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Impacts of COVID-19 on Children and Adolescents: A Systematic Review Analysing its Psychiatric Effects

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ABSTRACT

Objective: To summarize the most relevant data from a systematic review on the impact of COVID-19 on children and adolescents, particularly analyzing its psychiatric effects.

Method: We conducted a systematic review using the PRISMA protocol. We included experimental studies (randomized pooled or individually and non-randomized controlled trials), observational studies with a group of internal comparison qualitative studies and cohort studies (case-control, retrospective and prospective) in the period from 2021 to 2022.

Results: The search identified 325 articles; we removed 125 duplicates. We selected 200 manuscripts, chosen by title and selected abstracts. We excluded 50 records after screening titles and abstracts, as they did not meet the inclusion criteria. We retrieved 150 records selected for a full reading. We excluded 90 text articles and we selected 24 records for the (n) final.

Limitations: Due to the short period of data collection, from 2021 to 2022, there is a possibility of lack of relevant studies related to the mental health care of children and adolescents. In addition, there is the possibility of publication bias, such as only significant findings being published.

Conclusion: The impact of COVID-19 on the mental health of children and adolescents is of great concern to child and youth psychiatry. Situations such as fear, anxiety, panic, depression, sleep and appetite disorders, as well as impairment in social interactions caused by psychic stress, are punctual markers of pain and psychic suffering, which have increasing impacts on the mental health panorama of children and adolescents globally, particularly in vulnerable and socially at risk populations.

Keywords: Child psychiatry; Adolescent psychiatry; Mental health; COVID-19; Kids; Teens

INTRODUCTION

The outbreak of COVID-19 has caused pain and psychological suffering in children and adolescents, particularly considering the new variants of the disease [1]. Psychologically stressful situations are the main effects caused to populations under

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the influence of COVID-19, which can contribute to the development of post-traumatic stress symptoms, especially for vulnerable children/adolescents in critical developmental stages, with variable prevalence, risk factors, and severity [2]. Recent studies highlight that children and adolescents are more likely to have high rates of depression and anxiety during and after a pandemic, impairing family, school, cultural, and social interactions, with multiple and adverse consequences to mental health in the medium and long term [3,4].

Bussières et al. [5] highlight that children with pre-existing sociodemographic or developmental risk factors may be particularly vulnerable to the negative effects of the pandemic and associated preventive public health measures. Overall, current studies have observed that parental stress, co-parenting, emotional well-being, and children and adolescents' adjustment were impacts that acted unfavorably in the COVID-19 pandemic [6]. These findings highlight the psychic burden and stress faced by caregivers of children with disabilities and compromised psychiatric development during the COVID-19 emergency.

In this context, children and adolescents with neurodevelopmental disorders (NDD) have higher levels of distress compared to typically developing children. Distress levels may be heightened by restrictions associated with the COVID-19 pandemic [7]. A study by Raffagnato et al. [8] involving 56 patients (children and adolescents), observed that patients with behavioral disorders showed higher psychological discomfort when compared to patients with internalizing disorders. Parents' perceptions of how the COVID-19 pandemic has affected their mental health have implications for their well-being and that of their children, with a stronger association for low income families [9].

Although parenting is essential for positive development, increased parental distress interferes with children's well-being. Sesso et al. [10] warn that internalization problems in children with neuropsychiatric disorders were among the strongest predictors of parental stress during the pandemic lockdown, mediating the indirect effects of quarantine related factors. The dysfunctional interactions of a child are usually mediated by their internalizing problems, while the effect of peer-child relationship quality is mediated by the child's internalizing/externalizing problems [11,12]. In this context, ongoing monitoring of the mental health of high risk groups and multiple support systems may need to be expanded to cover parents struggling to care for their children [13].

It is also important to highlight that the prevalence of anxiety generally varies from 19% to 64% and depression from 22.3% to 43.7% among adolescents. Among children aged 5 to 12 years, the prevalence of anxiety ranges from 19% to 78%, while depression among adolescents ranges from 6.3% to 22.6% [14]. Among preschool age children, some studies have found that behavioral and emotional problems worsen during the pandemic [15]. Agreeing with Meherali et al. [4] as the pandemic continues, it is paramount to monitor the impact on the mental health status of children and adolescents and how to help them to improve their mental health outcomes today and during any future pandemics.

