Occurrence of depressive symptoms related to changes in quality of life in students during the COVID-19 pandemic

Ocorrência de sintomas depressivos relacionados à alterações da qualidade de vida em escolares durante a pandemia do COVID-19

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ABSTRACT
Introduction: Mental health is one of the relevant parameters to assess the quality of life. Since the beginning of the COVID-19 pandemic, children make up one of the most fragile groups to mental health due to social isolation. Childhood mental disorders are a public health problem because of their impact on children's lives and the community. Objectives: To trace the

occurrence of depressive symptoms in schoolchildren during the social isolation period to contain the viral spread and assess possible risk factors for these symptoms' emergence. Method: This study is a cross-sectional with 102 children aged 7 to 10 years who attended Elementary School I in a Municipal School in Belo Horizonte - MG. It was realized during the COVID-19 pandemic in 2021. Two questionnaires were applied, Socioeconomic Questionnaire to describe the sample profile and to evaluate possible risk factors related to depressive symptoms, and the Childhood Depression Inventory (CDI) tassesses depressive symptoms in children. Results: 2.9% of the children presented depressive symptoms. The profile was girls with unmarried parents, absence of father and mother as joint caregivers of the child, poor coexistence between close family members, the occurrence of family unemployment, and interference in lifestyle habits during the pandemic. However, these variables did not obtain a statistically significant association with probable depression. However, symptoms such as crying frequency, boredom, loneliness, and not feeling loved were significantly associated with potential depression. Conclusion: The rate of depression among students aged 7 to 10 years in a Municipal School was 2.9% during the pandemic. There was no association between sociodemographic characteristics and the presence or absence of symptoms of depression. There was a significant association between worsening symptoms such as crying, boredom, loneliness, and not feeling loved and the presence of depressive symptoms.

Keywords: Depression, child, COVID-19, child development.

RESUMO

Introdução: Saúde mental é um dos principais parâmetros para se avaliar a qualidade de vida. Desde o início da pandemia de COVID-19, crianças compõem um dos grupos mais frágeis em relação à saúde mental por conta do isolamento social. Transtornos mentais infantis são um problema de saúde pública devido ao seu impacto na vida da criança e na comunidade. Objetivos: Traçar a ocorrência de sintomas depressivos em escolares durante o período do isolamento social para conter a disseminação viral e avaliar possíveis fatores de risco para a ocorrência desses sintomas. Método: Estudo transversal com 102 crianças de 7 a 10 anos que cursaram o Ensino Fundamental I em uma Escola Municipal de Belo Horizonte - MG durante a pandemia de COVID-19 em 2021. Foram aplicados dois questionários, Questionário Socioeconômico para descrever o perfil da amostra e avaliar possíveis fatores de risco relacionados a sintomas depressivos e Inventário de Depressão Infantil (CDI) que avalia sintomatologia depressiva em crianças. Resultados: 2,9% das crianças apresentaram sintomatologia depressiva, sendo o perfil delas caracterizado por meninas, com pais não casados, ausência de pai e mãe como cuidadores em conjunto da criança, convivência ruim entre familiares próximos, ocorrência de desemprego familiar e interferência nos hábitos de vida durante a pandemia, contudo estas variáveis não obtiveram associação estatisticamente significativa com quadro de provável depressão. Entretanto, sintomas como a frequência do choro, tédio, solidão e não se sentir amado foram significativamente associados à provável depressão. Conclusão: A taxa de depressão entre escolares de 7 a 10 anos em uma Escola Municipal foi de 2,9% durante a pandemia. Não houve associação entre características sociodemográficas e a apresentação ou não de sintomas de depressão. Houve associação significativa entre o agravamento de sintomas como choro, tédio, solidão e não se sentir amado e a presença de sintomas depressivos.

Palavras-chave: Depressão, criança, COVID-19, desenvolvimento infantil.

