

# Pediatric Clinical Features of Covid-19 in Cameroon

Meguieze Claude-Audrey<sup>1\*</sup>, Nseme Etouckey Eric<sup>2</sup>, Mekone Nkwele Isabelle<sup>1</sup>, Kalla Ginette Claude Mireille<sup>1</sup>, Kamgaing Noubi Nelly<sup>1</sup>, Ngo Nyeki Adèle-Rose<sup>3</sup>, Onambele Paul<sup>4</sup>, Ntoukem Mbakop Carlin<sup>1</sup>, Koki Ndombo Paul<sup>1</sup>

<sup>1</sup>Pediatric Department, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaounde, Cameroon

<sup>2</sup>Department of Morphological Sciences and Anatomopathology, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaounde, Cameroon

<sup>3</sup>Department of Ophthalmology-ENT, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaounde, Cameroon

<sup>4</sup>Nkolndongo District Health Service, Yaounde, Cameroon

Email: \*isamekone@yahoo.fr

**How to cite this paper:** Claude-Audrey, M., Eric, N.E., Isabelle, M.N., Mireille, K.G.C., Nelly, K.N., Adèle-Rose, N.N., Paul, O., Carlin, N.M. and Paul, K.N. (2022) Pediatric Clinical Features of Covid-19 in Cameroon. *Open Journal of Pediatrics*, 12, 231-237.

<https://doi.org/10.4236/ojped.2022.121025>

**Received:** February 8, 2022

**Accepted:** March 20, 2022

**Published:** March 23, 2022

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## Abstract

**Introduction:** The Covid-19 pandemic is a public health emergency characterized by severe acute respiratory distress syndrome. It has many clinical forms and affects all age groups. Despite the magnitude of this pandemic, data from pediatric cohorts in Cameroon remain sparse. **Objective:** The aim of this study was to describe the clinical presentation of Covid-19 in the pediatric population of the Nkolndongo health district. **Materials and method:** A cross-sectional study was conducted for a duration of 5 months from January to May 2021 and covered a period of 9 months (March to December 2020). All patients aged 0 to 19 years, suspected of having Covid-19, confirmed by real-time RT-PCR targeting the N and ORF1 ab viral genes and managed in the Nkolndongo health district were included. The results were analyzed using IBM SPSS.23.0 software and the data expressed as frequencies, percentages, and means. The threshold of statistical significance was set at 0.05. **Results:** This study revealed that 48 patients out of 154 suspected cases were tested positive. The most affected age group was adolescents aged 13 - 19 years (92.85%). The most frequent symptoms were cough (33%), fever (42%) and nasal discharge (25%). Infants were the least affected. 58% of patients were asymptomatic, 47.91% were in mild stage, 8.33% in moderate stage and 4.16% in severe stage. All the children tested positive survived. Patients with comorbidity were 20 times more likely to develop moderate to severe clinical forms, this being statistically significant. **Conclusion:** The clinical presentation reported mainly fever, cough and anterior nasal discharge. There was a significant association between the presence of comorbidity and the moderate

to severe degrees of severity.

## Keywords

Covid-19, Children, Clinical Presentation, Cameroon, Sub Saharan Africa

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## 1. Introduction

The Coronavirus disease 2019 (Covid-19) is a viral respiratory infection characterized by severe acute respiratory distress syndrome [1]. It takes many clinical forms and varying degrees of severity. At the beginning of the pandemic, it was reported that children were the least affected population and mild clinical forms were the most frequent [2]. The appearance of severe pediatric forms has subverted the frozen description of this disease in children [3]. In Cameroon, few pediatric cases have been reported, due to the fact that the attention of scientists was still focused on adults. After a better sensitization many cases started being managed, mostly in urban areas like the Nkolndongo health district. The aim of this article was to describe the clinical features of Covid-19 in the pediatric population of an urban health district in Yaoundé.

## 2. Materials and Methods

A retrospective cross-sectional study was conducted for ten months, from March to December 2020 and involved 48 patients from a population of 154 suspected cases. We included all suspected Covid-19 patients aged 0 to 19 years, confirmed by the real-time RT-PCR technique targeting the viral N and ORF1 ab genes and treated in the Nkolndongo health district. The data were collected in patients' files recruited for the purpose of a thesis of medicine entitled "Clinical picture and management of Covid-19 in the pediatric population of Nkolndongo health district". The information was recorded in an operating sheet which included the signs and symptoms described (cough, fever, runny nose, nasal congestion, sore throat, fatigue, headache, ageusia, anosmia, cyanosis, respiratory distress, dyspnea, vomiting, diarrhea, myalgia), degrees of severity and survival at the end of treatment. All data collected were kept confidential; only investigators had access to anonymous patient data. Incomplete files were excluded. Prior to this research, we received the ethical clearance of the ethics committee of the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé I. The severity of the disease was classified into four groups (asymptomatic, mild, moderate, and severe) according to the 2020 recommendations of the Cameroon Public health emergencies scientific council. The term "asymptomatic" was used to describe a patient tested positive and showing with no symptoms. The mild form included patients with uncomplicated upper respiratory tract infection associated or not with ageusia and anosmia. The moderate grade concerned patients presenting with signs of upper respiratory tract infection and respiratory distress