This paper aimed to summarize the most relevant data on the impact of COVID-19 on children and adolescents through a systematic review, particularly analyzing its psychiatric effects.

METHOD

A systematic review of the literature was carried out using the PRISMA protocol from 2021 to 2022. Qualitative studies, quantitative studies (e.g. prospective/retrospective cohorts, case-control studies), and experimental studies (randomized, pooled or individual, and non-randomized controlled trials) were included. Case reports, case studies, opinions, editorials, letters, and conference abstracts were excluded.

The following descriptors were used with the respective Boolean operators: "2019 nCoV" OR #2019 nCoV OR "2019 novel coronavirus" OR "COVID 19" OR COVID19 OR "new coronavirus" OR "novel coronavirus" OR "SARS CoV-2" OR "Mental health" OR "depression" OR "Anxiety" OR "Child Psychiatry" OR "Adolescent Psychiatry".

Search Strategy

We searched the Web of Science Index Medicus, MEDLINE, WHO COVID-19 databases, EMBASE, Scopus, and Cochrane Library. Non-indexed databases, including MedRxiv preprint and Google Scholar, were also used. To identify missing documents, all systematic reviews and relevant comments were manually searched.

Types of Participants

Studies were included if they had been conducted in children and adolescents aged 3 to 19 years from 2021 to 2022. Studies that focused on psychiatric interventions in children and adolescents during the COVID-19 pandemic were included.

Selection of Studies

Articles were included only if the study exclusively examined the mental health impacts of COVID-19 on children and adolescents from 2021 to 2022. Detailed inclusion and exclusion criteria are shown in (Table 1). Using Covidence, a web-based tool that helps to identify studies and involves data extraction processes, two reviewers (MLRN and JPP) independently examined all potential articles. In case of disagreement, both reviewers read the article and discussed it until a consensus was reached.

Table 1: Inclusion and exclusion criteria.

Types of studies	Articles that were not in the English Studies that did not report age Studies that included participants with mental health issues prior to COVID-19
Quantitative, qualitative, mixed methods, experimental and observational studies, human studies	
Types of Participants	
Studies carried out with children and adolescents (3 to 19 years old) from 2021 to 2022.	
Interventions:	
Children and adolescents impacted by COVID-19 and its repercussions on mental health	
Types of results	
Rates of psychiatric disorders in children and adolescents in times of COVID-19	
Secondary outcomes	
Fear, anguish, pain and psychic suffering related to the pandemic.	

Data Extraction

Relevant data were extracted from each study, including year and country of publication, study design, target population, pandemic exposure, interventions, and outcomes (Table 2). One reviewer (NNRL) used a form that the research team developed to extract the data. A second reviewer (AOAR) verified the entire data extraction activity and verified its accuracy and completeness. Disagreements were resolved through discussion.

Table 2: Characteristics of included studies (n=24).

