learning and skillset. These experiences shape behaviours and personal abilities across the lifespan. Furthermore, drawing on the ecological model, immediate family members hold a privileged position in shaping a child's development from birth. Extended family, friends, the local area, and community services are significant factors, as are the economic and social circumstances, along with government policies. [3-5]

Service interruptions, warnings, and public health measures related to the pandemic have significantly decreased the utilization of health services for children, young people, and families. Automatically collected data indicates that there may have been a decrease of up to 75% in the number of children hospitalized and seen in the emergency room during the lockdown compared to the same period in previous years. [6-8]

Several studies report that some parents have postponed taking their child to the hospital. This trend appears to be present in low- and middle-income countries as well. For instance, in a third-level Indian pediatric hospital, the number of children with severe diabetic ketoacidosis presenting to the facility was higher in April 2020 during the full lockdown than in the previous year. [9,10]

Conversely, the significant decrease in social interactions and play opportunities for children and young people resulting from national containment measures, such as quarantine and travel restrictions, has likely reduced the spread of other common microorganisms and restricted contact with sources of respiratory triggers and allergens, potentially leading to a decrease in accidental injuries. [11,12]

The inability to apply optimal infection control practices has resulted in the closure of front-line facilities, combined with parents' fear of visiting healthcare settings. As a result, many children have not received their vaccines or will receive them later, potentially threatening collective immunity and generating preventable infectious disease outbreaks. According to a recent survey of 1,000 paediatricians in the United Kingdom, the vaccination rate for measles, mumps, and rubella was 50% lower in 2020 than two months prior and 42% lower for diphtheria and whooping cough. [13-16]

#### Patients and methods

A cross-sectional study was presented that discussed the impact of the corona pandemic on paediatric patients and the positive role of family physicians in the care of paediatric patients. Eighty-three patients infected with Covid-19, aged between (2-14) years, were recruited. Clinical

data were collected from different hospitals in Iraq for a period between 15<sup>th</sup> July 2022 and 9<sup>th</sup> March 2023. Clinical and demographic data characteristics summarised the outcomes associated with paediatric patients in terms of age, sex, body mass index, symptoms and duration, comorbidities, treatment, and economic factors of parents.

Clinical data included patient COVID-19 severity scores classified as asymptomatic, mild, moderate, severe, and critical and the rate of paediatric patients. Data were collected for hospital admission, ICU admission, hospital discharge, MIS-C, and oxygen supplementation. Hospital outcomes for Iraqi paediatric patients after COVID-19, mortality, and long-term morbidity were recorded. The health-related quality-of-life outcomes of the paediatric patients were assessed using the Peds QL scale, which ranges from (0-100), where 100 is perfect, and 0 is the worst, as the paediatric patients with Covid-19 were assessed in terms of (physical, emotional, social, and school performance).

Clinical data related to patients' satisfaction with doctors and health care were extracted and organised based on medical performance in terms of patients' quality of life, which was classified as excellent, satisfactory, and poor. In addition, clinical outcomes were recorded by multivariate regression of risk factors affecting paediatric patients with COVID-19. Clinical data analyses were performed and designed by SPSS, version 22.0.

Results

**Table 1:** Baseline demographic characteristics of children patients with covid-19.

<b>Characteristics</b>	<b>Children with Covid-19 [83]</b>
<b>Age</b>	
2-5	19 [22.89%]
6-9	20 [24.10%]
10-14	44 [53.01%]
<b>Sex</b>	
Males	48 [57.83%]
Females	35 [42.17%]
<b>BMI</b>	
BMI, median	18.4 [16 – 24.0]
<b>Symptoms</b>	
Fever	23 [27.21%]
Cough	19 [22.89%]

<i>Chest pain</i>	8 [9.64%]
<i>Loss of appetite</i>	6 [7.23%]
<i>Headache</i>	11 [13.25%]
<i>Nausea or vomiting</i>	4 [4.85%]
<i>Congestion or runny nose</i>	12 [14.46%]
<b><i>Symptom duration, Days</i></b>	11.2 [3.0 – 25.0]
<b><i>Comorbidities</i></b>	
<b><i>Non</i></b>	35 [42.17%]
<i>Obesity</i>	10 [12.05%]
<i>Respiratory disorder</i>	10 [9.64%]
<i>Systemic autoimmune disorder</i>	8 [6.02%]
<i>Cardiovascular disorder</i>	4 [4.82%]
<i>Hematological disorder</i>	4 [4.82%]
<i>Gastrointestinal disorder</i>	7 [8.43%]
<i>Urogenital system disorder</i>	3 [3.61%]
<i>Genetic/chromosomal abnormalities</i>	2 [2.41%]
<b><i>Pharmacological treatment</i></b>	50 [60.24%]
<b><i>The economic level of their parents, \$</i></b>	
<i>500 \$</i>	15 [18.07%]
<i>800 \$</i>	37 [44.58%]
<i>1200 \$</i>	31 [37.35%]

