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ORIGINAL ARTICLE

Economic and emotional impacts of the pandemic on families of children and adolescents with COVID-19: reflections for comprehensive care

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Keywords:
child,
cough,
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whooping cough.

Abstract

Objective: To evaluate the clinical and epidemiological wooping cough/pertussis in a pediatric hospital. **Method:** Series of cases that were studied all patients with wooping cough hospitalized at the Institute of Pediatrics Martagão Gesteira of Universidade Federal do Rio de Janeiro (UFRJfrom May 2011 until August 2012. Were included patients with paroxysmal cough and signs of severity that required hospitalization and excluded patients whose records were incomplete. **Results:** Of the 38 cases of wooping cough analyzed, nine were suspected pertussis cases, and of these, six met the criteria for clinical confirmation of pertussis. The deaths occurred in young infants who were clinically confirmed cases of pertussis, according to the Ministry of Health-Brazil. **Conclusion:** A suspect case definition of pertussis followed confirmation early clinical favoring early institution of appropriate treatment and avoiding unfavorable outcomes.

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INTRODUCTION

Covid-19 is an infectious disease caused by the SARS-COV-2 virus, which is infecting and killing millions of people worldwide, being declared a pandemic in March 2020 by the World Health Organization (WHO)[1]. Since then, government reports and scientific literature around the world have been evaluating epidemiological data, seeking to understand clinical aspects, testing possible therapies, developing vaccines with different technological platforms, analyzing the impacts of mass vaccination and studying the different variants of virus, in order to contain the number of infected and deaths.

However, the effects of the pandemic go beyond the clinic, providing social, psychological and economic consequences, both for the infected and the susceptible, resulting from social distancing and a reflection of the reorganization of the way of living[2-3]. The economic and emotional impacts of the pandemic will possibly extend over a prolonged period and can have great repercussions on the future of children and adolescents.

Social distancing and isolation measures can impact the child's development due to the loss of a sense of structure and security resulting from changes in routine, deprivation of living in a school environment and impairment of social interactions, fundamental for psychosocial, cognitive and language development[2]. In addition, the presence of various emotional, economic, and psychological stressors in the family unit further aggravates the repercussions of the pandemic on young people[3-4]. Children observe and react to the environment in which they are inserted and the family is considered the fundamental foundation for the establishment of affective bonds, therefore, the consequent wear and tear of the reorganization of the family context, can alter the exercise of parenting and bring risks to child development[3]. The pediatric age group comprises a small fraction of cases of infection and death by COVID, however it is essential to understand the impacts of the pandemic on families and its possible repercussions on children and adolescents.

Thus, this study aims to assess the economic and emotional effects of the pandemic on families of children and adolescents with confirmed SARS-CoV-2 infection.

METHODS

This is a cross-sectional, descriptive study with a quantitative approach, carried out with families of children and adolescents with confirmed laboratory diagnosis of COVID-19, treated at the Instituto da Criança e do Adolescente of the Hospital das Clínicas, Faculty of Medicine, University of São Paulo. PauloICr - HCFMUSPfrom March 30 to July 30, 2020. The ICr -HCFMUSP is a tertiary service, which integrates the network of the unified health system, providing care to newborns , children and adolescents, the majority patients with complex chronic conditions.

Newborns born to mothers with confirmed COVID-19 and children and adolescents treated at the service with possible COVID-19 infection, characterized by the presence of respiratory and/or gastrointestinal symptoms and/or fever without localizing signs and/or compatible symptoms patients with multisystem and/or Kawasaki-like inflammatory syndrome underwent PCR collection for SARS-COV-2 detection by nasal swab . These were hospitalized in cases in which the condition was severe and/or with systemic repercussions, requiring the use of ventilatory devices, intravenous therapy and continuous observation due to the worsening of the underlying disease. When the condition was mild, these patients were referred for treatment at home, with guidance to those responsible regarding social isolation, also from the contact, until completing 14 days of onset of symptoms, and the alarm signs to return to the institution, being followed up. by telemedicine.

Household contacts of newborns, children and adolescents with laboratory-confirmed COVID-19 were included in the study. During the period, 72 children and adolescents diagnosed with the infection were treated. Two guardians who refused to participate and 19 who were unsuccessful in the telephone contact, carried out on three days and at three different times, with three attempts each day, were excluded. Thus, 51 families were included, after signing the Free and Informed Consent Term (FICT).

Clinical data were verified in the electronic medical record, and the questionnaire, with the socioeconomic characterization and the emotional and economic impacts, was applied through telephone calls to those responsible. To minimize the bias of collecting information by heteroapplication , the questionnaire was applied by a single researcher, previously trained to use an approach in order to avoid subjective interpretations.