Author and Year	Country	Study Design	Target Population	Total Participants	Total Participants	Outcomes
Barros et al, (2022) [20]	Brazil	Cross-sectional-electronic questionnaire	12-17 years	9470 adolescents	COVID-19	The data could show that factors such as: family problems, female gender, age 15-17, learning disabilities, relatives infected with COVID-19, and death of close friends from COVID-19 were factors associated with worsening mental health.
Okuyama et al, (2021) [1]	Japan	Review	Children under 18 years	Studies included (N=28)	COVID-19	Studies have shown correlation between physical activity and psychological health and sedentary time leading to mood disorders. Some studies about adolescents reported a correlation between physical activity and psychological health and others did not.
Demaria and Vicari, (2021) [2]	Italy	Commentary	N/A	N/A	COVID-19	The pandemic context, with regard to quarantine, proved to be a psychologically stressful experience.
Sayed et al, (2021) [3]	Saudi Arabia	Cross-sectional-online via social media	12.25±3.77 years	537 childrens (263 boys and 275 girls)	COVID-19	The data showed that Post-traumatic stress disorder symptoms were not correlated with school grade, sex, age or having a close relative working with people infected by covid-19
Meherali et al, (2021) [4]	Canada, Pakistan, Australia	Systematic Reviews	5-19 years	Studies included (N=18)	COVID-19	These studies reported that pandemics cause stress, worry, helplessness, and social and risky behavioral problems among children and adolescents
Bussières et al, (2021) [5]	Canada	Meta-analysis	5-13 years	Studies included (N=28)	COVID-19	During the COVID-19 pandemic, the restriction measures imposed had an impact in children's mental health. During this period, there was also a change in sleep habits. Even so, the results do not show significant differences in relation to the general population.
Bentenuto et al, (2021) [6]	Italy	Retrospective	Children with Neurodevelopmental Disorder(NDD) and typical developing children(TD)	Total 164 (NND 82 and	COVID-19	Quantitative analyzes demonstrated an increase in children's externalizing behaviors and parental stress. However, they also showed that parents enjoyed spending more time with their children and strengthening the parent-child relationship. Furthermore, in children with NDD, the reduction in therapeutic measures predisposes to high externalizing behaviors.
Burnett et al, (2021) [7]	Sweden, Australia, Italy	Cross-sectional-online self-reported survey	Parents of children aged 3-18	Australia (N 196)Italy (N 200)	COVID-19	When compared to other developmental disorders among parents in Australia and Italy, intellectual or learning disorders are the ones that bring them the most suffering.
Raffagnato et al, (2021) [8]	xc	Longitudinal	Psychiatric patients age between 6 and 18 years and their parents	39 patients and their parents (25 Girls and 14 boys)	39 patients and their parents (25 Girls and 14 boys)	Patients with behavioral disorders were more impacted when compared to patients with internalizing disorders, who were shown to have adapted better to the pandemic context. In parents, it was possible to observe a protective factor against psychological maladjustment. A decrease in mothers' anxiety and fathers' stress over time was also observed.
Kerr et al, (2021) [9]	USA	Cross-sectional-online survey	Parents with at least one child 12 years old or younger	1000 participants	COVID-19	As for the psychological impacts, the data show high levels of stress and low levels of positive behavior in children, and a high rate of parental exhaustion. Still, there is an indirect association between parental behavior and the psychological impacts of COVID-19 and children's behaviors. The data also showed that the difference in income is a factor that can increase this indirect association.
Sesso et al, (2021) [10]	Italy	Cross-sectional-online questionnaire	Parents of children 6.62 ± 3.12 years with neuropsychiatric disorders	77 participants	COVID-19	Internalizing problems in children during quarantine were the strongest predictor of parental stress..

Li and Zhou, (2021) [11]	China	Cross-sectional-online questionnaire	5-8-year: 647 children 9-13-year: 245 adolescents	892 valid questionnaires (Mothers 662 and Fathers 230)	COVID-19	Concerning the data, it was possible to observe that parents are worried about their children's internalization and externalization problems. It was observed that, in elementary school, significant and negative relationships were observed between family-based disaster education and internalizing and externalizing problems
Bate and Borelli, (2021) [12]	United States	Cross-sectional-online via social media	Parents of children (6 -12 years)	158 parents of children (151 mothers and 7 fathers)	COVID-19	It was observed that the biggest Emotional health (EH) problems of parents were due to the impact of COVID-19. Parents' EH was a positive predictor of children's Emotional and Behavioral Health (EBH)
Kim et al, (2021) [13]	Suwon, South Korea	Cross-sectional-web based questionnaire	Parents of children aged 7-12 years	217 parents	COVID-19	With schools closed, children had body gain, spent less time doing physical activities and more time using the media. In addition, an association can be observed between parental depression and children's sleep problems, TV time, tablet time and behavior problems.
Minozzi et al, (2021) [14]	Italy	Systematic review	Pre-school children, Children 5-12 years and adolescents	Studies included (N=64)	COVID-19	Studies have reported an increase in suicides, reduced access to psychiatric emergency services, reduction in allegations of maltreatment. The prevalence of anxiety among adolescents varied considerably, as did depression, although in a lower percentage.
Backer et al, (2021) [15]	Netherlands	Cross-sectional-questionnaire	0-4, 5-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89 and ≥ 90 years	7,250 participants	COVID-19	During the physical distancing restriction measures, it is possible to observe that community contacts in all age groups were restricted to an average of 5 contacts. After relaxation, it was observed that the children returned to maintain their normal contact number, while the elderly maintained their restricted contact numbers.
Qin et al, (2021) [16]	Guangdong province, China	Cross-sectional-electronic questionnaire	School-aged students (12.04 [3.01] years)	1 199 320 children and adolescents	COVID-19	Among those who reported psychological distress, the risk of psychological distress was analyzed among high school and elementary school students, among students who never used a mask and those who did, and among students who spent less than 0.5 hours exercising and those who spent more than 1 hour.
Lu et al, (2021) [17]	China, United Kingdom	Systematic Review and Meta-Analysis	children and adolescents (0-18 years)	Studies included (N=23)	COVID-19	Studies show a combined prevalence of depression, anxiety, sleep disorders, and post-traumatic stress symptoms.
Ma et al, (2021) [18]	China, United States	Cross-sectional-online self-report questionnaires	6-8 years	17,740 children and adolescent	COVID-19	The data reported that depressive, anxiety, compulsive, inattentive and sleep-related problems were more expressive when compared to before the COVID-19 outbreak.
Spencer et al, (2021) [24]	United States	Cohort Study	5-11 years	Caregivers of 168 children (54% non-Hispanic Black, 29% Hispanic, and 22% non-English speaking)	COVID-19	Children had significantly higher emotional and behavioral symptoms mid-pandemic vs. pre-pandemic in all scenarios.
Han and Song, (2021) [20]	South korea	Retrospective	Middle and high school students	54,948 students	COVID-19	The data showed, through a multivariate logistic regression, that there was a correlation between the perception of the economic situation of the family and the prevalence of depressive symptoms and suicidal ideation
Giannakopoulos et al, (2021) [21]	Greece	Quality study-Interviews	12-17 years	09 psychiatric inpatients	COVID-19	Patients identified that the state of quarantine caused negative changes in personal freedom and social life, as well as excessive contact with family members during social isolation.
Almhizai et al, (2021) [23]	Saudi Arabia	Cross sectional study-online self-administered questionnaire	0-17 years	1141 respondents, 454 were < 18 years old and 688 children´s parents	COVID-19	Among the data presented, age was a factor for sleep disorders, nervousness and malaise. Aggressive behaviors were also associated with an increase in negative behaviors during the pandemic compared to the previous period.
Maunula et al, (2021) [25]	Northern prairie communities, Canada	Multi-method study, focus groups, and interviews	Children grade 4-6 and their parents	31 patients (16 childrens and 15 parents)	COVID-19	Children were subjected to sudden and stressful changes in their routines. In addition, loneliness and increased screen time were a result of limited social interaction