**Table 2:** Determine hospitalization findings of COVID-19 patients.

<b><i>Characteristics</i></b>	<b><i>Patient's findings [83]</i></b>
<b><i>Covid-19 severity</i></b>	

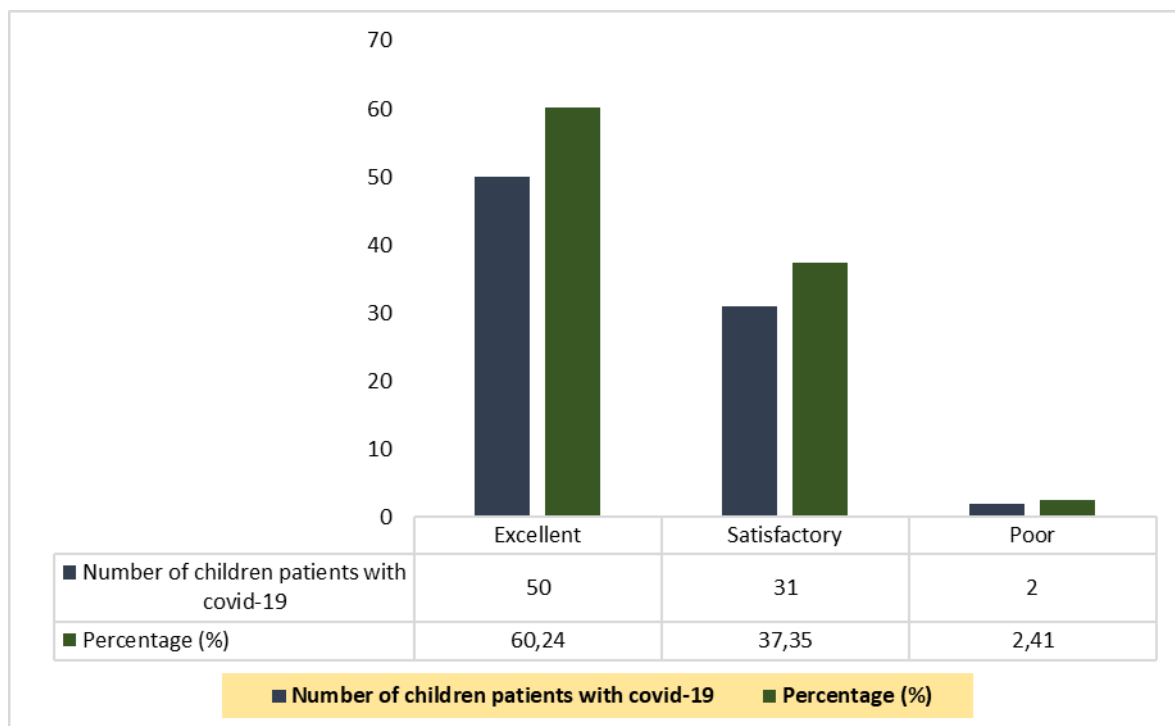
<b>Asymptomatic</b>	3 [3.61%]
<b>Mild</b>	50 [60.24%]
<b>Moderate</b>	15 [18.07%]
<b>Severe</b>	10 [12.05%]
<b>Critical</b>	5 [6.02%]
<b>Patients' outcomes, [%]</b>	
<b>Hospital admission</b>	83[100%]
<b>ICU admission</b>	14 [16.87%]
<b>Hospital discharge</b>	78 [93.98%]
<b>Any invasive ventilation</b>	4 [4.82%]
<b>MIS-C</b>	5 [6.02%]
<b>Mild</b>	1 [20%]
<b>Moderate</b>	1 [20%]
<b>Severe</b>	1 [20%]
<b>Critical</b>	2 [40%]
<b>Supplementation</b>	
<b>No oxygen supplementation</b>	28 [33.73%]
<b>Oxygen supplementation</b>	55 [66.27%]
<b>Hospitalization duration, Days, median</b>	
<b>Hospital admission</b>	4.5 [3-12]
<b>ICU admission</b>	3.4 [2.1-11.6]

*Table 3: Outcomes of hospital health care in terms of Iraq children patients post covid-19, mortality rate, long long-term complaints.*

<b>Variables</b>	<b>Outcomes</b>
<b><i>Post-covid-19 outcomes</i></b>	4 [ 4.82%]
Fatigue	2 [2.41%]
Dyspnea	1 [1.2%]
Dizziness	1 [1.2%]
<b><i>Mortality rate</i></b>	1 [1.2%]
<b><i>Long term complaints</i></b>	2 [2.41%]

