

# Repercussions of the COVID-19 pandemic in children and mothers with Congenital Zika Syndrome

Repercussões da pandemia da COVID-19 em mães-crianças com síndrome congênita do Zika  
Repercusiones de la pandemia de COVID-19 en madres-niños con síndrome congénito del Zika

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## Keywords

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## Descritores

COVID-19; Crianças com deficiência; Cuidado da criança; Infecções por coronavírus; Pandemias; Relações mãe-filho; Zika vírus

## Descriptores

COVID-19; Cuidado del niño; Infecciones por coronavirus; Niños con discapacidad; Pandemias; Relaciones madre-hijo; Virus zika

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## Abstract

**Objective:** To analyze the repercussions of the COVID-19 pandemic in mothers-children with Congenital Zika Syndrome.

**Methods:** This is a mixed exploratory sequential study (QUAL-> QUAN), carried out with 44 mothers of children with Congenital Zika Syndrome who answered an online questionnaire applied between April and May 2020. Qualitative data were subjected to thematic content analysis and quantitative data to statistics descriptive, with application of paired Student's t test. Data integration was performed according to the joint display technique.

**Results:** Physical distancing reconfigures the mother-child routine, limits the development of activities in the domestic environment, changes habits, increases caregivers' burden ( $p<0.05$ ), implies changes in sleep patterns and generates signs of stress and anxiety. Mothers are concerned about the decrease in family income and strive to perform stimulation exercises and school activities in the domestic environment after the interruption of professional rehabilitation care and the closing of schools.

**Conclusion:** The COVID-19 pandemic had an impact on the increase in new tasks of caring for the child and the home environment, as well as raising the levels of care burden for mothers, which can result in important changes in their physical and mental health.

## Resumo

**Objetivo:** Analisar as repercussões da pandemia da COVID-19 em mães-crianças com síndrome congênita do vírus Zika.

**Métodos:** Estudo misto sequencial exploratório (QUAL->QUAN), realizado com 44 mães de crianças com SCZ respondentes de questionário online aplicado entre abril e maio de 2020. Os dados qualitativos foram submetidos à análise de conteúdo temática e os quantitativos à estatística descritiva, com aplicação do teste t de *Student* emparelhado. A integração dos dados foi realizada de acordo com a técnica *joint display*.

**Resultados:** O distanciamento físico reconfigura a rotina da mãe-criança, limita a desenvolver atividades no ambiente doméstico, altera hábitos, aumenta a sobrecarga da cuidadora ( $p<0,05$ ), implica em alteração do padrão do sono e gera sinais de estresse e ansiedade. As mães se preocupam com a diminuição da renda familiar e se esforçam para realizar exercícios de estimulação e atividades escolares no ambiente doméstico após a interrupção dos cuidados profissionais de reabilitação e o fechamento das escolas.

**Conclusão:** A pandemia da COVID-19 repercutiu no incremento de novas tarefas de cuidado com a criança e ambiente doméstico, bem como elevou os níveis de sobrecarga de cuidado das mães, o que pode resultar em alterações importantes na saúde física e mental delas.

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Conflicts of interest: nothing to declare.

## Resumen

**Objetivo:** Analizar las repercusiones de la pandemia de COVID-19 en madres-niños con síndrome congénito del virus del Zika.

**Métodos:** Estudio mixto secuencial exploratorio (CUAL->CUAN), realizado con 44 madres de niños con SCZ que respondieron un cuestionario digital aplicado entre abril y mayo de 2020. Los datos cualitativos fueron sometidos al análisis de contenido temático y los cuantitativos a la estadística descriptiva, con aplicación del test-T de *Student* pareado. La integración de los datos se realizó de acuerdo con la técnica *joint display*.

