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ORIGINAL ARTICLE

# Implications of the COVID-19 pandemic on the mental health and behavior of children

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## Abstract

**Objectives:** To analyze the influence that COVID-19 pandemic brought to children's mental health, in addition to behavioral changes in the psychosocial context of child development. **Methods:** Descriptive bibliographic review study was carried out, by which a systematic review was carried out on the databases: SciELO, PubMed and Virtual Health Library (VHL) in the five-year period, between 2015 and 2020, in Portuguese and English. 122 articles were captured, of which 113 were excluded for not meeting the proposed inclusion criteria so that 9 studies were analyzed. In addition, 1 edition produced by the Scientific Committee of the Science for Children Center and the letter of Recommendations from CONANDA for the Comprehensive Protection of Children and Adolescents from the Ministry of Women, Family and Human Rights were analyzed. Thus, at the end, 11 bibliographic references were analyzed. **Results:** It was evident how much children are directly or indirectly exposed by the repercussions of the pandemic. They are subject to structural changes in life, such as: social isolation, restriction of social life with family and friends; changes in the school routine with reduced socialization, which can generate, as highlighted by the authors, changes in mood, symptoms of post-traumatic stress, depression or anxiety, with emphasis on children in mourning for family members. **Conclusion:** It was found by the literary review the incidence of damage to mental health as well as disorders in child behavior. Possible impacts on child development and importance of taking care of the child demands arising from the pandemic are highlighted.

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## INTRODUCTION

The first case of SARS-Cov-2 infection was reported in Wuhan, China, in December 2019. SARS-CoV-2 is a betacoronavirus from the same subgenus as the severe acute respiratory syndrome (SARS) virus. There is indication that the disease is transmitted principally through saliva droplets, respiratory secretion aerosols, and the air.[1]

Given the significant transmissibility and severity of the disease, the onset of the pandemic has introduced changes to everyday life as we knew it, and the adoption of recommendations issued by the World Health Organization (WHO) designed to decrease propagation and contamination rates. Public health interventions have included social isolation and distancing to preclude the spread of the novel coronavirus and prevent the exponential growth of the number of new cases of the disease.[2,3]

Social isolation, described as the most effective measure, has led to abrupt and unforeseen changes to the daily reality of families in Brazil, with comprehensive repercussions that included the shutting down of daycares and schools, stores operating in reduced hours, changes on working hours, and the need to work from home.[2,3]

The combination of social isolation, a failing economy, unemployment, economic instability, fear, and uncertainty have imposed a burden on the mental health and psychosocial behavior of children, adults, and the elderly.[2-4]

Healthy children generally require a few periodic visits to a physician and immunization. In the context of a pandemic, the needs of children might be underappreciated, as healthcare workers are struggling with the new and grave demands arising from a disease with a high mortality rate, which pathophysiology, treatment, and epidemiology are still unclear.[5]

The main changes described in the behavior of children were concentration difficulties, altered sleep and eating patterns, clinging to parents or caretakers, irritability, fear, loneliness, boredom, and increased screen time. With that in mind, it is essential to observe how children present themselves, express their emotions and behave, so that action can be taken to eliminate or make the impact of the pandemic on their short and long term human development more amenable.[4,6]

Child development relies on numerous factors, including the environment, the psychosocial and emotional context in which the child lives, and the development of a healthy central nervous system.[7] It is a process that encompasses countless aspects, including physical growth and neural, behavioral, cognitive, social, and emotional maturation, according to the World Health Organization (WHO).

The context in which a child lives matters, since experiences of isolation may affect one's overall development, particularly in the first three years of life, a moment in which the brain matures rapidly and new connections and synapses are formed.[7] We must understand how the lives of children have been directly and indirectly affected by the pandemic.

Therefore, this study aimed to review the impact the COVID-19 pandemic has had on the mental health of children, and the behavioral modifications observed within the psychosocial development of children.

