

# Impact of covid-19 containment on mental health in the pediatric population: a descriptive study

## Abstract

The psychological effects of seclusion have been previously described in the literature. However, the scale of the containment implemented during the coronavirus disease 2019 appeared in 2019 (COVID-19) pandemic is novel. The aim of this article is to present the implications of the containment, mainly suicidal behaviors, conduct disorders and violence in children and adolescents. We conducted a study in the child psychiatry department of Casablanca, among children and adolescents attending the consultation and those who were hospitalized, thus comparing the rate of conduct disorder, violence and suicide attempts during the pre-confinement, confinement and post-confinement periods. A literature review was also conducted on the PubMed database, which allowed us to discuss our results and to take stock of current research.

**Keywords:** covid 19, suicide attempts, conduct disorders, violence, children, adolescents, mental health, psychiatric and/or psychological consequences

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**Abbreviations:** Covid 19, coronavirus disease 2019; UNICEF, United Nations International Children's Emergency Fund; CBS, center for epidemiological studies; SARS, Severe acute respiratory syndrome; PTSD, post-traumatic stress disorder.

## Introduction

The Covid 19 pandemic and health crisis has been described by governments and the media as a "war", with an "invisible enemy", affecting the entire population.<sup>1</sup> The exceptional health situation and its mediatization generated a feeling of fear and global stress.<sup>2</sup>

In Morocco, a containment was implemented for almost three months (from March 10th to June 10th, 2020), constituting an important stress factor.

When faced with a crisis, children are essentially dependent on referring adults (parents, guardians, teachers, etc ...) to determine their emotional and behavioral responses. It has been shown that when "referent figures" are able to reassure the child and explain the situation, the child has a better level of psychological well-being.<sup>3,4</sup>

Conversely, having an anxious or depressed parent during an outbreak increases the stress felt by the child.<sup>5</sup>

Among the symptoms most frequently encountered in children and adolescents during quarantine we had: worry, fear, inattention, irritability, anxiety and obsessive behavior. Other symptoms were fear of the death of a loved one, sleep disturbances, lack of appetite, fatigue, nightmares and discomfort/agitation.<sup>6,7</sup> An online survey in the United States found that 40.1% of parents reported observing signs of distress in their children.<sup>8</sup> The warning signs reported by parents were: conduct disorder (35% of children), anxiety and stress (24% of children), social isolation (23% of children) and depression (20% of children).<sup>9</sup>

Different symptoms in children and adolescents during and after confinement can be explained by several factors: change in

lifestyle,<sup>10,11</sup> reduction in social interaction<sup>12</sup> and repeated exposure to media and information.<sup>13,14</sup>

The closure of schools, lack of outdoor activity, aberrant sleeping and eating habits disrupted the children's usual lifestyle and promoted monotony, distress, impatience, embarrassment and various psychiatric manifestations.<sup>15</sup> Furthermore, the distress of the child's parents and/or guardians during the health crisis and confinement correlated with increased psychological and psychiatric problems in young children.<sup>16,17</sup>

We were interested in studying suicide attempts, conduct disorders and violence against children and adolescents in our child and adolescent psychiatry department during the COVID 19 pandemic period. Through our study and the discussion of our results, we highlight the implications of the COVID 19 pandemic and of containment, mainly on suicide attempts, conduct disorders and violence against children and adolescents in the pediatric population.

## Materials and methods

**Type of study:** This is a retrospective, observational, descriptive study conducted by the child and adolescent psychiatry department of the Harouchi Children's Hospital-Casablanca University Hospital, over a period of 8 months, from January 2020 to August 2020.

The data were collected from the patients' medical records using a pre-established operating record.

**Target population:** All children and adolescents who were hospitalized on the early childhood and adolescent units were included as well as those who came for child psychiatric consultation on the outpatient unit.

### Inclusion criteria:

- Age: 6 to 12 years for the early childhood's unit, 12 to 18 years for the adolescent unit, and 6 to 18 years for the outpatient unit.