**Resultados:** El distanciamiento físico reconfigura la rutina de la madre-niño, limita el desarrollo de actividades en el ambiente doméstico, altera hábitos, aumenta la sobrecarga de la cuidadora ( $p > 0,05$ ), implica la alteración del patrón de sueño y genera señales de estrés y ansiedad. Las madres se preocupan por la reducción de los ingresos familiares y se esfuerzan para realizar ejercicios de estimulación y actividades escolares en el ambiente doméstico luego de la interrupción de los cuidados profesionales de rehabilitación y del cierre de escuelas.

**Conclusión:** La pandemia de COVID-19 repercutió en el aumento de nuevas tareas de cuidado del niño en ambiente doméstico, así como también elevó los niveles de sobrecarga de cuidado de las madres, lo que puede dar como resultado alteraciones importantes de su salud física y mental.

## Introduction

The news that the world was living with the COVID-19 pandemic was issued just over four years after the global Zika virus epidemic and its consequences as Congenital Zika Syndrome (CZS). Until September 30, 2020, Brazil accounted for 28% of confirmed cases and 55% of deaths due to COVID-19 in the Americas region,<sup>(1)</sup> with a 3.0% lethality rate.<sup>(2)</sup> Brazil also stands out as the country with the highest prevalence of CZS, maintaining the occurrence of cases to the present day, totaling 3,534 children with CZS since 2015, among which, 13 were confirmed from January to May 2020.<sup>(3)</sup>

The sanitary measures to control the COVID-19 transmission had negative impacts on the population's mental health<sup>(4)</sup> as well as the discovery of CZS generated unpleasant feelings and emotions for mothers.<sup>(5)</sup> The definition of CZS encompasses the set of neurological changes caused by the Zika virus through congenital transmission, causing craniofacial disproportion and other brain abnormalities.<sup>(6)</sup>

Mother and child build, sustain and share an intimate relationship regulated by biological, social and psychological aspects cultivated in favor of the child's development;<sup>(7)</sup> therefore, this study adopts the term mother-child dyad with CZS.

Children depend totally and almost exclusively on their mothers,<sup>(8)</sup> using medications daily in order to relieve episodes of spasms, muscle stiffness, especially seizures.<sup>(9)</sup> In turn, mothers go through exhausting therapeutic itineraries in favor of child development,<sup>(5)</sup> live with high levels of depression and anxiety, in addition to decreased quality of life in the first year of life of children.<sup>(9)</sup> They experience

a tiring routine, with burden of domestic and care activities,<sup>(10)</sup> little support from the social support network and low income;<sup>(11)</sup> however, there is, so far, no scientific evidence of how the COVID-19 pandemic had repercussions on the daily lives of mothers-children with CZS.

Thus, this study seeks to answer the following question: what are the repercussions of the COVID-19 pandemic on mothers-children with CZS? In order to achieve the objective of analyzing the repercussions of the COVID-19 pandemic in mothers-children with CZS.

## Methods

This is a mixed exploratory sequential study (QUAL-> QUAN),<sup>(12)</sup> presented according to the criteria of the Mixed Methods Appraisal Tool (version 2018) to assess the methodological rigor of mixed researches.<sup>(13)</sup>

Participants were initially recruited from the WhatsApp groups of *Associação de Pais de Anjos da Bahia* (APAB), founded in 2017, and of *Associação aBRAÇO a Microcefalia* (aBRAÇO), founded in 2016, both based in Salvador, Bahia, Brazil. It is noteworthy that the researchers do not belong to these groups, nor did they contact the participants, since this action was carried out by volunteers linked to the associations. The initial contact with the associations was made through the official call center through conversation on the WhatsApp application.

Then, using the Respondent-Driven Sampling (RDS) technique,<sup>(14)</sup> mothers who first participated in the survey were asked to share the invitation and

data collection instrument with other mothers, for this reason mothers from the states of Amazonas and Paraíba also responded to the survey questionnaire. This technique is recommended to study groups of people with difficult access,<sup>(14)</sup> which is justified by the physical distance experienced in Brazil during the pandemic.