1 INTRODUCTION

In March 2020, the World Health Organization (WHO) declared the beginning of the COVID-19 pandemic (WHO, 2020) due to its high risk of spreading to others and high multidimensional impact (GÓMEZ-DELGADO, 2022). The mass contagion occurred quickly and profoundly changed people's lives (RAVENS-EBERER et al, SI 202). Political and sanitary authorities implemented social isolation as a method to prevent the spread of the virus, but this measure also caused economic, social, and psychological impacts that are not yet measurable on the population (SERRA et al,22).

Mental health is one of the principal parameters that evaluate a person's quality of life. Mentally healthy children cope better with problems in adulthood (PUSTAKE et al, 2022). So mental health in childhood has particularities related to the ability to reach developmental milestones, improve socialization skills and live healthily (PEOU et al., 2013). Since the beginning of the pandemic, children and adolescents have been one of the most fragile groups. Mainly in terms of mental health, due to the impact of school closures, home confinement, rules of social distancing, and greater exposure to the child abuse (SERRA et al, 2022) (RAVENS-SIEBERER et al, 2022).

Depression is a mental disorder characterized by persistent sadness and an inability to carry out daily activities (WHO, 2016). Scientific interest in childhood depression is recent, and, until 1975, it was still considered rare or non-existent for this age group (BAHLS, 2002). The undervaluation of complaints related to depression can damage the child's psychic development, sometimes irrecoverable (VINOCUR and PEREIRA, 2011). Children with depression have lower school performance than desirable for their age due to changes in cognitive aspects (CRUVINEL and BORUCHOVITCH, 2003) . In addition, there is an association between childhood depression and changes in the development of gray matter, with a consequent reduction in cortical volume related to depressive symptomatology (LUBY et al, 2015). Childhood mental disorders are a public health problem due to their impact on children's lives, families, and community structure, in addition to their high prevalence rate in the world (PEROU et al, 2013).

For the coming decades, the WHO has already predicted changes in the health needs of the world population, marked by a transition in prevalence between nutritional and infectious problems due to depressive disorders and heart disease (BAHLS, 2002). However, the scenario of social isolation may have anticipated the expected changes. In addition, it predisposes the expansion of the affected public.

2 OBJECTIVE

The general study objective was to determine depressive symptoms in children between seven to ten years. They experienced the social isolation imposed to contain the coronavirus spread and to assess possible risk factors for the occurrence of these symptoms. The specific objective is to describe the socioeconomic profile of the sample under study, the presence of depressive symptoms in schoolchildren, and analyze the associations between the variables considering possible risk factors.

3 METHOD

This research is a cross-sectional study conducted with children from 7 to 10 years, who attended the 2nd to 5th year of Elementary School I at Escola Municipal Sérgio Miranda, in Belo Horizonte - Minas Gerais, in November and December 2021. During this period, the first steps of flexibility were being implemented, such as the school's opening and living spaces, which made it possible to carry out the study in person at the institution.

The chosen sample consisted of children between 7 and 10 years. According to the stages of child development, studied by Piaget in 1966, the mentioned age group had included in the concrete operational phase. In this phase, there is a transition from egocentric thinking to rational thinking, a fact that would increase the chances of the children in the sample adequately answering the questionnaire on childhood depression symptoms.

Participants and their guardians completed and signed the Assent Form and the Free and Informed Consent Form before the beginning of the research. For each child, two types of printed questionnaires had been applied in person. The questionnaires had been distributed according to the estimated sample of 309 students from the selected school. 105 children delivered completed questionnaires. Three questionnaires were answered incorrectly and discarded, so 102 questionnaires were considered in the study.

The first questionnaire, called Socioeconomic Questionnaire and COVID-19, was developed to describe the study sample's socioeconomic profile. In addition to evaluating possible risk factors related to the development of depressive symptoms during the pandemic. This questionnaire had answered by the person responsible for the child and had 15 qualitative and quantitative questions about social and economic aspects, in addition to questions about the impact of the pandemic on daily life.

