

## MENTAL HEALTH OF CHILDREN AND ADOLESCENTS IN TIMES OF PANDEMIC: AN INTEGRATIVE REVIEW

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### MENSAGENS-CHAVE

- The review article focuses on the mental health of adolescents and children, who were deeply affected during the COVID-19 pandemic.
- The review pointed out several negative effects that the pandemic has on the health of children and adolescents.
- The relevance of the review was important in proposing possible solutions that could impact the health of this population.

### ABSTRACT

**INTRODUCTION:** Neglect with a mental health theme is notorious, the current pandemic of the covid-19, has made the subject become issues to be rethought, especially in the lives of children and adolescents. **METHODS:** An integrative review of the literature was performed on the electronic databases MEDLINE, LILACS, SciELO, Cochrane and CAPES Journals Webpage. This review included full original articles, published from January 2020 to May 2021, in Portuguese, English or Spanish about the impacts of the pandemic coronavirus on the mental health of children and adolescents. Studies that included children and adolescents with mental illness history as well as pre-publications, editorials, opinion articles, monographs and theses were excluded. **RESULTS:** A total of 348 articles were obtained, 334 were screened by title and abstract and 26 were selected for full-text reading. After all, 7 research papers were included. The studies evaluated the relationship between anxiety cases and quarantine (85.71%); the occurrence of psychological stress and emotional changes in this context (71.43%); the relationship between depression and social isolation (57.14%), the incidence of abuse, violence and child exploitation (28.57%); the impacts on the LGBTQ population (14.29%). **DISCUSSION:** The pandemic significantly affected the mental health of children and adolescents, presenting gender, age and social and financial issues as aggravating factors. Studies have pointed out the occurrence of anxiety and depression, with women, adolescents and LGBTQI + groups having a higher incidence. As solutions, there are the multidisciplinary work between families, health professionals and school environments with the purpose of offering greater security, knowledge, prevention and care. **CONCLUSION:** The mental health of children and adolescents was affected in a unique way due to the pandemic, resulting in diseases such as anxiety and depression. To reduce the problem, the school is important in promoting mental health.

**KEYWORDS:** Covid-19; Mental health; Children; Adolescents.

## INTRODUCTION

Throughout the history of humanity, several diseases have emerged and reemerged. The types and the number of pandemics have intensified and, that way, humans have experienced various diseases. Among these, Cholera, Black Plague, Spanish Flu, Asian Flu and Avian Influenza. In the 21st century, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), H1N1 disease, Ebola Virus Disease and, lastly, COVID-19 emerged<sup>1,2</sup>.

Considering the phenomenon of globalization and socialization as a basic need, several diseases that were previously restricted to geographic areas have spread and turned into epidemics or pandemics. Thus, measures of containment and prevention, such as quarantine and social isolation, have become extremely necessary<sup>2</sup>.

The *Coronavirus Disease 2019* (COVID-19) pandemic has become one of the greatest challenges of the 21st century as well as one of the biggest international public health issues<sup>3</sup>, due to the high rates of infected population. Considering this huge level of spread and impact of this disease, changes in society's daily habits were crucial. As a result, psychological distress has become more frequent in the general population, in a way that its large proportion is able to jeopardize the affected groups' ability to respond<sup>4</sup>. Hence, urgent and emergent efforts - concerning each individual's social, cultural and psychological matters- are needed in order to offer different possibilities to resist the COVID-19 crisis.

The World Health Organization<sup>3</sup> confirmed on December 31, 2019 the first cases reported in Wuhan, China, of the COVID-19. This disease was described as a severe acute respiratory syndrome caused by the novel coronavirus (SARS-CoV-2), a infecto contagious illness that spreads rapidly. By the 11st of March 2020, the disease had already spread around the world when the WHO stated the existence of the pandemic known as COVID-19 pandemic<sup>5</sup>. In Brazil, the first case was reported on 26th February, 2020. After that, on 20th March the state of community contamination was confirmed through the Ordinance nº 454<sup>4,6</sup>. Due to this scenario, preventive measures became part of people's routine, such as social isolation, physical distancing and quarantine. These measures can be defined as, respectively: the segregation of infected people from naives; the reduction of contact between people in the same community who may or may not have been exposed to the contagion; and the restriction of people who may or may not have been exposed to the disease<sup>7</sup>.