Descriptive data are presented as frequencies for categorical variables and as means for continuous variables. Comparative analyzes were performed using the chi -square test , using the Stata ® software version 13.0StataCorp LP. College Station . Texas. USA), considering the value of $p<0.05$ for statistical significance

This study is a sub-project derived from a seroprevalence survey among the contacts of these patients, carried out in partnership between ICr - HCFMUSP and Instituto Butantã. It was approved by the Research Ethics Committee of the Hospital das Clínicas, Faculty of Medicine, University of São Paulo (FMUSPunder the number CAEE 32210620.9.1001.0068.

RESULTS

The age of the children and adolescents included in the study ranged from 1 day of life (newbornto 17 years and 8 months, with a mean of 7 years and 9 months, with 51% being female. Most of the children and adolescents were declared by their guardians as white (66.7%and 42 (82.3%of them had some underlying disease (Table 1).

Table 1. Characteristics of children and adolescents (N = 51). Sao Paulo-SP. Brazil, 2021.

Age (years and months)	**Average**	**(min - max)**
	7th to 9m	(0 - 17 to 8m)
Sex	**No**	%
Feminine	25	49.0
Male	26	51.0
Color	**No**	%
White	34	66.7
brown	16	31.4
no information	1	2.0
underlying disease	**No**	%
Yea	42	82.4
No	9	17.6
Type of underlying disease*	**No**	%
oncology	10	19.6
heart disease	7	13.7
neurologic	8	15.7
nephropathy	12	23.5
lung disease	7	13.7
immunosuppression	11	21.6
Others	21	41.2
History of previous contact with Covid-19	**No**	%
Yea	17	33.3
No	30	58.8
No information	4	7.9
Who was the previous contact with?	**No**	%
Relatives	16	94.1
Outside the family nucleus	1	5.9
treatment regimen	**No**	%
outpatient	13	25.5
Hospitalization	38	74.5
Length of stay (days)	**Average**	**(min - max)**
	8	(0 - 27)
outcome	**No**	%
High	47	92.1
Death	4	7.9

*some patients had more than one type of associated disease.

Regarding infection by Covid-19, only 33.3% reported previous contact with someone known to be sick, and, when this previous contact was identified, almost all (94.1%were with a family member. Most children and adolescents (74.5%required hospitalization and 4 (7.8%died, and in only 1 (25%the main cause was infection with the SARS-COV-2 virus (multisystem inflammatory disease). The other deaths were due to the underlying disease. (table 1).

Most families were low-income and received social benefits from the government (78.4%), mainly emergency aid. Regarding family habits, in 92.1% of the families someone leaves the house before the child gets sick, mainly because they need to work or go shopping, with just over half (56.9%using public transport and 11.8% leave the house without wearing a mask (Table 2).

Table 2. Socioeconomic characteristics and habits of families (N = 51). São Paulo-SP, Brazil, 2021.

SOCIOECONOMIC CHARACTERISTICS		
Maternal Education	**No**	%
Up to 1st grade	13	25.5
2nd grade complete	31	60.8
Higher	7	13.7
Number of family contacts	**Average**	**(min- max)**
	4.35	2-8
Number of rooms	**Average**	**(min- max)**
	5.2	1-8
Number of people / room	**Average**	**(min- max)**
	0.94	(0.25 - 2)
Per capita income	**No**	%
≤ ½ minimum wage	35	68.6
> ½ minimum wage	16	23.3
Social benefits	**No**	%
No	11	21.6
Yea*	40	78.4
family scholarship	6	15.0
emergency aid	36	90.0
Retirement / INSS / BPC	14	35.0
FAMILY HABITS		
Leave home before the child/adolescent gets sick	**No**	%
Yea	47	92.1
No	4	7.9
Reason(sfor leaving home*	**No**	%
Job	32	62.7
Services (shopping, banking , etc.)	41	80.4
Medical appointment	18	35.3
leisure/visits	5	9.8
school / daycare	two	3.9
Used Public Transport	**No**	%
Yea	29	56.9
No	22	43.1
Leave the house without a mask	**No**	%
Yea	6	11.8
No	45	88.2

*some family members had more than one reason to leave home

Regarding the family consequences of the pandemic, 40 caregivers (78.4%reported economic impacts, being characterized as large in almost half of the families (graph 1 and, although without statistically significant difference, the impact

was greater among those with lower per capita income. and in social benefit dependents (table 3).

Regarding emotional impacts, only 3 (5.9%did not report concerns about the pandemic. In 35.3% of the children and adolescents, there was a change in sleep, and this change was much more frequent among those responsible (54.9%). In addition, 64.7% of adults had mood changes, mainly anxiety (graph 1).