The second questionnaire, developed by Maria Júlia Kovács and called "the Child Depression Inventory" (CDI), provided an overview of depressive symptoms. The CDI is a 27-item self-assessment scale that has alternative responses equivalent to 0 (absence of symptoms),

1 (presence of symptoms) and, 2 (severe symptoms) and applies to children aged 7 to 17 years. In the study, the CDI was used, except for item 9 - which deals with suicidal ideation. This question was not part of the applied questionnaire because, in addition to suicide being uncommon in childhood (CASSORLA, 1987), this question could cause emotional discomfort in the research participants (WEISZ et al, 1997). Thus, the questionnaire had 26 questions, and 17 points were considered a cut-off point, a value that infers the presence of depressive symptoms. (CRUVINEL and BORUCHOVITCH, 2003). This questionnaire should be filled out exclusively by students.

The questionnaire analysis regarding the symptoms of depression showed among the children used the criteria proposed by the creators and the validation described above. Based on the results that assessed the presence of depressive symptoms, the children had divided into groups according to the presence or absence of depressive symptoms. The result was analyzed in association with the variables of the socioeconomic questionnaire and COVID-19. Associations that obtained a significant p-value were considered relevant.

The variables were presented as absolute and relative frequencies and the associations between the variables were evaluated by the G Test and Fisher's Exact Test, with the respective 95% confidence interval. The analyzes were performed using the R software version 4.0.3 and a significance level of 5% was considered.

4 RESULT

In the Municipal School Sérgio Miranda, considering the 2nd to 5th year, there were 309 student, to whom the questionnaires were sent. Of these students, 102 returned with completed questionnaires, representing 33% of the sample. The results about the demographic profile and family support are in Table 1.

Table 1 - Demographic Profile and Family Support

Age	
7 years	33 (32,4)
8 years	23 (22,5)
9 years	16 (15,7)
10 years	23 (22,5)
Other	7 (6,9)
Sex	
Female	57 (55,9)
Male	45 (44,1)
The child is self-declared	
Brown	63 (61,7)
Black	22 (21,6)
White	14 (13,7)

Yellow	2 (1,9)
Not declared	1 (0,9)
School grade	
2nd year	45 (44,1)
3rd year	14 (13,7)
4th year	21 (20,6)
5th year	22 (21,6)
Who is responsible for taking care of the child?	
Father and mother	51 (50,0)
Only mother	41 (40,2)
Only father	4 (3,9)
Grandmother and/or grandfather	4 (3,9)
Other	2 (2,0)
Does the child have siblings?	
Yes	79 (77,5)
No	23 (22,5)
Marital status of the child's parents	
Singles	30 (29,4)
Married	41 (40,2)
Divorced	25 (24,5)
Widower	2 (2,0)
Other	4 (3,9)

Source: prepared by the authors.

Table 1 describes the sample profile where 55.9% of female children with a mean age of 8.3 years. In addition to 7 children aged outside the range of 7 to 10 years. 83.3% of the sample declared themselves brown or black, 13.7% identified themselves as white and only 2 children declared themselves yellow. Majority students were in the 2nd year of elementary school 1, and the smallest part were in the 3rd year, corresponding to 13.7% of the children. Regarding the family support of the sample, 50% of the studied group are responsible for the father and mother, while 40.2% have only the mother in charge of caring for the child. Children cared for only by the father or grandfather/grandmother had the same frequency of 3.9%. Of the research participants, 79 had siblings, and the mean age of siblings was 12.2 ± 7.4 years. Regarding the parents marital status, the majority (40.2%) were married, while 53.9% were divorced or single, two children had widowed parentes, and another 4 did not know how to respond.

The COVID-19 pandemic consequences and social isolation had evaluated (Table 2). 59.8% of the families in the sample had at least one person who lost their job during the pandemic. In addition, only 3.9% of the sample probably did not affect lifestyle habits. 88.2% of families following social guidelines to health authorities did not leave home or went out only for activities. Of the 79 participants who had siblings (Table 1), a relationship worsened after social isolation for 26 (32.9%) of them. 9.8% of the children did not perform any school activity

category during the evaluated period of the pandemic 1 child did not know how to answer this question.