In this situation, security measures are essential. In order to reduce pandemic propagation, collective actions of healthy and preventive behaviors are necessary, however, such conditions created a blockage in society to collective and individual leisure, which is included in Article 6 of the Constitution of 1988 as a social right<sup>2</sup>. Moreover, the fear of contracting the disease has generated barriers in both

interpersonal and intrapersonal relationships<sup>8,9</sup>. Thus, it is safe to say that the COVID-19 pandemic worsen the signs and symptoms of mental health disorders, such as: distress, social responsibility, vulnerability, loneliness, fear and lack of control<sup>10</sup>. Consequently, the pandemic could become a mental health catastrophe, once there are still few perspectives about the spread control of the new coronavirus, specially due to its propagation through asymptomatic people<sup>11</sup>.

Nowadays, the global average prevalence of mental disorders in children and adolescents is 15.8%. Besides that, the prevalence rate tends to increase proportionally with age, being noticed that the mean score among preschoolers is 10.2% and among adolescents, 16.5%. Considering that children and adolescents represent, respectively, 30% and 14,2% of the world population, the prevalence rate of mental health in these groups is an increasing global concern. Furthermore, it is estimated that 50% of adults with mental disorders have first experienced its symptoms before the age of 15<sup>12</sup>, which shows the importance of mental health care in childhood and adolescence.

The most frequent disorders in children and adolescents are related to anxiety, behavior problems, hyperactivity, and depression. Usually, these complaints are reported to health professionals through parents or guardians as well as through the school<sup>14</sup>. According to the Statute of the Child and Adolescent<sup>15</sup>, children are considered as individuals up to twelve years incomplete while between twelve and eighteen years, are adolescents. However, in the Middle Ages children were considered as adults in miniature: they worked in the same places, wore the same clothes. Therefore, the child was only different from man in size and strength, while the other characteristics remained the same<sup>15,16</sup>.

Everything is new in the current scenario caused by the COVID-19 pandemic, a moment of uncertainty and constant concern. The permanent experienced social and educational inequalities became more evident in our society<sup>17</sup>. Children and adolescents, as part of this society, also suffer from all the interurrences existent. Thus, this integrative review aims to understand the real impacts of the COVID-19 pandemic on the mental health of children and adolescents.

## METHODS

The present study is an integrative review that adopts a systematic and a broader methodological approach, which allows the inclusion of experimental and non-experimental studies in the research, summarizing the literature and analyzing the health problem.<sup>18</sup> The present study is an integrative review. For its elaboration, the following steps were adopted: identification of the problem with the definition of the guiding question, objectives, inclusion and exclusion criteria; research of existing literature with pre-established descriptors; data collection and evaluation; critical analysis of the included data; and presentation of the integrative review, summarizing the findings and discussing the results.<sup>13,19</sup> The study is self-funded and was conducted in a way that two authors were

responsible for selecting the studies separately, analyzing first by title, abstract and then by reading in full.

To define the guiding question, the PICO method was used (population, interests and context, respectively).<sup>13</sup> Therefore, we sought to answer the question “What are the impacts on the children and adolescents’ mental health in the context of the pandemic caused by Sars -CoV-2?”. The population would be children and adolescents, the interests are the impacts on mental health and the context of the pandemic caused by Sars-CoV-2.

The databases used in this study were Medical Literature Analysis and Retrieval System Online (MEDLINE) and Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS). The articles were also researched on Portal de periódicos da Capes, Scientific Electronic Library Online (SciELO) and Cochrane. The following descriptors (MeSH terms for MEDLINE) and their respective equivalents in Portuguese (DeCS terms for LILACS and SciELO) were used: “Mental Health”, “Depression”, “Anxiety”, “COVID-19”, “Quarantine”, “Child”, “Adolescent”, “Adult” e “Health Personnel”. Using the Boolean operators “AND”, “OR” and “NOT”, the descriptors were arranged as follows: ((((((mental health) AND ((depression) OR (anxiety))) AND ((covid- 19) OR (quarantine))) AND ((child) OR (adolescent))) NOT (adults)) NOT (Health Personnel).

The inclusion criteria established were full original articles, published from January 2020 to May 2021, in Portuguese, English or Spanish about the impacts of the coronavirus pandemic on the mental health of children and adolescents. The exclusion criteria were studies that included children and adolescents with a history of mental illness, in addition to pre-publications, editorials, opinion articles, monographs and theses. Review articles were included due to the scientific relevance of these studies and their suitability to the topic, which is still a recent phenomenon and, therefore, with limitations in the number of published studies, requiring the inclusion of such reviews.