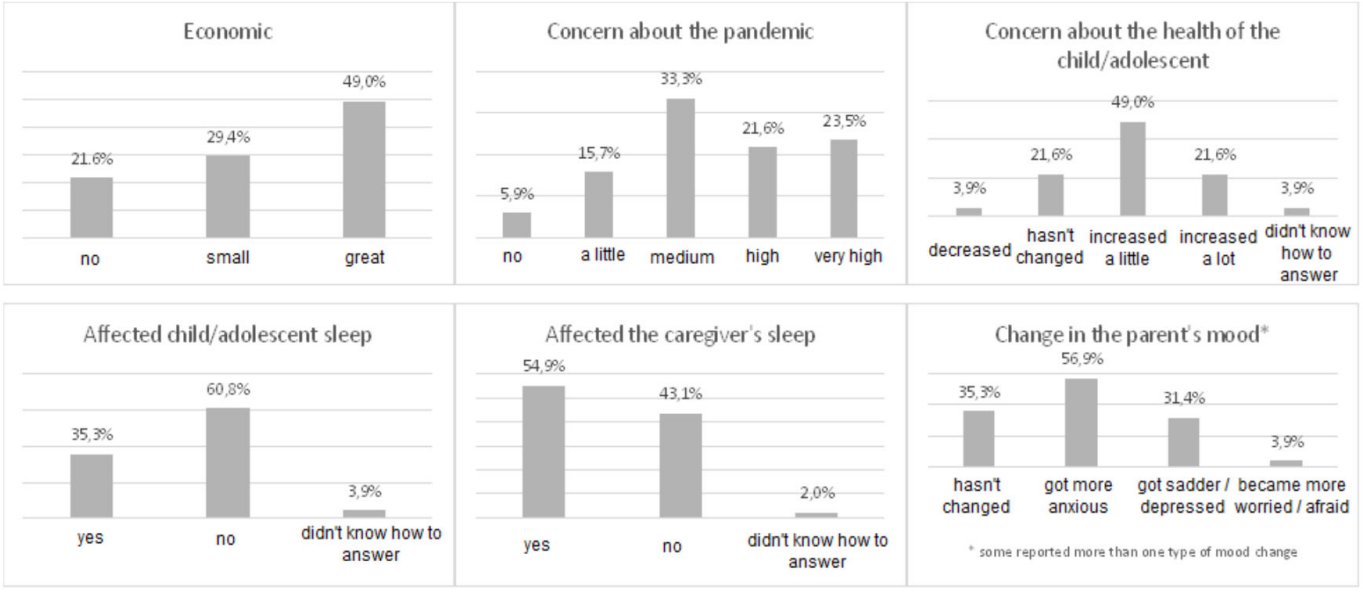
DISCUSSION

The risk of SARS-CoV-2 infection, the presence of symptoms, and the risk of mortality vary greatly by age group. Children and adolescents, although representing approximately 1/3 of the world population, are responsible for 8% of cases and only 0.2% of deaths, according to the World Health Organization[5]. Despite this , the pediatric age group deserves a careful look, due to its role in the transmission chain and, mainly, due to the impacts to which it is subject, resulting from the changes observed in society and in the dynamics of families . This study addressed the repercussions of the pandemic on 51 families of children and adolescents with confirmed SARS-CoV-2 infection.

The social isolation resulting from the pandemic imposed an unprecedented economic crisis, resulting from unemployment, financial instability and accumulation of debts[4,6]. In the United States, more than 22 million Americans lost their jobs in the four weeks following the declaration of a national emergency[7], and in Brazil, approximately 21.7 million[6]. This demonstrates that society has been suffering the consequences of lost productivity[8].

In our study, 78.4% of the families reported an economic impact, characterized as large in almost half of the sample (49%), particularly affecting the most vulnerable: those with lower per capita income and those dependent on social benefits. This finding is in agreement with the report of the United Nations Children's Fund (UNICEF), describing that 55% of Brazilians identified a reduction in family income and impairment in daily life, being greater in individuals with low family income and those who lived with children and adolescents (more than 5 4 million Brazilians[6].

The Brazilian government adopted emergency aid, provided for in Law 13,982/2020, aiming to fill the gap in social protection for impacted informal workers and unemployed[9]. However, the benefit alone is not enough to mitigate the impacts, especially if we consider that its availability is irregular and there is no guarantee of its continuity. In this study, 90% of the families reported receiving emergency aid, evidencing the great vulnerability of this sample.



Graph 1. Economic and emotional impacts on families, children and adolescents (N = 51). Sao Paulo-SP. Brazil, 2021.