This article was designed to offer input to the scientific community based on information published in the literature on the relevance of identifying and properly managing behaviors stemmed from changes in everyday life, with the purpose of preventing their categorization as pathological manifestations; instead, they should be viewed as responses to the social isolation experienced by children. Strategies developed to improve the experience of children living in social isolation are also discussed.[4]

## METHOD

This descriptive systematic review included articles written in English and Portuguese published in databases Scielo, Pubmed, and Biblioteca Virtual da Saúde (BVS) within a five-year period (2015 to 2020). The following Portuguese keywords were used in the search for articles: saúde mental, criança, isolamento social e COVID; psicologia da criança; angústia infantil e COVID, comportamento infantil; quarentena e COVID. And the following English keywords were used to the same end: mental health, child, social isolation and COVID; child psychology; infantile and COVID distress, infantile behavior; child behavior, quarantine and COVID. The studies included in the review met the following criteria: original articles on child mental health; child behavior and social isolation; quarantining and child development; and regulations issued by government institutions such as the Ministry for Women, Family, and Human Rights. Entries for one same article occurring in more than one database were excluded.

The articles were categorized based on keywords and descriptors. Each article was read, reviewed, and interpreted. The review used the criterion for age described by the Brazilian Statute of Children and Adolescents (ECA, Brazilian acronym), in which children are individuals aged 12 years or less.[8]

A total of 122 articles were found, 113 of which were excluded for not meeting the inclusion criteria. Nine articles were included. Two other publications were added to the list: one publication produced by the Scientific Committee of Science for Children Center and the Letter of Recommendations from the National Council for the Rights of Children and Adolescents (CONANDA, Brazilian acronym) for the Comprehensive Protection of Children and Adolescents by the Ministry of Women, Family and Human Rights. A total of 11 publications were reviewed.

### Results and Discussion

In the context of the COVID-19 pandemic, attention must be given to how children are adjusting to public health restrictions and how these changes are reflected in terms of behavior, mental health, and everyday life activities. Table 1 presents a summary of the reviewed studies.

**Table 1.** Characteristics of the articles included in this review.

| Study | Year | Subject | Descriptors | Mean Age | Number of participants |
|---|---|---|---|---|---|
| **Eisenstein E, Pfeiffer L, Gama MC, Estefenon S, Cavalcanti SS, Silva EJC, *et al*.[12]** | 2019 | "#Less Screens #More Health" | Internet; Children; Child development; Time children spend in front of screens. | a | b |
| **Figueiras AC, Souza ICN, Rios VG, Benguigui Y. Organização Panamericana de Saúde[7]** | 2005 | "Child Development Surveillance Manual in the IMCI context." | Child development | c | b |
| **Liu, Jia Jia; Bao, Yanping; Huang, Xiaolin; Shi, Jie; Lu, Lin[10]** | 2020 | "*Mental health considerations for children quarantined because of COVID-19."* | Mental health; Children; Quarantine | 10.5 | 320 |
| **Ministry of Health (BR), Oswaldo Cruz Foundation, Mental Health and Psychosocial Care in the COVID-19 Pandemic[2]** | 2020 | "Children in the COVID-19 pandemic." | Children in the COVID-19 pandemic; Fiocruz Brasília; Fiocruz News Agency; Children; Coronavirus infection | c | c |
| **Dalton L, Rapa E, Stein A. Lancet Child Adolesc Health.[9]** | 2020 | "*Protecting the psychological health of children through effective communication about COVID-19."* | Mental health; Children; Coronavirus infection; Communication | e | d |
| **Golberstein E, Wen H, Miller BF.[5]** | 2020 | "*Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents*." | Mental health; Children; Coronavirus infection | 11.5- [d] | 55 million - [d] |
| **Ministry of Woman, Family, and Human Rights (BR), National Council for the Rights of Children and Adolescents[13]** | 2020 | "CONANDA recommendations for the full protection of children and adolescents during the COVID-19 pandemic." | Protection; Child; Coronavirus infection | | c |
| **Núcleo Ciência pela Infância [Internet][3]** | 2020 | *"Repercussions of the COVID-19 Pandemic on Child Development."* | Child development; Coronavirus infection | e | e |
| **Jiao WY, Wang LN, Liu J, Fang SF, Jiao FY, Pettoello-Mantovani M, *et al*.[4]** | 2020 | "*Behavioral and emotional disorders in children during the COVID-19 epidemic*." | *Betacoronavirus, Child, China, Coronavirus Infections; complications, Coronavirus Infections; psychology, Humans, Mood Disorders; etiology, Pandemics, Pediatrics,Pneumonia, Viral; complications, Pneumonia, Viral; psychology, Problem Behavior, Psychological Distress, Resilience, Psychological* | 10,5 | 320 |
| **Deslandes Suely Ferreira, Coutinho Tiago[6]** | 2020 | *"The intensive use of the internet by children and adolescents in the context of COVID-19 and the risks for self-inflicted violence."* | Internet; Violence; Child; Coronavirus infection<br>Use of the Internet by children and adolescents in the context of the COVID-19 pandemic | e | d |
| **Marques *et al*.[11]** | 2020 | "Violence against women, children and adolescents in times of pandemic by COVID-19." | Domestic violence; Quarantine; Infections by Coronavirus. | e | d |