Table 2 - Impacts of COVID-19

Has anyone in the child's household lost their job during the COVID-19 pandemic?	
No, no one	41 (40,2)
Yes, one person	50 (49,0)
Yes, two-person	9 (8,8)
Yes, three person	2 (2,0)
On a scale of 1 to 4, how much has the pandemic changed the family's habits and routine?	
Nothing has changed	4 (3,9)
Changed little	28 (27,5)
Changed medium	35 (34,3)
Changed a lot	35 (34,3)
How did the child and his family experience social isolation due to the COVID-19 pandemic?	
We left home at any time	8 (7,8)
We only went out for essential activities	82 (80,4)
We went out for small meetings	11 (10,8)
We went out for big meetings	1 (1,0)
Relationship between siblings in the pandemic:	
Improved/kept the same	53 (67,1)
Got worse	26 (32,9)
Are the child's school activities still following the pandemic?	
Yes	91 (89,2)
No	10 (9,8)
Don't know	1 (1)

Source: prepared by the authors.

After applying the Childhood Depression Inventory, it was possible to separate the sample into two groups, considering the group with a score greater than 17 (with depressive symptoms) and the group with a score lower than or equal to 17 (with no symptoms). The profile, family support, and the impacts of the pandemic on these children are in Table 3.

Table 3 - Characteristics of the 102 children involved in the separate study according to scores > (n=3) and ≤ (n=99) than 17 seconds on the CDI scale

	CDI Score	
	>17	**≤ 17**
Age		
7 years	1 (33,3)	32 (32,3)
8 years	0 (0,0)	23 (23,2)
9 years	1 (33,3)	15 (15,2)
10 years	0 (0,0)	23 (23,2)
Other	1 (33,3)	6 (6,1)
Sex		
Female	2 (66,7)	55 (55,6)

Male	1 (33,3)	44 (44,4)
The child is self-declared		
Brown	3 (100,0)	60 (61,2)
Black	0 (0,0)	22 (22,4)
White	0 (0,0)	14 (14,3)
Yellow	0 (0,0)	2 (2,0)
School grade		
2º grade	1 (33,3)	44 (44,4)
3º grade	0 (0,0)	14 (14,1)
4º grade	2 (66,7)	19 (19,2)
5º grade	0 (0,0)	22 (22,2)
Who is responsible for taking care of the child?		
Father and Mother	0 (0,0)	51 (51,5)
Only mother	2 (66,7)	39 (39,4)
Only father	0 (0,0)	4 (4,0)
Grandmother and/or grandfather	1 (33,3)	3 (3,0)
Other	0 (0,0)	2 (2,0)
Does the child have siblings?		
Yes	3 (100,0)	76 (76,8)
No	0 (0,0)	23 (23,2)
How was the coexistence between the siblings before social isolation? (n=78)		
Very good	1 (33,3)	57 (76,0)
Good	1 (33,3)	18 (24,0)
Bad	1 (33,3)	0 (0,0)
Very bad	0 (0,0)	0 (0,0)
How is the coexistence between siblings nowadays?		
Very good	0 (0,0)	36 (47,4)
Good	1 (33,3)	39 (51,3)
Bad	2 (66,7)	1 (1,3)
Very bad	0 (0,0)	0 (0,0)
Marital status of the child's parents		
Single	1 (33,3)	29 (29,3)
Married	0 (0,0)	41 (41,4)
Divorced	1 (33,3)	24 (24,2)
Widower	0 (0,0)	2 (2,0)
Other	1 (33,3)	3 (3,0)
Has anyone in the child's household lost their job during the COVID-19 pandemic?		
No	1 (33,3)	40 (40,4)
Yes, one person	2 (66,7)	48 (48,5)
Yes, two person	0 (0,0)	9 (9,1)
yes, three person	0 (0,0)	2 (2,0)
On a scale of 1 to 4, how much has the pandemic changed the family's habits and routine?		
It changed nothing	0 (0,0)	4 (4,0)
Changed a little	0 (0,0)	28 (28,3)
Changed medium	3 (100,0)	32 (32,3)
Changed a lot	0 (0,0)	35 (35,4)
How did the child and his family experience social isolation due to the COVID-19 pandemic?		
We left home in any time	0 (0,0)	8 (8,1)
We only went out for essential activities	2 (66,7)	80 (80,8)
We went out for small meetings	1 (33,3)	10 (10,1)
We went out for big meetings	0 (0,0)	1 (1,0)
Are the child's school activities still following the pandemic? (n=101)		