- Reasons for consultation and hospitalization: conduct disorders, violence against children and adolescents and suicide attempts.

**Exclusion criteria:** No exclusion criteria were applied except for age and reason for consultation or hospitalization.

**Statistical analysis**

The descriptive analysis was carried out by calculating the

means and standard deviations for the quantitative variables and the percentages for the qualitative variables using SPSS software.

**Results**

A total of 376 patients were included in this study.

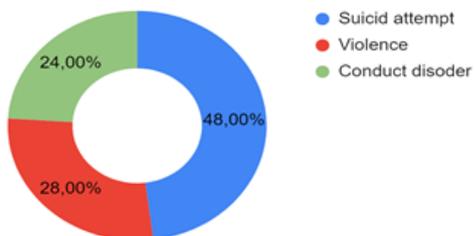
**On the outpatient unit:** 158 patients consulted for suicide attempts, 126 for conduct disorder, and 92 cases of violence (Table 1).

**Table 1** Descriptive analysis of cases received as outpatients in the child psychiatry department

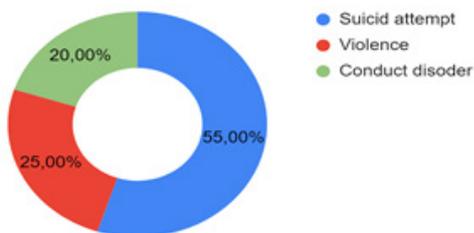
	Pre-containment (From January 1 <sup>st</sup> to March 20 <sup>th</sup> )	Containment (From March 21 <sup>st</sup> to June 10 <sup>th</sup> )	Post-containment (From June 11 <sup>th</sup> to August 31 <sup>st</sup> )	Post-containment (From September 1 <sup>st</sup> to December 31 <sup>st</sup> )	Total
Suicide attempt	31	33	58	36	158
Violence	18	15	33	26	92
Conduct disorder	16	12	68	30	126

During the lockdown (March 21st-June 10th), we saw almost as many children and adolescents with suicide attempts, violence, and conduct disorders in our outpatient unit, as compared with the period before the

lockdown (January 1st, 2020-March 20th, 2020) (Figures 1,2).

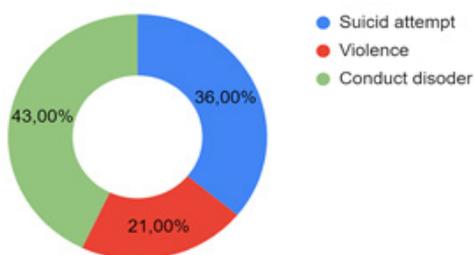


**Figure 1** Pre-containment (From January 1<sup>st</sup> to March 20<sup>th</sup>).

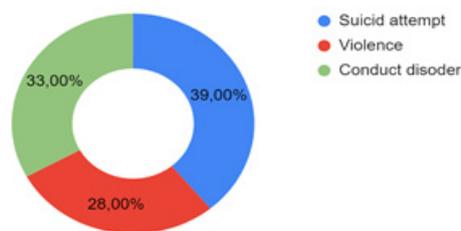


**Figure 2** Containment (From March 21<sup>st</sup> to June 10<sup>th</sup>).

After the containment, we received twice more cases of suicide attempts, almost 3 times more cases of violence and almost 6 times more cases of conduct disorders than during the confinement period (Figure 3,4).



**Figure 3** Post-containment (From June 11<sup>th</sup> to August 31<sup>st</sup>).



**Figure 4** Post-containment (From September 1<sup>st</sup> to December 31<sup>st</sup>).

**On the early childhood’s unit:** \*Hospitalizations for suicide attempts: 5 hospitalizations during containment versus 15 hospitalizations during the 3 months after containment. That is, 3 times more suicide attempts than during the lockdown and 15 times more than during the pre-lockdown period.

\*Child victims of violence: 18 children were admitted during the 3 months post-containment versus 10 during pre-containment. That is, almost twice as many abused children as in the pre-confinement period.