[a]Authors use the ECA as a reference; [b] Authors use a general sample of the Brazilian population of children and adolescents; [c] Manual issued by the Ministry of Labor/Legislation; [d] Authors did not include number of participants; [e] Authors did not describe participant ages.

Children are embedded in a context in which the traditional media and social media platforms have pervasively presented discussions about the COVID-19 pandemic. Meanwhile, efforts are made globally to contain the dissemination of the novel coronavirus, fund research to understand the pathophysiology of SARS-CoV-2 and develop therapies including medication, vaccines, and antibodies, in addition to sharing information with the population about the epidemiology of the disease.[9]

The experience of staying confined at home without the ability to visit others or going to school, daycare, family and friend's houses, or perform physical exercise, may place one's mental and physical health at risk.[4]

Children are keen observers of what goes on around them and are particularly sensitive to the psychosocial behaviors exhibited by their parents and caretakers. The changes introduced by the COVID-19 pandemic are felt deeply by children as young as two years old, with feelings such as preoccupation, anxiety, and stress reported in a study performed in the United States.[9]

The family context is a relevant element in child development, with the household's good psychosocial, health, and economic standing appearing as a key factor according to the Scientific Committee of the Núcleo Ciência pela Infância.[3] Despite the introduction of prophylactic measures, external issues such as unemployment, salary cuts, and decreases in the demand for informal services may increase the severity of the side effects of the pandemic by making it harder for families to earn income, thus pushing them into a state of vulnerability.[3]

In the family environment, increased stress levels among children may also be connected with situations of suspension of physical contact with caretakers or parents suspected or tested positive for COVID-19, and deaths by the disease. These events may promote the onset of anxiety, insecurity, fear, and feelings of helplessness. The impact of being separated from one's parents or caretakers may compromise the long-term mental development of children even after the pandemic is over, and potentiate increases in the incidence of mental disorders, suicidal ideation, and suicide.[9]

The emergence of feelings of sadness and insecurity during the pandemic may upset the family structure and place child development at risk. Experiencing difficulties and stress for long periods of time may impair an adult's ability to support the children around them, which may cause systemic damages to child development and increase levels of anxiety, depression, and stress.[9]

Since healthy children do not require special attention, healthcare workers may forget to assess the mental health of their pediatric patients, although studies have shown that most mental disorders begin to develop during childhood.[5]

The incidence of mental disorders in childhood may increase during the COVID-19 pandemic, since children are facing the fear and insecurity inherent to physical and social isolation. Studies have indicated that children have been subject to psychological stress, which translates into anxiety, depression, lethargy, impaired social interaction, and decreased appetite.[4]