Yes	2 (66,7)	89 (89,8)
No	1 (33,3)	9 (9,0)
Don't know	0 (0)	1 (1,2)

Source: prepared by the authors.

In Table 3, concerning the children who obtained scores lower than or equal to 17, most were 7 years old (32.3%), were female (55.6%), brown (61.2%), and were in the second year of elementary school 1 (44.4%). Of these, 51.5% were responsible for 39.4% of the mother, while 9.4% of the sample had only the mother as responsible. 76.8% had a sibling, and 98.7% had a good or very good relationship with siblings during social isolation. 41.4% have married parents, 53.5% have single or divorced parents, and 5% have widowed parents or are in another type of relationship. 59.6% have at least one relative who lost their job during the pandemic. 96% of events contact life events of change, and 1.1% report large-to-small encounters or events occurring during social isolation. 89% of children perform continuous activities during the pandemic.

The sample of children with scores greater than 17 (n=3) had distributed, in a way that one of them is aged 7 years, one aged 9 years and another aged outside the range of 7-10 years. Only 33.3% were men, and all were brown. 66.7% are in the fourth year of elementary school 1, while 33.3% study in the second year. Two thirds of the sample are cared for only by the mother and one third by the grandfather or grandmother. All had siblings, but for 66.7%, a relationship with them was poor during social isolation. None of the children's parents were married or widowed. 66.7% had single or divorced parents. Two-thirds experienced unemployment within the family nucleus. 33.3% went out for small meetings during the pandemic, while the rest fulfilled social isolation. 66.7% continued with school activities during the pandemic. (Table 3)

Table 4 associates demographic characteristics such as age, sex, race, and grade attended by students, students with depressive symptoms (score less than 17), and those who do not have major symptoms (score less than or equal to scale 17) of the CDI. The p-values obtained in the associations were not statistical statistics for the category (p-value: 0.34), sex (p-value 1), race (p-value 0.42) and grade (p-value 0.23).

Table 4 - Association of demographic characteristics among schoolchildren and the probable presence or absence of depression during the COVID-19 pandemic

Age	Probable depression	No signs of depression	Test	P-value
7 years	1(3,03)	32(96.97)		
8 years	0(0)	23(100)		
9 years	1(6.25)	15(93.75)		
10 years	0(0)	23(100)	G: 3,32	0,34
Other	1(14.29)	6(85.71)		
Total	3(2.94)	99(97.06)		
Sex				
Female	2(3.51)	55(96.49)	Fisher's exact	1
Male	1(2.22)	44(97.78)		
The child is self-declared (n=101)				
Brown	3(5.0)	60(95.00)		
Black	0(0)	22(100)	G: 2,85	0,42
White	0(0)	14(100)		
Yellow	0(0)	2(100)		
School grade				
2nd year	1(2.22)	44(97.78)		
3rd year	0(0)	14(100)	G: 4,27	0,23
4th year	2(9.52)	19(90.48)		
5th year	0(0)	22(100)		

Source: prepared by the authors.