**Table 4:** Assessment of the quality of life for pediatric patients using the Peds QL scale.

<b><i>Items</i></b>	<b><i>Children/ quality-life</i></b>
<b><i>Physical</i></b>	92.78 ± 5.3
<b><i>Emotional</i></b>	84.31 ± 3.31
<b><i>Social</i></b>	74.8 ± 6.8
<b><i>School functioning</i></b>	86.81 ± 8.52



**Figure 1:** Satisfaction status among pediatric patients with COVID-19.

**Table 5:** Multivariable regression of risk factors influencing pediatric patients with covid-19.

<i>Risk factors</i>	<i>pediatric patients</i>	<i>P-value</i>
<i>BMI</i>	0.902 [0.40 - 1.23]	0.18
<i>Fever</i>	1.025 [0.40 - 1.62]	0.21
<i>Cough</i>	0.71 [ 0.51 - 2.65]	0.041
<i>Obesity</i>	0.92 [0.503 – 2.81]	0.28
<i>Respiratory disorder</i>	1.22 [0.78 – 2.16]	0.16
<i>Fatigue</i>	3.5 [1.64 – 6.70]	0.0241
<i>No oxygen supplementation</i>	1.17 [0.906 – 1.308]	0.17

### Discussion

This study examined the clinical outcomes associated with health care serving Iraqi pediatric patients infected with COVID-19. Children are considered to be the most vulnerable group to health disorders during the Corona pandemic due to the decrease in health care for patients, especially in developing countries [17]. Clinical demographic data showed a predominance of males (57.83%) over females (42.17%) in the rate of infection with the Coronavirus. Obesity is considered a risk factor which causes an increase in infection with COVID-19, which causes immune malfunction, which increases the risk of being hospitalized due to Covid-19 infection [18]. Demographic results showed that 10 cases were obese. Although not all children show symptoms, unlike adults. However, our study noted that the most prominent symptoms in pediatric patients were fever (27.21%), cough 22.89%, headache 13.25%, and nasal congestion 14.46%. Moreover, COVID-19 increases the risk of severe infection [19] for pediatric patients with comorbidities, which may cause death, in contrast to the disease in children who are not associated with comorbidities, which is attributed to the fact that the most prominent comorbidities were obesity, 10 cases, and respiratory system disorder, 10 cases. Clinical outcomes related to the severity of COVID-19 infection were recorded in patient data, and 60.24% were mild, 18.07% were moderate, 12.05% were severe, and only five cases were critical. For more results, our study recorded data on pediatric patients infected with COVID-19 and found 83 cases of hospital admission, 14 cases admitted to the intensive care unit, 78 cases of discharge from the hospital, and only four cases with invasive ventilation. Multisystem inflammatory syndrome, which is the syndrome that affects pediatric patients with COVID-19 [20], appears after 2-6 weeks, and its presence was observed in only five cases of pediatric patients. COVID-19 has shown a high risk for the oxygen levels in the blood of pediatric patients, causing a drop in the oxygen level, which requires the need for health care [21]. Clinical results related to health care were reported, and 66.27% of pediatric patients had oxygen supplements, while 33.73% did not have oxygen supplements. As for the post-COVID-19 results, the results showed that only four cases were accompanied by post-treatment symptoms, the most prominent of which were fatigue (two cases), shortness of breath (only one case), and dizziness (only one case). Clinical results found that the mortality rate for pediatric patients was only one case. This study assessed the quality of life of pediatric patients infected with COVID-19 using the Peds QL scale. This study provided a positive role that contributed to improving the quality of life of patients during health care, the most prominent of which were physical ( $92.78 \pm 5.3$ ) and school functioning ( $86.81 \pm 8.52$ ). This study recorded the clinical results related to patients' satisfaction with health care during the Corona period. All patients were accepted and satisfied with the doctors' health care performance and service to their patients, with the exception of only two cases whose families' complaints were accepted. [22] A study showed that COVID-19 greatly affects pediatric patients and their mental health conditions in receiving treatment, and with the decline in health care services and closures, which increases the severity of the virus's danger to pediatric patients in the long term, it can be attributed to the risk of death in some patients. However, our study provided positive results in health care management and service to pediatric patients in terms of quality of life.



### Conclusion

The Corona pandemic is a dangerous factor for children and their families because of these changes occurring suddenly, over a long period of time, and poor health care services. Clinical results showed that health care has contributed significantly to improving the quality-of-life rates of pediatric patients infected with COVID-19. The patient's physical condition and school functioning were the most noticeable improvements in their health after contracting Corona, although only four cases reported accompanying symptoms, such as fatigue, with two cases and two cases reported one case for shortness of breath, and one case was experienced dizziness. The clinical findings revealed that patients were content with the favourable impact of general practitioners in administering primary health care. Although two cases experienced persistent concerns, many patients affirmed the constructive contribution of health care in the hospital, particularly for paediatric patients.

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