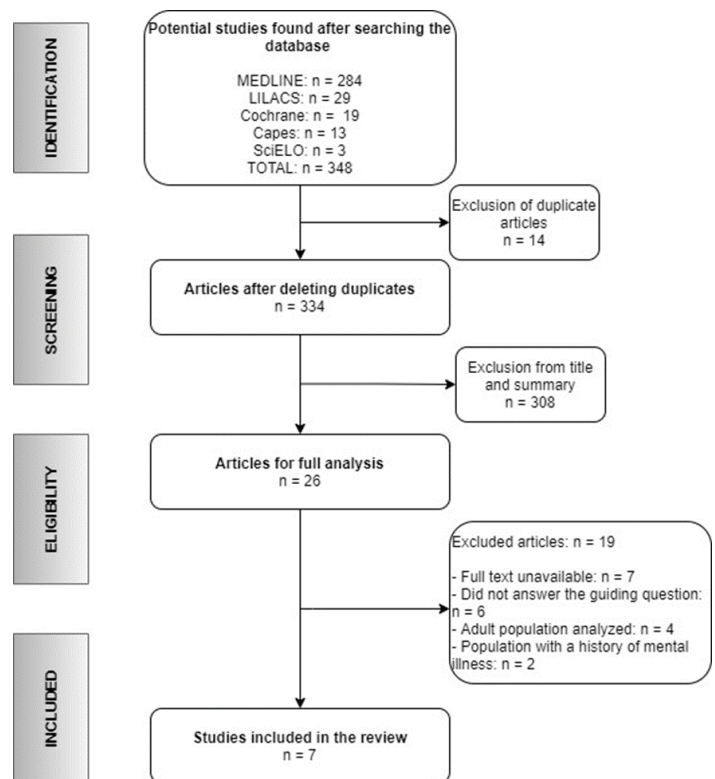
Subsequently, the selected articles were classified according to the level of evidence: (I) meta-analyzes or systematic reviews of controlled and randomized clinical studies; (II) at least one randomized controlled clinical trial; (III) well-designed clinical trials without randomization (quasi-experimental studies); (IV) well-designed cohort and case-control; (V) systematic reviews of descriptive and qualitative studies; (VI) only descriptive or qualitative study; (VII) expert opinion and / or reports.<sup>20</sup>

## RESULTS

After searching the databases, a total of 348 articles were found (Flowchart 1). Of these, 284 results were from MEDLINE (81.61%), 29 from Lilacs (10.21%), 19 from Cochrane (5.46%), 13 from Portal Capes (3.74%) and 3 from Scielo (0.86%). After excluding duplicate articles (n = 14), the 334 articles were analyzed by title and abstract, which resulted in the exclusion of 308 articles that were not suitable for this study. Among the 26 articles full analyzed, 7

studies were included in the review because they answered the guiding question and met the inclusion criteria.

**Flowchart 1** - Flowchart with the selection of the articles. Authors' own source



Among the eligible articles, 6 were in English (85.71%) and 1 study was in Portuguese (14.29%). Of these, 1 article (14.29%) was published in the year 2021 (in March), while the rest were published in 2020 - 1 article (14.29%) in May 2020, 2 articles (28.57 %) in June 2020, 2 articles (28.57%) in August 2020 and 1 article (14.29%) in November 2020.

Additionally, they were published in the following journals: 2 articles (28.57%) in the “International Journal of Environmental Research and Public Health”, 1 (14.29%) in the “Journal of the American Academy of Child and Adolescent Psychiatry”, 1 (14.29%) in the “Pakistan Journal of Medical Sciences”, 1 (14.29%) in the “Public Health Notebook”, 1 (14.29%) in “The Indian Journal of Pediatrics” and 1 (14.29%) in “Psychiatry Research”.

The studies have the following levels of evidence: (I) 14.29% (n = 1); (IV) 14.29% (n = 1); (V) 57.14% (n = 4); and (VI) 14.29% (n = 1). Regarding the approach, 85.71% (n = 6) evaluated the relationship between anxiety cases and quarantine; 71.43% (n = 5) the occurrence of psychological stress and emotional changes in this context; 57.14% (n = 4) the relationship between depression and social isolation, 28.57% (n = 2) the incidence of abuse, violence and child exploitation; 14.29% (n = 1) the impacts on the LGBTQ population. The synthesis of the articles selected for this integrative review with title, authors, journal, date of publication, objectives and results is shown in the following tables (Tables 1 and 2).