Table 5 presents associations between the presence or absence of depressive symptoms and the characteristics of the family structure and routine of each child evaluated. The p-values obtained between the associations were not statistically significant for the categories: who takes care of the child (p-value: 0.086), having siblings (p-value: 0.59), parents' marital status (p-value: 0, 21), unemployment (p-value: 1) and change in routine (p-value: 1).

Table 5 - Association between the occurrence or not of possible depression and family structure, job stability, and changes in routine among schoolchildren during the COVID-19 pandemic period

Who is responsible for taking care of the child?	()	()	Test	P-value
Father and mother	0(0)	51(100)	G: 6,58	0,086
Only mother	2(4.88)	39(95.12)		
Only father	0(0)	4(100)		
Grandmother and/or grandfather	1(25)	3(75)		
Other	0(0)	2(100)		
Does the child have sisters or brothers?	()	()		
Yes	3(44776)	76(96.20)	Fisher's exact	0,59
No	0(0)	23(100)		
Marital status of the child's parents	()	()		
Single	1(3.33)	29(96.67)	G: 4,50	0,21
Married	0(0)	41(100)		
Divorced	1(4.0)	24(96)		
Widower	0(0)	2(100)		
Other	1(25.0)	3(75)		
Has anyone in the child's household lost their job during the COVID-19 pandemic?				
No	1(2.43)	40(97.57)	Fisher's exact	1
Yes	2(3.23)	59 (95.16)		
Has the pandemic changed the family's habits and routine?				
Did not change	0(0)	4(100)	Fisher's exact	1
Changed	3(3.06)	95(96.94)		

Source: prepared by the authors.

Table 6 shows the combination of CDI questions 9, 10, 19, and 24 with scores indicating the presence or absence of depression since the p-values of the G and Fisher's exact tests were statistically significant for these categories. Regarding the crying frequency of the assessed children (p-value 0.0027). The frequent or daily crying was proportionally higher among children with probable depressive symptoms. On the other hand, Sporadic crying was more

present in children without signs of depression. Regarding the presence and intensity of boredom (p-value 0.0007), most children without depressive symptoms reported sporadic boredom, whereas, among children with probable depression, boredom was frequent or daily. About loneliness (p-value 0.0488), 98.86% of the children who did not feel alone also did not have depressive symptoms, with one (1.14%) who, despite not feeling alone, was accused of being lonely. The depressive symptoms probability had been obtained in the CDI. On the other hand, among the 14 children who reported feeling lonely, two (14.29%) fit the score related to depressive symptoms. Finally, regarding the feeling loved (p-value of 0.029), the only child who reported doubts about feeling loved presented symptoms indicative of depression; among the remaining 101 children who reported feeling loved, two (1.98%) fit the probability of depressive symptoms.

Table 6 - Association between the score obtained and the cutoff point 17 and the main variables of the CDI questionnaire to determine possible depression (CRUVINEL, BUROCHOVITH, and DOS SANTOS, 2008) in the sample of 102 schoolchildren during the COVID 19 pandemic in a Public School from Belo Horizonte, Minas Gerais, Brazil

Frequency of the crying			Test	P-Value
Sporadic crying	0(0)	86(100)		
Frequent crying	1(14.29)	6(86.71)	G: 11,79	0,0027
Daily crying	2(22.22)	7(77.78)		
Presence of boredom				
Sporadic boredom	0(0)	85(100)		
Frequent boredom	1(7.69)	12(92.3)	G: 14,53	0,0007
Daily boredom	2(50)	2(50)		
Feeling of loneliness				
I didn't feel alone	1(1.14)	87(98.8)	Fisher's exact	0,0488
Felt alone	2(14.29)	12(85.7)		
Feel loved				
Know that is loved	2(1.98)	99(98.0)	Fisher's exact	0,029

Have doubts if is loved	1(100)	0 (0)		

Source: prepared by the authors.