Social distancing and the alterations to a child's psyche caused by psychological stress, anxiety, fear, and preoccupation have accentuated and produced functional and behavioral disorders, as reported by the Scientific Committee of the Núcleo Ciência pela Infância: 36% of the children developed excessive dependence on their parents; 32% have suffered with attention disorder; 29% with preoccupation; 21% have had difficulty sleeping; 18% reported lack of appetite; 14% have had nightmares; and 13% have experienced discomfort and agitation.[3]

Social distancing and isolation are prophylactic measures against the mass propagation of the virus; for that reason, schools were closed and children are now taught via distance learning solutions.[11] These measures are important to contain the dissemination of the novel coronavirus, since although children and adolescents are less likely to develop symptoms of SARS-CoV-2 infection, they are potential spreaders of the disease.[5]

The shutting down of schools has been challenging for families as they struggle to provide their children with proper conditions to study at home and be available to help them. Despite their best efforts, the formal education of children may be jeopardized. Another element to consider is that distance learning is not recommended for individuals in early childhood for health and pedagogical reasons. In addition, the Brazilian Society of Pediatrics (SBP, Brazilian acronym) recommended that children aged two years and younger should not be exposed to screens and that children aged 2-5 years should be exposed to screens for no longer than one hour a day. Furthermore, the adoption of distance learning solutions for children goes against the tenets of the Brazilian Common Curricular Base, in that children learn through playful, concrete, interactive experiences that cannot be rendered through a virtual environment.[3,11]

Not all children have access to distance learning. According to the 2017 National Household Sample Survey (PNAD, Brazilian acronym), only 31% of the students in middle school attending public schools have access to a computer/tablet and broadband Internet connection. Therefore, children from poorer families, in addition to suffering from lack of resources to attend classes, also experience the hardships common to all of society.[3]

Technology may become an ally to fight social isolation, since it allows the maintenance of social networks once established via face-to-face interactions between children and their relatives and friends. An important caveat is that the content children access in the Internet must be monitored for quality. The long idle hours children experience during the pandemic may push them into spending more time in front of a screen, which may result in risk of personal exposure, involvement in dangerous dares and potential injury, in addition to cyberbullying.[6,12]

A British study found evidence of positive impact on child development when parents/caretakers are able to communicate effectively with their children based on their age and ability to understand. Studies have indicated the importance of engaging in conversations meant to capture and understand the feelings and thoughts children have about COVID-19 and discuss issues such as how the disease is transmitted. Preschoolers often fantasize about what they hear and learn, and their personal interpretations of the pandemic may produce emotional stress and unnecessary fear.[9,10]

## CONCLUSION

It is possible that the effects of the pandemic in Brazil will persist and affect morbimortality, health, unemployment, and child development in quantitative and qualitative terms, and that such effects will be felt more acutely by the underprivileged.

This review demonstrated how much children have been directly and indirectly exposed to the effects of the pandemic. They have been forced to deal with structural changes to their lives, including social isolation and estrangement from grandparents and friends, school life without the possibility of socialization and now burdened with the associated onset of symptoms consistent with posttraumatic stress disorder, depression and anxiety, not to mention the grief over the loss of family members.

Communication within the family has a soothing effect over the fear and insecurity experienced by children. Parents and caretakers should be aware that this is a delicate, new and important process, in which children should be encouraged to share their feelings.

This study also showed that mental healthcare workers, pediatricians, and other medical professionals should be trained to understand the needs and mitigate the harm visited upon children.

Furthermore, it is extremely important that society be acutely aware of potential violence inflicted upon children and that a strong position be taken in favor of taking proper action against it to ensure the right to life, health, and proper living conditions, once the development of children to their full potential is the duty of every person, as stated in the recommendations of the CONANDA concerning the protection of children and adolescents during the COVID-19 pandemic.[13]

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