**Table 1** - General characteristics of the articles included. Authors' own source.

Title	Authors	Journal	Date Country	Database	Type of Study	Objective
<b>Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19</b>	Maria Elizabeth Loades, et al.	Journal of the American Academy of Child and Adolescent Psychiatry.	June 2020 England	PUBMED	Systematic Review	Determine how loneliness and disease containment measures impact the mental health of children and adolescents.
<b>Exploring the Impact of COVID-19 on Mental Health Outcomes in Children and Adolescents: A Systematic Review</b>	Finiki Nearchou, et al.	International Journal of Environmental Research and Public Health	November 2020 Switzerland	PUBMED	Systematic Review	1. To identify mental health outcomes in children and adolescents during the COVID-19 pandemic. 2. Identify correlations, positive or negative, associated with mental health outcomes in children and adolescents during the COVID-19 pandemic.
<b>Psychological burden of quarantine in children and adolescents: A rapid systematic review and proposed solutions</b>	Nazish Imran, et al.	Pakistan Journal of Medical Sciences	June 2020 Pakistan	PUBMED	Systematic Review	Assess the impact of quarantine on the mental health of young people and children and propose solutions to the negative results of social isolation in this population.
<b>Impact of COVID-19 on Mental Health in Adolescents: A systematic Review</b>	Elizabeth A. K. Jones, et al.	International Journal of Environmental Research and Public Health	Mach 2021 Switzerland	PUBMED	Systematic Review	1- Identify the state of mental health in adolescents worldwide. 2- provide quality research that will provide insights and strategies that can be used to combat adolescents' impaired mental health.
<b>Adolescents' health in times of COVID-19: a scoping review</b>	Wanderlei Abadio de Oliveira, et al.	Caderno de Saúde Pública	August 2020 Brazil	Scielo	Systematic Review	Assess the impact or effect of the COVID-19 pandemic on adolescent health
<b>Compliance and Psychological Impact of Quarantine in Children and Adolescents due to Covid-19 Pandemic</b>	Kumar Saurabh and Shilpi Ranjan	The Indian Journal of Pediatrics	May 2020 India.	PUBMED	Cohort study	Describe the understanding, conformity and psychological impact of the quarantine experience in children and adolescents (between 9 and 18 years old) during the Covid-19 pandemic.
<b>Impact of COVID-19 and lockdown on mental health of children and adolescents: a narrative review with recommendations</b>	Shweta Singh, et al.	Psychiatry Research	August 2020 India	PUBMED	Narrative review	Narratively reviewing articles related to mental-health aspects of children and adolescents impacted by COVID-19 pandemic and enforcement of lockdowns to prevent spread of infection.