5 DISCUSSION

Quality mental health had obtained through the balance between psychological, biological, and socioeconomic factors. It allows the individual adequately deal with everyday stresses and develop personal skills (WHO, 2002) (MANWELL et al, 2015). During the COVID-19 pandemic, these three pillars destabilized, which favored the increase in childhood depression, as demonstrated in the study by Delgado et al (2022), which aimed to compare the prevalence of quality of life and depressive symptoms in children. 9- to 16-year-old students during the pandemic and in research by Xie et al (2020) that investigated depressive and anxiety symptoms among 2nd to 6th-grade students in two primary schools in China in 2020. In these studies, 22.1 % and 22.6% of the children evaluated presented depressive symptoms. In our study, the rate of children with depression was 2.9%, a value not similar to others mentioned above. This difference can be attributed to the period when the studies had conducted. Since in this study the sample was interviewed when the measures to ease social isolation in Brazil began.

Our results indicate a higher frequency of depression among girls than among boys during the COVID-19 pandemic. But the gender variable was not significantly associated with the presence or absence of depressive symptoms. However, Pustake et al (2021) and Kavvadas et al (2022) found significance in the relationship between the female sex and greater risk of psychological distress during the COVID-19 pandemic. But did not explain the factors that explain this association. Thus, Cabral and Jesus (2022) discuss the causes for females to be more affected by depressive symptoms, emphasizing that women are usually affected by specific biological factors, such as hormonal changes, and tend to think more about unpleasant ideas. In the present study, the girls were between 7 and 10 years, not fitting into the age group associated with hormonal changes, as cited by Cabral and Jesus (2022). Furthermore, the researched sample may have been too small to conclude this relation, once Pustake interviewed, respectively, 1285 and 2110 children.

The assessment of the age of children with a score indicative of depressive symptoms in this study was not statistical significant or capable of determining the age group at greatest risk of depression. Despite this, other authors refer to this relationship, such as the study by Ravens-Sieberer et al (2022), which concluded that children aged between 7 and 10 years had

a significant increase in depressive symptoms, about the increase percentage seen in pre-adolescents aged between 11 and 13 years.

About the marital status of the children's parents, none of parents were married among the students with a score > 17. Whereas among the children with a score ≤ 17, most of the sample had a married father and mother. Regarding the parental marital status category, Raposo et al (2011), establishes that parental separation can reduce the physical and psychological health of the child in the same direction, Hüseyin Çaksen (2021) reflects that children of divorced parents have a greater risk of developing mental disorders, including depression and anxiety. Furthermore, in our study, the higher frequency of students with depressive symptoms and unmarried parents could be associated with the young age of the sample since the immaturity of the students' cognitive-emotional structures makes them less able to perceive separation situations (RAPOSO et al, 2011).

None of the minors who had depressive symptoms had together father and mother as their caregivers. However, among children who do not have depressive symptoms, most of the sample have a father and mother in charge of care jointly, regardless of marital status. In a similar study that compared a group of children with depression and another without depression, the difference in the support and parental involvement of the families was what most differentiated the two study groups (CRUVINEL and BORUCHOVITCH, 2009). According to Raposo et al (2011), parents who maintain a cooperative co-parenting relationship, and active participation of father and mother in the education of their children, regardless of their marital status, favor the well-being of minors, maintaining a constructive and flexible relationship. In this way, it is worth reflecting on co-parenting as a relevant factor in children's mental health. After all, its presence can configure solidity to family structures, favoring children's well-being and reducing the risk of depression.

All participants with depressive symptomatology reported having poor relations with siblings during the pandemic. This relationship was worsening or maintaining badly before this period. A different scenario for participants without depressive symptoms, in which most of them have a very good or only good relationship with their siblings. Despite the high frequency of depressive symptoms in children with poor parent relationships, the study found no significant association between these variables. However, according to the evidence described by Bai Y. et al (2022) a high-quality family relationship is capable of mitigating the manifestation of psychological disorders during the pandemic. Bai Y. et al (2022)used different questionnaires applied online during May and June 2020. In addition, the sample included

children and adolescents. These characteristics differ from the method applied in the present study and possibly explain the difference in the findings.