The severe form designated cases of upper respiratory tract infection complicated with danger signs (cyanosis, inability to feed, lethargy coma, convulsion,  $\text{SaO}_2 < 90\%$ ) The results were analyzed by IBM SPSS.23.0 software. Data were expressed as frequencies, means and percentages. The threshold of statistical significance was set at 0.05.

### 3. Results

#### 3.1. Sociodemographic Characteristics of the Affected Population

**Table 1** presents the socio-demographic characteristics of confirmed pediatric cases of Covid-19.

Our study population came from a group of 154 paediatric suspected cases of Covid-19, identified in the Nkoldongo Health District. Out of the 154 suspected cases tested, 48 were confirmed Covid 19 positive, representing a prevalence of 31.7%. The mean age was 10.82 years. The sex ratio was 1.08. Teenagers aged 13 - 19 years were the most represented age group.

#### 3.2. Symptoms by Age Group

**Table 2** shows the distribution of symptoms encountered by age group.

The age group most affected was that of adolescents aged 13 - 19 years. They presented 13 of the 14 listed symptoms for an occurrence of 92.85%. The most common symptoms in this age group were cough 4 (33%), fever 5 (42%), running nose 3 (25%). Infants were the least affected age group and presented with the following symptoms: cough 2 (67%), fever 1 (33%), and running nose 1 (33%). The pre-adolescents age group was asymptomatic.

#### 3.3. Degrees of Severity

**Figure 1** reports the degrees of severity described in the patients in our sample.

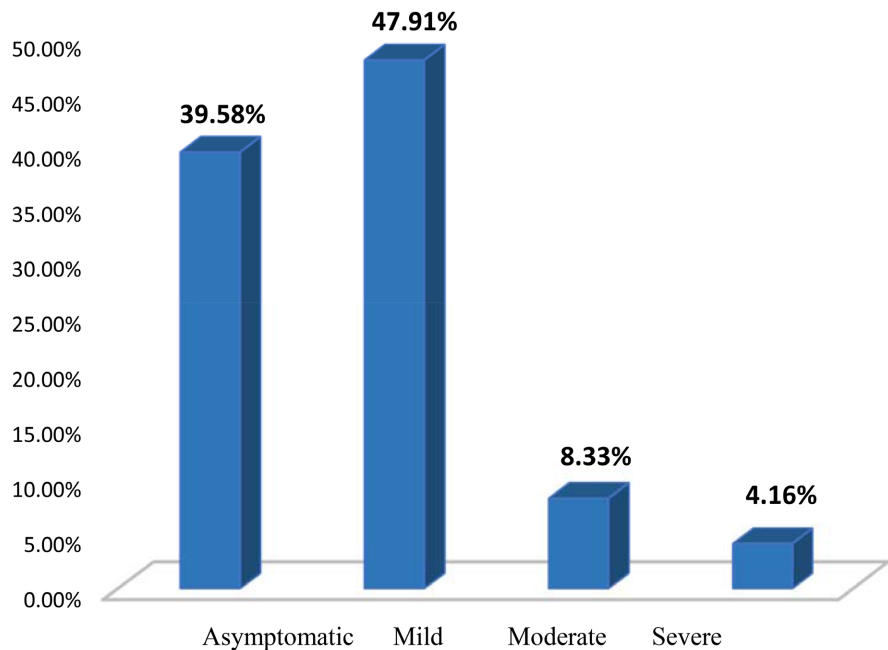
On admission, 19 (39.58%) of patients were asymptomatic, 23 (47.91%) were mild, 4 (8.33%) moderate and 2 (4.16%) severe.