Data collection took place between the months of April and May 2020. 44 mothers of children with CZS who were mothers of children with CZS, 18 years of age or older participated in the study. There was no exclusion criterion.

The number of participants was defined by theoretical-empirical saturation when all possibilities for new discussions based on the data collected were exhausted. The reach of saturation occurred as the nuclei of meanings emerged after individual and confidential judgment of three researchers. When there was convergence between two researchers, the online questionnaire was closed. The team in question was composed of two researchers with postdoctoral qualification and a doctoral student.

As a data collection technique, an online questionnaire was used, developed by the researchers through Google Forms and shared through the link <<https://forms.gle/Ztuu8x1gHgXeC38K6>> in WhatsApp groups. The questionnaire consisted of closed questions related to participants' socioeconomic characterization and the daily activities carried out before and during the pandemic, in addition to open-ended questions about the day-to-day changes caused by the pandemic. Participants' responses were automatically sent to [sindromecongenitaz@gmail.com](mailto:sindromecongenitaz@gmail.com), managed by the first author.

The reflective thematic analysis was carried out in six stages: reading and rereading the data; creation of codes for important topics (06 codes); grouping of codes (02 groups); construction of a mental map identifying relationships between the themes; naming of themes; analysis synthesis production.<sup>(15)</sup>

A qualitative analysis revealed the need to compare mothers' burden levels before and during the pandemic. For this, the technique of equivalence between positions of qualitative respons-

es was performed according to the Zarit Burden Interview,<sup>(16)</sup> which measures caregivers' burden level from four domains: "Impact on care provision", aimed at addressing the caregiver's perception of his feelings, responsibilities and daily life from the time of illness; "Interpersonal relationship", which includes issues related to children's social life, total dependence, self-care and financial expenses; "Care expectations", which encompasses mothers' perception of the quality of care they perform; "Perception of self-efficacy", consisting of two questions: do you think you could take better care of children with CZS? How much do you feel overwhelmed?

The Caregiver Burden Scale is of Likert type, with 22 items aimed at caregivers' psychological and socioeconomic well-being and their relationship with the people to be cared for. Each item has five response alternatives according to the frequency that they occur: 0 (never); 1 (rarely); 2 (sometimes); 3 (often); 4 (always). The higher the score, the greater the burden.<sup>(16)</sup>

The procedure of equivalence between positions was carried out between the Zarit Burden Interview and qualitative responses collected from the online questionnaires paired with 18 items on the scale, following the scores available for each item, according to the methodological contribution evidenced in the study.<sup>(17)</sup> The first step consisted of grouping the responses related to mother-children's daily lives before and during the pandemic, maintaining responses' individuality. The second was configured in the organization of each mother's responses in themes similar to Zarit Burden Interview domains. When reading the responses organized by domain, the authors related excerpts from them to each item in that domain, in order to assign answers to each item. That done, the next step was to assign a score for each answer according to a Likert-type scale, according to the scoring system presented in Chart 1.

Descriptive statistics was used to characterize the sociodemographic and economic aspects of mothers-children using absolute and relative frequencies. Student's t test paired for samples with normal distribution was used to verify the variation of the means

**Chart 1.** Equivalent classes between positions

Equivalence between positions	
Likert score	Qualitative responses
4 (always)	text semantics indicates burden + presence of two adverbs of intensity or more (e.g., too much, too much, too much) or two words or more in bold or capital letters
3 (often)	text semantics indicates burden + an adverb of intensity (e.g., too much, too much, too much, too much) and a word in bold or capital letters
2 (sometimes)	text semantics indicates burden + an adverb of intensity (e.g., too much, too much, too much, too much) or a word in bold or capital letters
1 (rarely)	text semantics indicates burden
0 (never)	text semantics does not indicate burden