Unemployment in the family nucleus during the COVID-19 pandemic showed a high frequency among children with depressive symptoms. This fact would make it possible to think about potential relationships between parental economic vulnerability and childhood depression. But there was no significant association between these variables in this study. However, in the work of Ravens-Sieberer et al (2022), when researching children's needs during the pandemic, a direct association between parents' job loss and the reduction of their children's mental health during the year 2020. The incompatibility of the findings between the present study and the research by Ravens-Sieberer et al (2022) was probably motivated by carrying out the studies in different periods of the pandemic, with the application of several instruments to assess depressive symptoms, in addition to a sample with wider age group in the second survey.

Pustake et al (2021) described six factors associated with an increase in depressive symptoms, one of them being appropriate behavior for the COVID-19 pandemic. In our study, all children with a score > 17 suffered interference in their lifestyles due to the pandemic, and the majority went out only for essential activities, which suggests appropriate behavior in the face of the social isolation imposed by the health authorities. Proper posture during the pandemic is possibly related to higher levels of concern and less social interaction, which favors the emergence of depression. On the other hand, respect for health guidelines may also have been protective if it allowed a reduction in the number of infections and deaths of family members and/or friends from the coronavirus, avoiding negative feelings in some cases.

The Childhood Depression Inventory is a relevant tool for assessing depressive symptoms in children and adolescents. However, it is not used as a diagnostic measure of depression, as it only allows the tracking of depressive symptoms (FRISTAD, EMERY, AND BECK, 1997). Gouveia et al (1995) concluded five CDI factors that best explain depression: the frequency of crying, boredom, loneliness, rejection, and suicidal ideation. After the factors analysis in the CDI, a high incidence of the aforementioned factors among students with a score >17. A significant association between probable depressive symptoms and daily/frequent crying, Cruvinel and Boruchovitch (2003) also found an association between this symptom and depressive conditions and characterized it as avoidant and aversive behavior. Regarding the feeling of boredom, which also showed a statistically significant association in the present study, Meade (2021) identified that this factor is a stressor in the face of social isolation, especially in younger children. When assessing loneliness, this feeling was also significantly associated with depressive symptoms in the children in the sample. Loades (2020) and Meade

(2021) concluded that increased loneliness during social isolation was a worse factor in childhood depression. Finally, the question about feeling loved had statistical significance with depressive symptoms. It can be useful to observe these symptoms and their frequency of occurrence, given that this perception can help in the identification and investigation of depressive conditions in childhood, possibly classifying them as warning factors.

6 CONCLUSION

Child mental health is a cross-cutting issue that involves medical, social, and educational fields. Ensuring positive quality of life for children during childhood favors psychic and cognitive development, preparing them for the future. In this aspect, childhood depression is a relevant problem at this age, since it can lead to worse health outcomes, with reflections on the child's life, on their family, and society.

The scenario of the COVID-19 pandemic not only potentiated risk factors for childhood depression but also promoted relevant changes in the population's quality of life. In general terms, our findings highlight higher levels of depressive symptomatology for a given profile of children. In the sociodemographic aspect, female students with unmarried parents and the absence of a father and mother as joint caregivers of the child presented depressive symptoms more frequently. Factors related to the impacts of the COVID-19 pandemic, such as poor coexistence between close family members, unemployment in the Family and interference in life habits during social isolation, were constantly present in schoolchildren with symptoms indicative of depression. Finally, the symptoms most related to scores above 17 were the frequency of crying, boredom, loneliness and not feeling loved, which makes it possible to think of them as warning signs for childhood depression.

Attention to the risk factors mentioned in the study and those previously known for childhood depression can facilitate the early identification of depressive conditions. In this way, the implementation of medical interventions previously can be favored. In addition, to the creation of strategies and public policies related to the phase of preventing depression in children, which provide adequate support in the current scenario and avoid comparable future situations. Finally, further studies are still needed to better understand the topic and the impacts it can have on childhood and social structure.

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