**Table 2** - Presentation of the results of the included articles. Authors' own source.

Title	Results
<b>Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19</b>	<ul style="list-style-type: none"> <li>- Most studies reported a moderate to strong relationship between depressive symptoms and loneliness and / or social isolation (<math>0.12 \leq r \leq 0.81</math>). Two studies reported an odds ratio 5.8 to 40 times more likely to score above the limits for depression among patients who felt alone.</li> <li>- Small to moderate association between anxiety and loneliness / social isolation (<math>0.18 \leq r \leq 0.54</math>).</li> <li>- Social phobia was moderately to strongly associated with loneliness / social isolation (<math>0.33 \leq r \leq 0.72</math>)</li> </ul>
<b>Exploring the Impact of COVID-19 on Mental Health Outcomes in Children and Adolescents: A Systematic Review</b>	<ul style="list-style-type: none"> <li>- Manifestations of psychological stress and emotional changes related to the COVID-19 pandemic.</li> <li>- Higher incidence of anxiety and depressive symptoms in children in social isolation for fear of infection and social judgment in relation to those isolated due to pressure from the social nucleus.</li> <li>- Older adolescents were more likely to develop depression. Meanwhile, younger children (3-6 years old) showed greater fear of a family member being infected.</li> <li>- A study has shown that girls are more susceptible to symptoms of depression and anxiety.</li> </ul>
<b>Psychological burden of quarantine in children and adolescents: A rapid systematic review and proposed solutions</b>	<ul style="list-style-type: none"> <li>- The break in routine and the lack of social interactions are the main causes of psychological impacts on children and adolescents.</li> <li>- Younger children may become more attached or achieve behavioral regression, while adolescents may suffer from anxiety, irritability and restlessness.</li> <li>- Stress disorders such as PTSD, acute stress and adaptation disorder are four times more likely in children in quarantine</li> <li>- Impact of school closures on the highest rate of child abuse and exploitation.</li> </ul>
<b>Impact of COVID-19 on Mental Health in Adolescents: A systematic Review</b>	<ul style="list-style-type: none"> <li>- 31% of studies found a correlation between the pandemic and the development of depression, in addition to an increase in anxiety rates.</li> <li>- Worsening welfare of the LGBTQ population, as they were forced to stay at home with their relatives who often do not accept them.</li> <li>- Higher rates in females in the relationship between COVID-19 and anxiety.</li> </ul>
<b>Adolescents' health in times of COVID-19: a scoping review</b>	<ul style="list-style-type: none"> <li>- High prevalence of depressive symptoms (43.7%) and anxiety (37.4%), as well as a combination of these symptoms (31.3%), associated with the pandemic, with the female sex being the most affected.</li> <li>- The isolation caused by the pandemic can cause frustration, irritation, emotional disconnection, nostalgia and boredom because of social detachment.</li> <li>- Adolescents are exposed to greater vulnerability to situations of domestic violence.</li> </ul>
<b>Compliance and Psychological Impact of Quarantine in Children and Adolescents due to Covid-19 Pandemic</b>	<ul style="list-style-type: none"> <li>- Quarantined children and adolescents presented statistically significant psychological problems, such as fear (<math>p &lt; 0,0001</math>), nervousness (<math>p &lt; 0,0001</math>) and boredom (<math>p &lt; 0,001</math>). As well as insomnia related to anxiety, isolation, boredom and sadness.</li> <li>- Concern (68.59%), helplessness (66.11%) and fear (61.98%) were the most mentioned and often related to possible parental unemployment, worsening family financial conditions, unavailability basic needs, and the concern to infect other people.</li> </ul>
<b>Impact of COVID-19 and lockdown on mental health of children and adolescents: a narrative review with recommendations</b>	<ul style="list-style-type: none"> <li>- Vulnerability factors such as age, education level, social class and social isolation are related to the type and extent of impact on children and adolescents</li> <li>- Suspending school activities causes feelings of loneliness, anxiety and uncertainty.</li> <li>- Younger children tend to manifest sleep disorders, nightmares, poor appetite, lack of attention and emotional dependence on their parents more frequently.</li> </ul>

## DISCUSSION

Historically, the origin of quarantine and social isolation in pandemics, important non-pharmacological measures that aim to reduce the dispersion of pathogens and the contamination of new people, is not known exactly. In spite of that, with the emergence of these disease containment measures, several psychosocial factors have become determinants in the mental health of the population, impacting directly in their well-being during and after isolation.<sup>2</sup>

### 4.1.1. 2002 e 2011: SARS E MERS

The outbreak of Severe Acute Respiratory Syndrome (SARS), which started in 2002 and 2003 in China, and of Middle East Respiratory Syndrome (MERS), that emerged in 2011 in Saudi Arabia, were originated from the coronavirus, which means that both are part of the family of the virus that causes COVID-19.

The answer to these outbreaks occurred through pharmacological measures also through the awareness of society, the intensification of hygiene and the avoidance of contact with infected people and surfaces. In this way, quarantine and social isolation were adopted. The incubation period of MERS is from 2 to 14 days, which means that symptoms can appear in this period. Thus, those who have been in close contact with contaminated people should be isolated and monitored closely for at least 14 days<sup>21</sup>, similarly to COVID-19. Obviously, these containment measures have brought results not only in reducing cases of the disease, but in the mental health of patients who were isolated.

Reduced contact with others, confinement and loss of routine were frequently shown to cause boredom, frustration, and a sense of isolation from the rest of the world, which is really distressing<sup>22</sup>. A study made during quarantine in the MERS epidemic found a strong relationship between isolation and psychiatric problems. There was a prevalence of symptoms of anxiety (7.6%) and anger (16.6%), moreover, patients reported general psychological problems, such as stress, low mood (up to 73%), irritability (up to 57%), depression, guilt, nervousness, fear, numbness, vigilant hand-washing and they also avoided crowds even after the quarantine period<sup>21, 22</sup>. As the vaccine and other options of treatment were not early established, social anxiety and fear caused by uncertainty became important issues.