of the Caregiver Burden Scale over domains in numerical variables. Statistical significance was given by the value of  $p < 0.05$ . The statistical analysis was processed using the Statistical Package for the Social Sciences (SPSS), version 20.0. To present the integrated QUAL and QUAN data, joint display was used, a single figure that has the main QUAL and QUAN results and the inferences elaborated from data integration (meta-inference).<sup>(18)</sup> The study was approved by the Brazilian National Research Ethics Council. Participants chose pseudonyms to maintain anonymity, respecting Resolutions 466/12 and 510/16 of the Brazilian National Health Council (*Conselho Nacional de Saúde*). The Informed Consent Form (ICF) was available on the first page of the online questionnaire, those who agreed to participate in the survey indicated that they would contact WhatsApp or email as the best way to receive the ICF signed by the responsible researcher and guiding researcher, thus being done. For those who did not accept to participate in the survey, the questionnaire was closed immediately.

The study development complied with the national ethical standards of publication and received the number of the opinion of an Institutional Review Board 3.990.246 (CAAE (*Certificado de Apresentação para Apreciação Ética - Certificate of Presentation for Ethical Consideration*) 30757920.6.0000.0053).

## Results

Table 1 presents the sociodemographic and economic characteristics of mothers and children.

**Table 1.** Sociodemographic and economic characterization of mother-children with CZS from Amazonas, Bahia and Paraíba (n=44)

Variables	n(%)
Mother's age	
18 to 20	1(2.3)
21 to 25	16(36.4)
26 to 30	5(11.4)
31 to 35	12(27.3)
36 to 40	7(15.9)
41 to 45	3(6.7)
Age of children with CZS	
0 to 1 year 11 months and 59 days	1(2.3)
2 years to 3 years 11 months and 59 days	4(9.1)
4 to 5 complete years	39(88.6)
Education	
I never attended school but I can read and write	1(2.3)
Incomplete elementary school	3(6.8)
Complete elementary school	3(6.8)
Incomplete high school	8(18.2)
Complete high school	23(52.3)
Incomplete higher education	3(6.8)
Complete higher education	2(4.5)
Complete graduate education	1(2.3)
Religion	
Catholic	15(34.1)
Evangelical	17(38.6)
No religion	12(27.3)
Skin color	
Yellow	1(2.3)
White	3(6.7)
Brown	20(45.5)
Black	20(45.5)
Occupation	
Autonomous	2(4.7)
Babysitter	1(2.3)
Seamstress	1(2.3)
Unemployed	4(9.3)
Housewife	26(58.3)
Maid	1(2.3)
Health workers	5(11.6)
Administrative service workers	3(6.9)
Industrial service workers	1(2.3)
Family income	
Undisclosed	1(2.3)
No income	3(6.8)
Less than R\$ 600.00 (about US\$109)	1(2.3)
Between R\$ 600.00 and R\$ 1,500.99 (about US\$109 and US\$272,90)	34(77.3)
Between R\$ 1,501.00 and R\$ 2,000.99 (about US\$272,90 and US\$363,60)	3(6.8)
Between R\$ 2,001.00 and R\$ 3,000.99 (about US\$363,81 and US\$545,63)	2(4.5)
Number of residents in the same household	
Two	12(27.3)
Three	12(27.3)
Four	12(27.3)
Five	5(11.3)
Six	2(4.5)
Seven	1(2.3)
Federative Unit of Brazil	
Amazonas	2(4.6)
Bahia	40(90.8)
Paraíba	2(4.6)



Then, there are the categories of results: “Changes in the activities carried out by mother-child and their effects”; “Repercussions of the COVID-19 pandemic on caregiver burden levels in mothers of children with CZS”.

### Changes in the activities carried out by mother-child and their effects

Figure 1 illustrates the joint display that presents the modification of mother-child activities and other repercussions such as sleep problems, abdication of personal projects and the impossibility of sharing child care with people in the support network.