**Table 1.** Sociodemographic characteristics of the affected population.

Variables	Effectives(n)	Percentage (%)
Gender	n = 48	100
Male	25	52
Female	23	48
Age Groups		
[0 - 2[	7	14,5
[2 - 5[	6	12,5
[5 - 10[	8	16,66
[10 - 13[	3	10,5
[13 - 20[	24	50

**Table 2.** Distribution of symptoms by age group.

Symptoms	Age groups					Total (n = 48)
	[0 - 2[ (n = 7)	[2 - 5[ (n = 6)	[5 - 10[ (n = 8)	[10 - 13[ (n = 3)	[13 - 19[ (n = 24)	
Cough	6 (85.71%)	2 (33.33%)	7 (87.5%)		7 (29.16)	22 (45.83%)
Fever	4 (57.14%)	2 (33.33%)	4 (50%)	-	8 (33.33%)	18 (37.5%)
Runny nose	4 (57.14%)	1 (16.66%)	2 (25%)	-	5 (20.83%)	12 (25%)
Sore throat	-	2 (33.33%)	4 (50%)	-	7 (29.16%)	13 (27.08%)
Fatigue	-	-	2 (25%)	-	5 (20.83%)	7 (14.58%)
Headaches	-	-	2 (25%)	-	6 (25%)	8 (16.66%)
Cyanosis	-	1 (16.66%)	-	-	-	1 (2.08%)
Respiratory distress	-	-	1 (12.5%)	-	1 (4.16%)	2 (4.16%)
Dyspnea					3 (12.5%)	3 (6.25%)
Vomiting	1 (14.28%)		2 (25%)	-	2 (8.33%)	5 (10.41%)
Diarrhea	1 (14.28%)		1 (12.5%)	-	1 (4.16%)	3 (6.25%)
Myalgia			2 (25%)	-	2 (8.33%)	4 (8.33%)
Nasal congestion					4 (16.66%)	4 (8.33%)



**Figure 1.** Degrees of severity of patients.

### 3.4. Survival Rate

**Table 3** describes the survival rate of the patients at the end of treatment.

All the children tested positive (48) were alive at the end of the treatment, giving us a survival rate of 100%.

**Table 3.** Survival rate.

Outcome at the end of treatment	Survival rate	
	Alive	Death
[0 - 2[	7 (100%)	--
[2 - 5[	6 (100%)	--
[5 - 10[	8 (100%)	--
[10 - 13[	3 (100%)	--
[13 - 19[	24 (100%)	--

**Table 4.** Factors influencing the prognosis.

	Prognosis		Odds-ratio	P-Value
	Moderate-severe	Slight-moderate		
Age groups				
Teenagers	4 (67.7%)	28 (66.7%)	1.65 [0.27 - 0.02]	0.59
Children	2 (33.3%)	14 (33.3%)		
Exposition				
Exposed	5 (83%)	28 (66.7%)	2.5 [0.23 - 23.50]	0.42
Not Exposed	1 (16.17%)	14 (33.3%)		
Comorbidity				
Presence of comorbidity	3 (50%)	2 (4.8%)	20 [2.35 - 169.92]	0.001
Absence of comorbidity	3 (50%)	40 (95,2%)		

### 3.5. Factors Influencing the Prognosis

Patients with comorbidity were 20 times more likely to develop moderate to severe clinical forms. This result was statistically significant with a P-value of 0.001. Age range and exposure did not influence the prognosis in this series (Table 4).

## 4. Discussion

The clinical findings of our cohort were: cough (58.33%), fever (54.16%), runny nose (27.1%) and were superimposable to those found in Asia and Africa [4] [5]. The predominance of these symptoms could be explained by the pathogenesis of the SARS-CoV2 virus, which mainly infects the epithelium of the respiratory tract by binding to ACE2 receptors [4]. The most symptomatic age group was that of adolescents between 13 and 19 years old. This can be justified by the large distribution of adolescents in our sample. They present immunity patterns close to those of adults with slow cell regeneration and epithelial renewal mechanisms [6]. Infants were the least symptomatic probably due to the difficulty in collect-

ing complaints in children of this age. Most of the subjects in our cohort had a mild infection (47.93%) and 39.58% were asymptomatic: suggesting that children have fewer serious infections than adults [2]. Our results differ from the Canadian findings where the majority of subjects (68%) developed severe forms and those from Nigeria where asymptomatic forms (60.4%) were most common [4] [7]. The survival rate in our series was 100% and confirms the good prognosis associated with pediatric Covid-19 infection in Africa [4] [5] [8]. In our series, patients with comorbidity had a predisposition to develop moderate to severe forms: this is similar to a Brazilian study which found that the presence of comorbidity was associated with a high risk of death [9]. That can be explained by the low incomes in sub-saharian countries, exposing the population to delayed diagnosis and treatment.

The principal limitation of this study was the sample size, due to the fact that it was conducted in a single health district. Another limitation was the duration of the study that did not allow us to include more cases.

## 5. Conclusion

At the end of our study, it emerged that the clinical features were mainly fever, cough and running nose which may or may not be associated. After treatment, all the patients recovered. There was a significant association between the presence of comorbidity and moderate to severe severity.

## Acknowledgements

The authors thank the management and staff of the Nkoldongo Health District for the cooperation and support.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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