Quality Assessment

The methodological quality of the studies was assessed using the Mixed Methods Assessment Tool.

Data Analysis/Synthesis

Data were aggregated and analyzed according to the results and objectives of the study. Therefore, the results were summarized according to the reported results and the study design (Figure 1).

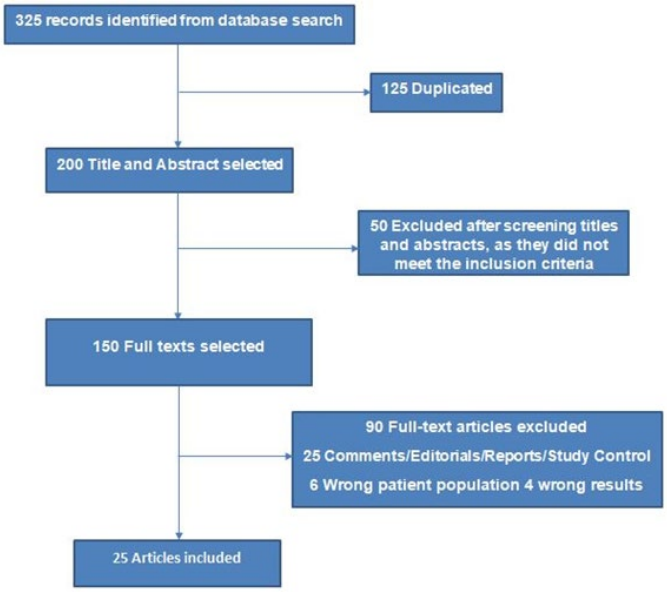

Figure 1: Diagram of preferred reporting items for systematic reviews and meta-analyses (PRISMA).

Risk of Publication Bias

The likelihood of a treatment effect reported in systematic reviews resembling the truth depends on the validity of the studies included in the analysis because certain methodological characteristics may be associated with effect sizes. Therefore, it was important to determine in the systematic reviews whether the sample of studies obtained was representative of all the research carried out on depression in childhood and adolescence in times of COVID-19. The possibility of bias resulting from a trend of only positive findings being published known as the "file drawer effect" was addressed using two methods: Calculating the fail-safe N and the p-curve approach.