### Repercussions of the COVID-19 pandemic on caregiver burden levels in mothers of children with CZS

The QUAL and QUAN results support the increase in mothers’ burden levels during the pandemic, observed by the increase in the average values in each group (before versus during) and

by the testimonies of the mothers presented in the following joint display (Chart 2). It is worth noting that in all comparison pairs, there was statistical significance ( $p < 0.05$ ), showing that there was a difference in the variation of Caregiver Burden Scale scores in intragroup and intergroup mothers before and during the pandemic.

The global score of the Caregiver Burden Scale, represented by the sum of the four domains, showed a higher average during the pandemic, with a difference between the averages of 7.66 (before= $44.38 \pm 10.47$  and during= $52.04 \pm 9.12$ ) ( $t^*$  ( $p$ -value)  $\dagger = -12.629$  (0.000)), justified by financial difficulties and access to food; disruption of interpersonal relationships; loss of control over the child’s health situation; hopelessness; performance of rehabilitation care and school activities of children in the domestic environment, in order to mitigate the setback or stagnation of cognitive and intellectual development.

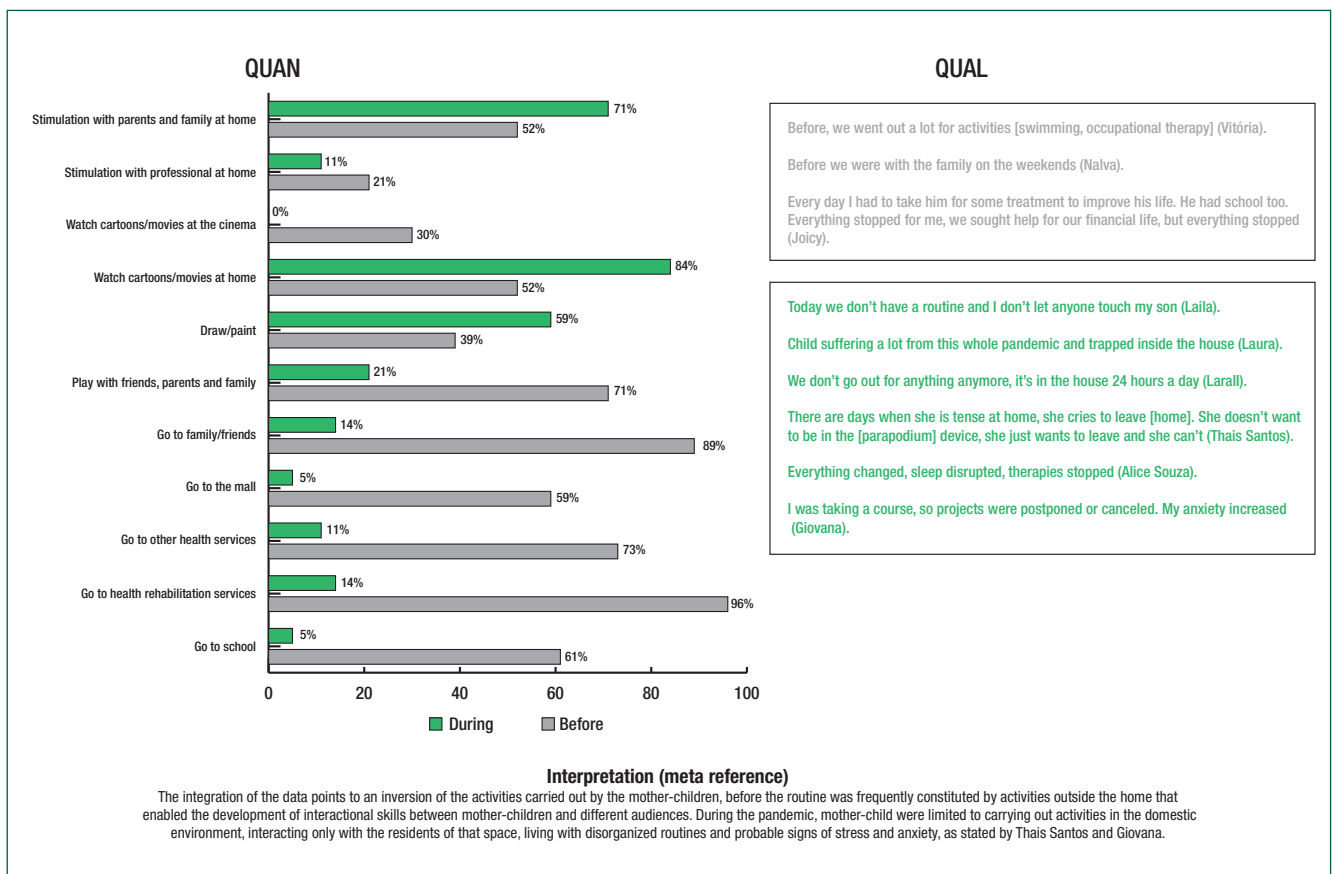


Figure 1. Activities carried out by mother-children before and during the COVID-19 pandemic

**Chart 2.** Caregiver Burden Scale domains, before and during the COVID-19 pandemic, in mothers of children with CZS from Amazonas, Bahia and Paraíba (n=44)

Scale domains	Caregiver burden in mothers of children with CZS		Interpretation (Meta-inference)
	Results		
	QUAN	QUAL	
Impact on Care Provision	Before 16.95±0.61  During 18.00 ±0.65  t* (p-value)† -4.153 (0.000)	Staying inside the house directly with him [child with CZS] makes it very difficult in my life (Glória). The sessions of physiotherapy, speech therapist and others were all suspended without a return date. So I do the rehabilitation at home myself, even though I am very tired. Everything I learned in the sessions I do with him, I manage (Clara). Doing stimulation at home is difficult because we do not have the rehabilitation devices (Larall). His teacher called me and put it on WhatsApp and every day she passes activity for me to copy and he does it at home and every day he is doing activity. It is a lot for me (Maria José). I have to clean the house more than twice a day, we shower several times a day (Edna). We wash our hands all the time (Anall).	It is suggested that the impact on care provision for mothers increased due to the suspension of professional rehabilitation services and school activities, in addition to the intensification of personal and domestic hygiene care to prevent the spread of SARS-CoV-2.