### 4.1.2. 2009: H1N1

In 2009, the emergence of H1N1 disease, better known as "swine flu", happened in Mexico. This was a highly contagious infection, which rapidly spread throughout the world. This condition affected mainly children and adults under the age of 65 in countries of America, Asia and Europe, with an estimated 151,700 to 575,400 deaths<sup>23</sup>. Considering that it was a pandemic of a respiratory system pathology, one of the containment measures was also

isolation, as seen in Hong Kong, which suspended classes after the report of the first case of the disease, retaking them only in the following year. This situation and its containment measures ended up generating psychological impacts, like high levels of anxiety and insecurity, as well as bias in the perception of risk<sup>24</sup>.

The widespread misinformation surrounding the H1N1 vaccine has implicated in reduced uptake and increased hesitancy.<sup>25</sup> Dubious or fake news related to the virus transmission, the period of incubation, the number of infected people and the current rate of mortality created insecurity and fear in the population.<sup>26</sup> Given that, people experienced confusion, anxiety and high levels of risky behaviour, like smoking, drinking and drugs misuse, as a result of uncertainty.<sup>25</sup> The COVID-19 outbreak can be considered a repetition of this phenomenon, with the spread of fake news in social medias, which leads to desinformation and, consequently, fear, panic and even to the non-compliance with infection control measures.<sup>25</sup>

### 4.1.3. 2014: Ebola

In 2014, an outbreak of Ebola virus emerged in several African countries, which originated 28,652 diagnosed cases and spread to other countries, such as European countries and the United States of America. The containment of the virus has undergone similar measures to those of H1N1, such as social isolation and restriction of circulation in public spaces. These measures also ended up generating emotional symptoms such as depression, anxiety or post-traumatic stress. In a national survey of Sierra Leone, a country where more than 30,000 people were quarantined due to possible exposure to the virus. After more than 1 year of the Ebola epidemic, it was found that half of all the participants reported at least one symptom of anxiety or depression. Additionally, 3 out of 4 participants expressed symptoms of Post Traumatic Stress Disorder<sup>27</sup>.

Social exclusion and discrimination were also pointed out by families as postulated by Denis-Ramirez et al (2017), who analyzed families that were associated with the Ebola virus by the community. This stigma had a direct impact on the social relationships of children and adolescents, thus contributing to the increase in psychological stress.

Even though the Ebola virus was deadlier and less contagious than COVID-19, studies shows that the consequences to mental health in the COVID-19 pandemic will be similar to Ebola outbreak.<sup>28</sup> During the Ebola period, behaviours related to fear, like stigmatizing and ignoring medical procedures, impeded public health efforts and negatively affected the survivors' recovery. Anxiety, PTSD and depression were found in almost half of the survivors. The COVID-19 pandemic presents a set of similar high risk behaviours, like ignoring social distance recommendations. These attitudes accelerate the spread of the disease and make it more difficult to isolate the contaminated ones.<sup>29</sup>

Another similarity between COVID-19 and Ebola was the prevalence of depression and anxiety in children and adolescents, which are associated with the closure of schools, isolation measures, and the increased time that they spend

online in their smartphones and computers. Nevertheless, Decosimo et al. (2019) showed the positive impacts of interventions in mental health promoted during the Ebola pandemic, like expressive-art therapies, yoga therapy, and play therapy. These interventions assisted children to build healthy relationships, taught them how to cope with trauma situations, and helped to build a safe space so they can express themselves.

#### 4.1.4. 2019: COVID-19

Therefore, the significant impact of measures to contain the pandemic scenery itself compromises people's mental health. This way, the analysis of other periods and their respective population mental health scenarios corroborate to take measures after COVID-19 and even during this period, aiming to minimize its impacts on adolescents and children. After all, as stated by Masten and Obradovic (2008), families often infect each other before any person is diagnosed, but they also become infected with fear. In this sense, it is possible to observe such facts in studies, in which one third of parents whose children were subjected to disease contamination said that their children needed mental health services due to the pandemic experience. The most frequently reported diagnoses were stress disorder (16.7%), conduct disorder (16.7%), grief (16.7%), and post-traumatic stress disorder (PTSD) (6.2%). In addition, one study found that children following social isolation and quarantine in previous pandemics were five times more likely to seek mental health service information and to experience higher levels of post-traumatic stress<sup>30</sup>. Studies also show that, as seen in previous pandemics, the longer the quarantine, the more serious the consequences, like post-traumatic stress symptoms, avoidance behaviours, and anger.<sup>15</sup>