Table 3. Relation of the economic impact with the characteristics of the families . Sao Paulo-SP. Brazil, 2021.

	No impact (%)	Small impact (%)	Large impact (%)	*p*
Per capita income				
≤ ½ minimum wage	**13.7**	**17.6**	**37.3**	**0.528**
> ½ minimum wage	**7.8**	**11.8**	**11.8**	
Social benefits				
No	**7.8**	**5.9**	**7.8**	**0.386**
Yea	**13.7**	**23.5**	**41.2**	

The worst socioeconomic conditions are associated with negative health effects, particularly on the greater risk of contamination by the virus, since they are related to worse housing conditions, with agglomeration, and less adherence to isolation and protection measures[6,10 -11]. In addition, in the less privileged social strata, adults generally have professions in which remote work is not possible, they do not have an employment relationship, and are more exposed during their journey and in the work environment[12]. In our study, we did not identify a large number of people per room, however, we found a risk behavior for extra-domestic exposure to the virus: 92.1% of the families were not practicing social isolation before the child became ill, mainly due to the need to leave the house. home to work (62.7%), largely depending on the use of public transport (52.9%and a considerable number (11.8%without even wearing a mask . Thus, it is worth reflecting: "How is it possible for families to adhere to preventive measures under these conditions?", demonstrating the importance of recognizing the family context when thinking about health.

This high social exposure is probably associated with the fact that in 94.1% of the children and adolescents in this study who had previous contact with someone who was sick, it was a family member. Corroborating with several studies that have shown that the home environment is the area with the highest risk of contamination, with high rates of contamination among members of the same family[13-17].

Another aspect that has been of concern is the emotional impacts of the pandemic . The following have been reported: increased parenteral stress, emotional overload, especially of the maternal figure, and mental disorders[4,18-19]. These can be consequences of fear of illness, loss of loved ones, social isolation; changes in daily routine and relational conflicts[7,18,19]. It is worth mentioning that economic impacts can also contribute to emotional changes in the family[4,11-12].

In a Chinese survey, included in the UNICEF report, of 1,516 participants, 682 (45%) showed exaggerated worry about the future, 576 (38%) had sleep disturbances, and 500 (33%) had sudden mood swings and irritability[6]. We found similar results: 78.4% reported moderate to very high concern about the pandemic, 54.9% of adults had sleep disturbances, and we had a very high number of mood swings (74.7%), particularly anxiety.

Sleep disturbance was less frequent among children (35.3%), but even so, it is a considerable number and higher than that described by other authors: 23.9% in India[3] and 21% in China[6]. Changes in routine and changes in family behavior have been implicated as causes of these reactions in children[6,20]. Possibly we found a higher number because we approach children in a social context of greater vulnerability.

It is worth mentioning that our sample, in addition to including families with higher socioeconomic risk, was also composed of children and adolescents with underlying diseases in their majority (82.4%), which explains the high hospitalization rates (74.5%). and death (7.9%verified by us, which may have contributed to more emotional distress. Underlying diseases already impact caregivers, who often live in a context of care overload, worries and frequent hospitalizations[2], and with the COVID-19 infection there is a conjunction of another stressor.

This study has some limitations: the low number of families evaluated and the characterization of risk behaviors approaching the family and not its individual members. Despite this, the findings allow a reflection on some consequences of the pandemic on aspects that can impact the health and development of children and adolescents in the long term.

CONCLUSION

Scientific advances, greater knowledge about the disease and mass vaccination will reduce morbidity and mortality from COVID-19. However, the pandemic has socioeconomic and emotional impacts that can have more lasting effects on families, especially those who experience the clinical, social and economic repercussions imposed by the infection on their members, which can impact the development of children and adolescents in the long term.

In this study, there was a great economic impact and emotional impacts, both on children and adolescents and on their families, especially those who are most vulnerable. There were multiple difficulties faced by those responsible for the reorganization imposed by living with a child or adolescent with a confirmed diagnosis of COVID-19 in isolation at home, and, in some cases, added to the potential difficulties in coping with underlying diseases.

The findings allow reflections related to the organization of the way of caring; the need to think about the family within this context, also integrating social and economic aspects when thinking about promotion, prevention, assistance and recovery; on how to formulate impact reduction strategies; how to integrate public policies with the reality faced in health contexts; how to integrate the different levels of health longitudinally in the care of children, adolescents and their families impacted by COVID-19, and how to provide adherence to preventive measures. The health professional must have a sensitive look beyond clinical demands, rebuilding the fundamental foundations for the promotion of a safe and protective environment for children and adolescents.

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