Interpersonal relations	Before 13.00±0.57  During 16.36±0.49  t* (p-value)† -10.840 (0.000)	I moved away from everyone, when I leave, I cannot be contaminated, because my children need me a lot (Heloara). I worry about getting infected and my son getting this damn disease, because he doesn't know how to speak (Maria José). I am concerned about the lack of adequate financial conditions to maintain the family during this period of outbreak (Heloisa). I'm out of work (Lais). I did not like it when he suspended school, because it is also another delay. Children who are at home are entitled to school lunches. They [government officials] should help with basic food baskets, because the city has so far not helped at all (Maria José).	The interpersonal relationships of the mothers were possibly impaired by the risk of personal contagion and child contagion indirectly. Mothers also live with financial difficulties and access to food due to unemployment and suspension of school meals.
Care Expectations	Before 9.38±0.39  During 12.25±0.38  t* (p-value)† -9.999 (0.000)	I am afraid that the people we love the most will die (Lara). Fear of seeing all my son's treatment get lost, after so many conquests (Joicy). Lack of stimulation will affect the [child's motor] coordination (Patrícia). I worry about the delays because there is no monitoring by the rehabilitation professional (Vitória).	The testimonies explain positions of doubt and loss of mothers' control over the child's health situation, resulting in high expectations of care.
Perception of Self-efficacy	Before 5.04±0.25  During 5.43±0.23  t* (p-value)† -2.864 (0.006)	So, everything is late. The surgery he had to do has been cleared. Everything in his life stopped. Will I be able to recover what my son lost in treatment? (Joicy).  I take care of my son 24 hours a day, I don't have time for anything else (Isadora).  I feel hopeless about offering a better treatment for my son (Alice Souza).	Despite comprehensive care for the child, the pandemic imposed conditions that limited the mother's care, making it difficult to develop effective care attitudes against the effects of discontinuing therapies and emerging feelings of hopelessness.