Finally, the progression of anxiety symptoms, anger, and aggression experienced in natural disasters can be prevented by early mental health care. Thus, relief supplies must be provided to the population. Not only precise and true information about the symptoms of the disease are essential and should be provided publicly, but also psychological support is necessary in those with persistent symptoms even after removal of isolation.<sup>21</sup>

## 4.2. AGGRAVATING FACTORS FOR MENTAL HEALTH AND COVID-19

It is clear from the aforementioned discussions of the studies analyzed that there is a significant relationship between issues related to the mental health of children and adolescents with the current covid-19 pandemic. Bordiano et al. (2021), recognizes the pandemic as a traumatic event, serving as a catalyst for mental illness, and there are some groups that are more susceptible to such illness. Among these are gender, age, and LGBTQIA+ groups.

The systematic review by Loades et al. (2020) cites that there are indications of differences between the sexes regarding mental health and its relationship with covid-19, as there is evidence that depression, associated with loneliness, is more

evident in female children and adolescents. Nearchou et al. (2020) further state that not only depression, but also anxiety has an intriguing relationship linked to the female gender. Duarte (2020), also points out that being female is 2.73 times more likely to generate mental disorders, i.e., more than twice as likely as being male.

And not only related to gender, we have age as a determinant of mental health, because research indicates that younger people (adolescents) have about 6% more chance of developing mental illness, since they become more vulnerable targets for the use of alcohol and other drugs during the pandemic, and such acts can intensify especially depression<sup>31, 32</sup>. On the other hand, Jones and Bhuiyan (2021) add the idea that the pandemic forces a greater presence of adolescents at home, increasing the chances of abusive relatives committing acts of violence, such as physical, psychological and sexual aggression, situations that act in favor of the worsening of mental health.

It is worth noting that younger children have a greater tendency to be affected by phobias, especially because they are more emotionally attached to relatives and show greater fear of their relatives being infected by Sars-CoV-2 and dying. Thus, children besides presenting behavioral regression, were affected by 4 times more stress disorder, adaptation disorder, acute stress and others<sup>31, 32</sup>. The LGBTQIA+ population, in turn, was presented as more vulnerable because of their greater need to be trapped in the same environment as their families, an environment in which they already have conflicts regarding issues of family acceptance of sexual orientation and gender identity, intensifying the chances of worsening with respect to mental health<sup>33, 34</sup>.

## 4.3. MOST COMMON PANDEMIC MENTAL DISEASES

### 4.3.1. ANXIETY AND DEPRESSION

The isolation caused by the SARS-CoV-2 pandemic brought several factors aggravating the mental health of individuals, the result of forced social isolation, and the sudden change in daily life. The impact of these changes was observed in different ways depending on the support network of individuals<sup>34</sup>.

The depression rates among children and adolescents could be approached using the Likert Point scale, which presented results in three studies that variable the rates between 22.6% to 43.7%. The SCARED and GAT-7 scales, also were important to identify anxiety in 18.9% and 37.4%, respectively, among child's interviewees. Also were reported positive relations among psychological stress and emotional alterations directly related to the pandemic and mental health outcomes like anxiety, depression, and obsessive-compulsive disorder<sup>35</sup>. The patients diagnosed with obsessive-compulsive disorder who were in the first treatment stage or were in the psychiatric treatment had a worsening rate of 44.6%<sup>34</sup>.

On the other hand, could be observed that special groups, characterized by feminine gender, LGBTQ, adolescents with nervous anorexia were who get the most damage caused by the pandemic. Feminine gender got the higher relation

between coronavirus and anxiety; LGBTQ was who gets the most damaged in welfare, because they were forced to get together with parents that, commonly, didn't respect them and were interrupted to stay nearby their friends who are especially important for identity formation. Adolescents with nervous anorexia had worsened in 70% of their eating habits. In addition, people who have already been mistreated increased the rates of post-traumatic stress <sup>34</sup>.