The fail-safe N is determined by calculating the number of studies with a mean null result needed to make the overall results insignificant. The p-curve was introduced to account for "p-hacking", a theory stating that researchers may be able to get most studies to find positive results across different reviews. The p-curve assesses the slope of the reported p-values to determine whether p-hacking has occurred.

The most significant findings of depression in children and adolescents impacted by COVID-19 were found in 24 studies, which required the p>0.05. In addition, quarantine, sleep disturbances, post-traumatic stress symptoms, and the prevalence of anxiety were findings that validated the results. The p-curve was applied to explain p-hacking to guarantee positive results. When calculating the p-curve, only 13 studies were included that examined the psychiatric impact on adolescents and children during the COVID-19 pandemic [2,3,6,7,15-23]. The studies existing in the literature (p=0.5328) indicating depression among children and adolescents have sufficient evidence in their findings, particularly because there were 11 studies on potential interventions to improve the mental health of children and adolescents [1,4,5,8,9-13,23,24].

Clearly, solutions to the file drawer problem present an irritating and challenging issue for meta-analytic research and it will likely take a paradigm shift to truly address this problem, as authors who submit their literature reviews and methods only, abandoning conventional inferential statistics in favor of Bayesian Approaches, or the registration of studies and protocols online before conducting a study.

RESULTS

The search identified 325 articles, but 125 duplicates were removed. Therefore, 200 articles were selected, chosen by the title and abstract. Fifty articles were excluded after screening the titles and abstracts, as they did not meet the inclusion criteria. Consequently, a total of 150 articles were selected to be read in full. After that, 91 text articles were excluded, with 24 being selected for the final (n) (Table 1).

Study Results

We analyzed the studies thematically and divided them into two categories:

(1) Psychiatric impact on children and adolescents in times of COVID-19

(2) Potential interventions to improve the mental health of children and adolescents.

Psychiatric impact on children and adolescents in times of COVID-19: Among the studies, 13 have examined the psychiatric impact on children and adolescents in times of COVID-19 [2,3,6,7,14-22]. A research study by Demaria and Vicari [2] and Sayed et al. [3] has shown that quarantine is a psychologically stressful experience. For children, missing school and interruptions in daily routines can have a negative impact on their physical and mental health. In this perspective, they pointed out that parents could also pass on their psychological suffering to children and parent them inappropriately, contributing to the development of post-traumatic stress symptoms. Bentenuto et al. [6] showed a significant increase in parental stress and child externalizing behaviors, but not in co-parenting. Parental stress is predicted by externalizing behaviors, and co-parenting acted as a moderator in the relationship between the changes in the amount of time spent with children before and during the lockdown and parental stress. Burnett et al. [7] observed that parents of children with an NDD report higher levels of distress compared to typically developing children. Stress levels may be heightened by the restrictions associated with the COVID-19 pandemic.

Minozzi et al. [14] highlight that the prevalence of anxiety among adolescents ranges from 19% to 64% and depression from 22.3% to 43.7%. Among children aged 5 to 12 years, the prevalence of anxiety varied between 19% and 78%, while depression ranged from 6.3% to 22.6%. Among preschool children, they found aggravation of behavioral and emotional problems, while others did not. They found that psychological well-being had significantly worsened, especially among adolescents.

Backer et al. [15] demonstrate that the reduced number of social contacts associated with strict social distancing measures contributes to inflicting pain and psychic suffering in children and adolescents. Compared with elementary school students, high school students had a higher risk of psychological distress (OR, 1.19 [95% CI, 1.15-1.23]). Compared with students who wore a face mask frequently, students who never wore a mask had an increased risk of psychological distress (OR, 2.59 [95% CI, 2.41-2.79]). In addition, students who spent less than 0.5 hour exercising were more likely to have self-reported psychological distress compared with students who spent more than one hour exercising (OR, 1.64 [95% CI, 1.61-1.67]) [16].

Among the studies analyzed, 23 studies (21 cross-sectional studies and two longitudinal studies) from two countries (China and Turkey) with 57,927 children and adolescents were identified. Depression, anxiety, sleep disturbances and post-traumatic stress symptoms were assessed [18]. The meta-analysis of the results of these studies showed that the combined prevalence of depression, anxiety, sleep disorders, and post-traumatic stress symptoms was 29% (95% CI: 17%, 40%), 26% (95% CI: 16%, 35%), 44% (95% CI: 21%, 68%), and 48% (95% CI: -0.25, 1.21), respectively. Subgroup meta-analysis revealed that adolescents and women had a higher prevalence of depression and anxiety compared to children and men, respectively.