\*t: Student t-test for paired samples; †p-value<0.05. Differences between group means before and after the pandemic.

## Discussion

Due to the physical distance, it was not possible to use other data collection techniques, a condition that made it impossible for researchers to conduct data collection, configuring it as a study limitation.

Due to the total dependence of children with CZS on mothers, it is possible to consider mothers as people who are more likely to transmit COVID-19 to children. This aspect justifies the provision of remote labor service by mothers and priority to preventive care to preserve the integrity of mother-child dyad with CZS in pandemic situations.

The results point to the implementation of Nursing Care Plans that reduce the burden of maternal care, assist in the daily routine reorganization, encourage the sharing of tasks between family members and the social support network, benefit

the quality of sleep and foster sociability actions of children. It is worth suggesting that scientific studies investigate the activities that burden mothers during this period, as well as the likely consequences on children's motor, intellectual and social development, resulting from discontinuity of care resulting from the pandemic.

Participants' socioeconomic profile confirms the findings of studies<sup>(15,19)</sup> that showed exposure to Zika virus in groups with greater vulnerability, such as the black population and who live with low HDI levels. They are people who live in areas with precarious sanitary conditions, in which there is an absence of a potable water network, scarcity in the daily water supply, without sewage coverage, without regular waste removal, among other conditions that expose people more to the new coronavirus.<sup>(9)</sup>

With COVID-19, mothers' concern lies, first, in the possibility of contagion of children, them-

selves and other household residents so that it results in the death of their children or restricts their care for children who are totally dependent on them.<sup>(20)</sup> Therefore, a probable contamination of mothers by COVID-19 also means direct contagion of children, interruption of home rehabilitation, the only therapy aimed at the development of children that remains during the pandemic, disruption of care attitudes such as cleaning, nourishing, lulling and playing because they know, practice and coordinate this care on a daily basis, in addition to the disruption of other domestic care that is also under their responsibility.<sup>(9)</sup>

Thus, it is assumed that mothers should be considered as people most likely to transmit COVID-19 to children, understanding that their contagion culminates in the contagion of their children. In this condition, they can, for instance, be prioritized in healthcare services, in addition to negotiating the flexibility of their function and workload with employers, according to the recommendations of physical distance, reducing the risk of contagion of children. In this study, it is assumed that 25.4% of mothers perform their work activities in an extra domestic environment, with the need to negotiate physical distance with employers. On the other hand, 67.6% are dedicated to domestic tasks and 7% can work at home, which makes the construction of a routine that encompasses work, educational, recreational, domestic, sleep and rest activities, family and personal care complex and exhaustive.<sup>(20)</sup>

Concomitant to the fear of children's death, with the suspension of the rehabilitation treatment, the mothers believe in the stagnation or regression of children's development, even carrying out the rehabilitation in the domestic environment according to exercises learned from health professionals.<sup>(10)</sup> Mothers strive to fill the gap caused by the interruption of rehabilitation services, even though they do not know the level of efficiency of the rehabilitation procedures performed by family members. Therefore, there seems to be a knowledge gap between the levels of efficiency of professional and domestic rehabilitation, when probable results could offer confidence and security to mothers to care for them.

Health professionals often demonstrate procedures to caregivers and encourage them to perform stimulation at home. However, this single stimulation performed by the mother generates apprehension and insecurity when performing these maneuvers in a solo way, due to the little knowledge and domain to evaluate the stimuli and neuropsychomotor development of children.

The possibilities of remote interaction between therapists, educators and family members can assist mothers in their home journey, as well as offer support for carrying out school activities, since 88.6% of children in this study are of school age. However, it is inferred that such monitoring may find limits to be performed by the mother-child due to limited access to electronic devices and the internet, since 88.7% of them have a family income of less than R\$ 1,500.99 (about US\$272,90) and can live with difficulties in providing virtual access.