#### 4.4. PROPOSED SOLUTIONS

Because of the pandemic scenario, the lockdown, and the negative impacts that these events may cause on children and adolescents, it is necessary to think about strategies to promote and treat the mental health of this group. The psychosocial and mental health demands of children and adolescents, especially those most vulnerable, must be watched longitudinally, requiring the articulation of policymakers within the health systems to ensure a collaborative and effective support network, which results in the qualified in of the groups <sup>36</sup>. Further, the early identification of these problems, whether by parents, teachers, or doctors, and appropriate referral is an alternative to reduce the most emerging harms <sup>37</sup>.

Parents are sources of support for children, but they only can fulfill their duty, if they are feeling well. Thus, it's necessary to develop policies to promote the health of the family as a whole. In addition, parents are role models for their children in emotional and behavioral ways <sup>38</sup>. So they should be a good reference for their children in terms of preventive measures against CoVID-19 and handling feelings, difficulties, and problems. The presence of parents and deep interaction between them and children is crucial to create a sense of security, especially for younger children, who demand more attention <sup>39</sup>.

Adolescents and children must be guided and informed about the pandemic responsibly and understandably. In addition, it is necessary to control the quantity and quality of news to which children and adolescents are exposed, given that sensational news raises the level of anxiety. <sup>39</sup>

The pandemic caused children and adolescents to abandon a good part of their lifestyle so that some daily activities may be disorganized. Faced with less entertainment and more leisure time, many young people tend to behave in a disruptive way when using the internet, social media, and online games. However, there must be control and a time limit for these activities, mainly through the insertion of activities focused on creativity, such as art, music, reading and dancing, and physical activities. Another aspect recommended for a healthier routine for children and adolescents is the definition of adequate times for sleep <sup>39</sup>.

Physical distance is a hindrance to social interaction. Although, there must be an incentive for children and adolescents to maintain communication and interaction with people of their age group remotely, given that this is a strategy for them to share feelings, thoughts, and situations that are typical of their social group <sup>39</sup>.

With the adoption of online classes by many countries, schools and teachers may support students' mental health. The inclusion of topics related to mental health in educational programs is encouraging. Physical education teachers can guide students to practice regular physical activities that help to relieve symptoms such as anxiety and depression due to the release of anti-inflammatory substances and linked to well-being, favoring physical and mental health. There must also be a close relationship between family and school so that there is good communication about the well-being and needs of children and adolescents <sup>40</sup>.

The pediatrician is usually the doctor with whom the parents communicate the most and is the one who has the most contact with the child. These professionals must prepare to identify and intervene in mental health demands. A good way for a pediatrician to be skilled in this situation is to maintain a dialogue and a network with psychologists and psychiatrists. Thus, it's possible offering a comprehensive service and being better able to recognize mental health problems and instruct parents on the subject <sup>40</sup>.

Mental health professionals, such as psychiatrists and psychologists, should guide education professionals and parents about the mental health of minors and possible vulnerabilities. Also, when medicalization is necessary, it's vital to pay more attention to the physiological particularities of children and adolescents <sup>41</sup>.

Health systems must be prepared to create mental health policies for children and adolescents aimed at different age groups. However, it's crucial to take economic, social, and geographical particularities and other social determinants of health into account. Many of the introduced recommendations are not viable in contexts with a lack of internet, electricity, access to education, or even healthcare <sup>35</sup>.

This integrative review presents a few limitations. A selection bias is noticed due to the inclusion of other reviews, narrative and systematic, in this study. Despite the quality and relevance of these papers, the current study's results could be altered by the analysis of these secondary studies.

## CONCLUSION

Overall, this integrative review analysed that the COVID-19 pandemic has worsened the prevalence of mental health disorders in the young population. The need to adapt to a new routine inside home, the constant fear of contagious disease and the social isolation is strictly related to the increased psychological disorders present in this group. This behaviour was expected, once it has already been observed in other reported pandemics. Therefore, this study suggests the tendency of depression, anxiety, OCD and other mental disorders increase among children and adolescents. This reported that impact variates in the young population according to gender and age. The studies included in this review support the crucial role of schools in the mitigation of mental disorders, once this institution provides learning and socialization, essential to the children's development. Also, the stimulation of healthy habits at home in order to combat the pandemic's



consequences on mental health. This study recognizes the importance of future longitudinal research in order to comprehend the long term impacts of the pandemic on the mental health of the young generation. Then, the direct causes, the aggravating factors and the consequences can be better elucidated and prevented.

## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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