Barros et al. [19] show high rates of nervousness (48.7%) and sadness (32.4%) among Brazilian adolescents. Individuals aged between 15-17 years; being female; having learning difficulties during the pandemic; having a family that faces financial difficulties; and individuals who previously had trouble sleeping or poor health were the most affected. In the study by Han and Song [20], participants who perceived that their family economic status had declined because of COVID-19 were more likely to have depression and suicidal ideation. Concerning their emotions, adolescents recognized anxiety about self-harm and harm to their loved ones, as well as mood swings in the family nucleus [21].

Globally, adolescents from varied backgrounds experience higher rates of anxiety, depression, and stress due to the pandemic. Adolescents also have a higher frequency of alcohol and marijuana use during the COVID-19 pandemic [7]. Almhizai et al. [22] showed that the older age of children and adolescents was a risk factor for sleep disorders, malaise, and nervousness. The presence of a relative infected with COVID-19 was also associated with higher rates of anxiety, irritability, sadness, and sleep disorders. Finally, physical punishment and verbal threats had a more negative impact on the mental health of children and adolescents when compared to the pre-pandemic period.

Impact of control measures to contain the effect on the mental health of children and adolescents: Eleven studies reported potential interventions to improve the mental health of children and adolescents [1,4,5,8-13,23,24]. Physical activity was correlated with psychological health and may improve psychological status. It was recommended for better support to the psychological health of children and adolescents under the influence of COVID-19 [1]. Bussières et al. [5] Showed no association between the presence of previous chronic diseases (including neurodevelopmental disorders) and negative symptoms during the pandemic. Raffagnato et al. [8] highlight that patient, especially those with internalizing disorders, generally demonstrated good adaptation to the pandemic context. In addition, patients with behavioral disorders experienced higher psychological distress compared to patients with internalizing disorders. Over time, patients showed improvement on the emotional side, as evidenced by a significant decrease in internalizing and post-traumatic stress problems.

Parents' perceptions of how the COVID-19 pandemic has affected their mental health have implications for the well-being of parents and children, with stronger at association for low income families. It is crucial to promote family well-being through political practices and initiatives, including providing financial and care assistance to parents and supporting the mental and behavioral health of families [9]. While parenting is essential for positive development, increased parental distress interferes with children's well-being [10].

Data from Li and Zhou [11] suggest that parents of elementary school children and adolescents should avoid showing excessive concern in front of their children during the pandemic to help reduce their children's internalizing and externalizing problems. Effective family based disaster education can mitigate the emotional distress and behavioral problems of elementary school children, the effect of which can be maximized if parents can avoid becoming overly worried. In addition to focusing on symptom management, families can benefit from support aimed at the parent child relationship. Insights and implications for practitioners are discussed [12].

The COVID-19 pandemic has, therefore, led to a dramatic increase in depression/anxiety problems and social risks among urban, school age children belonging to racial and ethnical minorities compared to the pre-pandemic period. More research is needed to understand whether these changes will persist [23]. Thus, promoting coping strategies for children and adolescents to deal with extreme situations (e.g. pandemics, wars, and natural disasters) is fundamental. Especially if the strategies encompass the communities/schools the children/adolescents attend [24].

For Kim et al. [13], during the lockdown periods imposed by COVID-19, many parents and children faced several mental health problems. Ongoing mental health monitoring of high risk groups and various support systems may need to be expanded to cover parents who have difficulty caring for their children. Physical activities can help reduce mental health issues among Japanese children and adolescents affected by school restrictions due to the COVID-19 pandemic. Thus, those involved in promoting the mental health of children and adolescents worldwide should recommend physical activity because it is a viable and useful form of long term psychological support [1].