Additionally, it is recommended that children keep in touch with schoolmates, educators and friends, either by virtual means, or by sending letters, drawings and paintings, to maintain sociability and affective bonding.<sup>(21)</sup> Otherwise, prolonged isolation of children through the suspension of school activities and home confinement can result in damage to their physical and mental health.<sup>(19)</sup> Since sociability is configured as an essential process for child development, little face-to-face interaction can result in limitations in the formation of conscience, because, through multiple social interactions, children become subjects.

Mothers of children with CZS, even before the pandemic, already lived with an exhaustive routine and care burden,<sup>(10)</sup> resulting in high levels of depression,<sup>(19)</sup> anxiety,<sup>(22)</sup> mental distress,<sup>(20)</sup> fatigue and decreased levels of life satisfaction.<sup>(23)</sup> Thus, the intensification of hygiene care, the requirement for rehabilitation care and school activities carried out at home, without support from the social network, tends to intensify the physical and psycho-emotional suffering of these women during the pandemic.

These repercussions and adaptations in the mothers' daily lives are aggravated by the volume of the news on the number of cases and deaths, circulation of false news,<sup>(24)</sup> in addition to the scarcity

of information about COVID-19 and the care of children with disabilities, a situation that makes it difficult for mothers to choose conducts,<sup>(23)</sup> making them insecure. Otherwise, it is known that receiving accurate information on the ways of transmission and prevention of contagion of COVID-19 is associated with lower levels of anxiety, depression, and stress.<sup>(25,26)</sup>

A study indicates that, during the pandemic, women with previous health problems belong to the group of people with significant levels of anxiety, depression and stress, resulting in psychological distress;<sup>(27)</sup> therefore, it is believed that participants in this study can live with such health problems. Furthermore, they lose face-to-face social interaction,<sup>(26)</sup> see their family income decrease and the routine be adjusted.<sup>(27)</sup> Another study also points to the directly proportional relationship between levels of depression and care burden in mothers of children with developmental deficits, in addition to an inversely proportional relationship with quality of sleep.<sup>(28)</sup> Therefore, with the increased care burden during the pandemic, mothers of children with CZS may suffer from depressive symptoms and poor sleep quality.

The analysis of the averages of the Caregiver Burden Scale domains showed an increase during the pandemic, pointing to an increase in mothers' burden. The items in the "impact on care provision" domain indicate increased anxiety, fear for the future and restriction of mothers' privacy. The second domain, "interpersonal relationship", suggests isolation of mothers-children due to the difficulties in reaching people who make up her social support network, in addition to reducing family income. In the third domain, the main item that can raise care expectations is the loss of control of their own lives by the caregiver. In the fourth domain, "perception of self-efficacy", it was noted that the increase in burden may be associated with fear of becoming ill due to the new coronavirus. The increase in this perception can be of a psychological nature and culminate in negative outcomes for mental health, such as anxiety and depression.<sup>(26)</sup>

In order to mitigate the repercussions of physical distance, mothers need to feel safe by showing

the family's attention and affection, made possible by telephone or video calls.<sup>(29)</sup> Furthermore, professionals can contribute by offering therapeutic orientations remotely, such as massage therapy and meditation techniques, providing online self-help groups, encouraging self-care, solidarity among people, presenting up-to-date and reliable information, and proven strategies in coping with psychosocial repercussions on other epidemic events.<sup>(30)</sup>

## Conclusion

The COVID-19 pandemic had an impact on the increase in new tasks of caring for children and the home environment, as well as raising the levels of care burden for mothers, which can result in important changes in their physical and mental health. Moreover, living with financial difficulties, disorganized routine and poor quality of sleep can lead to imbalance in the health-disease process.

## Collaborations

Vale PRLF, Silva ES, Costa JSP, Carvalho RC and Carvalho ESS contributed to the study design, data analysis and interpretation, article writing, relevant critical review of intellectual content and approval of the final version to be published.

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