DISCUSSION

The rapid spread of COVID-19 has significantly influenced the psychological state of children and adolescents. It is clear that poor, black children and adolescents, and homeless people living in favelas, especially older adolescents, need urgent mental health support. Children and adolescents are more likely to have high rates of depression and anxiety during and after a pandemic. The physical restrictions of the COVID-19 pandemic and the social distancing measures have affected all domains

of life. While the number of children and adolescents affected by the disease is considerable, the measures implemented to stop the spread of the disease, such as social distancing, school closures, and lockdowns, have negatively affected the mental health and well-being of children and adolescents. Anxiety, depression, and sleep and appetite disorders, as well as impaired social interactions, are the most common presentations [4,13]. Globally, adolescents from varied backgrounds experience higher rates of anxiety, depression, and stress due to the pandemic. Adolescents also have a higher frequency of alcohol and marijuana use during the COVID-19 pandemic. However, social support, positive coping skills, lockdowns, and parent child discussions appear to positively affect the mental health of children during this time of crisis.

In this context, the mental health status among school age children and adolescents during this public health crisis and the risk factors associated with psychological distress during the pandemic are relatively high. The frequency of mask use and time spent on schoolwork were factors associated with good mental health [16]. The prevalence of depression ranges from 13.5% to 81%. Analysis by age indicated that the prevalence of depression is higher in children aged 5-9 years and adolescents aged 12-18 years. Analysis by gender showed that the prevalence of depression in females was higher than in males. The prevalence of anxiety among children and adolescents was 45.6%. The prevalence of post-traumatic stress symptoms is statistically higher in vulnerable and/or socially at risk children and adolescents. The prevalence of sleep disorders varies according to the stressor involved in family ties and the way they face COVID-19, as well as the economic situation and the healthcare system, which vary greatly between countries [17]. Parental anxiety has the greatest influence on a child's psychological symptoms, explaining about 33% of the variation in a child's overall symptoms [18,23].

Poverty, hunger, housing insecurity, domestic violence, and sexual abuse were strongly associated with worse mental health. Barros et al. [19] observed that Brazilian adolescents often felt sad (32.4%) and nervous (48.7%). The highest prevalence of these feelings was related to: being female; being 15-17 years; having a family that faces financial difficulties; having learned little or nothing from distance education; lost friends; having few friends; family disagreements; having regular/poor health before the pandemic, and worse health and sleep during the pandemic.

In a study developed by Han and Song [20] in South Korea, they observed that the low subjective economic status of a family was significantly associated with a higher prevalence of depressive symptoms and suicidal ideation. Among adolescents who perceived their family economic status as low, the prevalence of depressive symptoms and suicidal ideation was 42.8% and 24.2%, respectively. Among adolescents who perceived that their family economic status was worse than before COVID-19, the prevalence of depressive symptoms and suicidal ideation was 37.6% and 19.2%, respectively.

Most studies point to negative symptoms being caused by social distancing in children and adolescents of vulnerable families, including restrictions on social life and personal freedom, as well as excessive contact with family members during stay at home periods [1,2,21].

It is important to highlight that children and adolescents in extreme poverty report a wide range of negative thoughts associated with the pandemic (for example, abandonment, helplessness, sadness, anguish, anxiety, and feelings of panic). The thoughts and feelings of such teenagers can be triggered by the fact that their survival is threatened. Furthermore, these negative thoughts and emotions and pre-existing mental health issues can influence each other [4,5].

Special populations, especially lesbian, gay and bisexual, transgender, and queer (LGBTQ) adolescents, have higher rates of pain and psychological distress that lead to anxiety, depression, compulsion, and post-traumatic stress disorder (PTSD). Additionally, coming into conflicts with parents due to gender issues is observed in the literature as a factor that worsens mental health in this population [7,22].

LIMITATIONS

Due to the short data collection period, from 2021 to 2022, relevant studies on how to care for the mental health of children and adolescents may be lacking. In addition, there is the possibility of publication bias, i.e. only significant findings being published.

CONCLUSION

Fear, anxiety, panic, depression, and sleep and appetite disorders, as well as impaired social interactions caused by psychic stress, are individual markers of pain and psychic suffering, which have increasing impacts on the mental health panorama of children and adolescents. A better understanding of the psychological pathways available is necessary to help clinicians, researchers, and decision makers prevent the deterioration of mental and general functioning disorders, as well as other stress related disorders in children and adolescents.

Agreeing with Giannakopoulos et al. and Barros et al., professionals should continue to provide standard and emergency mental health care to mitigate any negative consequences for children and adolescents, adopting a more individualized guiding approach and making the most of the technological devices of the digital age. It is necessary to emphasize the need to build resilience and promote strategies to manage negative feelings during crises (environmental, social, political, and economic).

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