\*Hospitalizations for conduct disorders: 4 hospitalizations during the 3 months post-containment, that is 4 times more than during the confinement period (Table 2).

**At the adolescent unit:** \*Hospitalizations for suicide attempts: 28 adolescents were hospitalized for suicide attempts during the 3-month post-containment period, more than twice as many compared to the containment and pre-containment periods of two months and 20 days.

\*Adolescent victims of violence: 2 cases of violence were admitted, twice as many as the containment and pre-containment periods.

\*Hospitalizations for conduct disorders: 6 adolescents were hospitalized during the 3-month post-containment period, twice more than during the containment (Table 3).

**Discussion**

The unprecedented situation related to the COVID 19 pandemic is a source of significant anxiety and psychological disorders, especially in children and adolescents.

Several authors have demonstrated the exacerbation of child psychiatric pathologies after containment. These disorders include

depression with an increase in the rate of suicide attempts, post-traumatic stress disorder (PTSD), adjustment disorder, conduct disorder and pathological bereavement.<sup>18,19</sup> As for anxiety disorders, the study by Duan et al, showed a high level of anxiety in children and adolescents: in children, separation anxiety, violence and fear

of physical injury were found; in adolescents, panic and generalized anxiety disorders were observed. Finally, for both age groups, the score for social phobias was significant. Depressive and anxiety symptoms were correlated during containment with higher rates when containment exceeded 10 days.<sup>20</sup>

**Table 2** Number of patients hospitalized in the early childhood unit

Period	Pre-containment (From January 1 <sup>st</sup> to March 20 <sup>th</sup> )	Containment (From March 21 <sup>st</sup> to June 10 <sup>th</sup> )	Post-containment (From June 11 <sup>th</sup> to August 31 <sup>st</sup> )	Post-containment (From September 1 <sup>st</sup> to December 31 <sup>st</sup> )	Total
Early childhood's Unit					
Suicide Attempt	0	5	15	4	24
Conduct Disorder	4	0	4	3	11
Violence	10	0	18	5	33
Total	14	5	37	12	68

**Table 3** Number of patients hospitalized in the Adolescent's unit

Period	Pre-containment (From January 1 <sup>st</sup> to March 20 <sup>th</sup> )	Containment (From March 21 <sup>st</sup> to June 10 <sup>th</sup> )	Post-containment (From June 11 <sup>th</sup> to August 31 <sup>st</sup> )	Post-containment (From September 1 <sup>st</sup> to December 31 <sup>st</sup> )	Total
Adolescent's Unit					
Suicide Attempt	15	15	28	18	76
Conduct Disorder	0	3	6	4	13
Violence	0	0	2	2	4
Total	15	18	36	24	93

Here we will resume our results and discuss them in the light of data from a literature review. The literature review was performed on the PubMed database with the following keywords: Covid 19, coronavirus, child, adolescent, mental health, psychiatric and/or psychological consequences (covid 19, coronavirus, Child, children, adolescent, mental health, psychiatric or psychological consequences).

Let's start with the impact of containment on conduct disorders. Children and adolescents with conduct disorder are potentially a vulnerable group to the effects of containment and health crisis. Indeed, the impact of environmental modifications on the expression and impact of conduct disorder symptoms is well documented. A recent meta-analysis in India reported a significant increase in substance abuse among adolescents. In Switzerland, a study of 1146 adolescents and their parents found an estimated 30.1% increase in conduct disorder during the period of confinement.

In the context of the pandemic, the abrupt end of schooling, the increase in family time imposed by the containment measures, the preoccupation around health and the economic crisis are all factors that can influence the symptomatology of children and adolescents with conduct disorder. Indeed, a study by a German team, based on 1221 children and adolescents, showed an increase in conduct disorders in these patients estimated at 31%; with a female predominance.<sup>21</sup> In Japan, the study by Zhu S. showed that low socio-economic level and conflictual parent-adolescent relationships were the main risk factors for conduct disorders.<sup>22</sup> These results are consistent with the results of our study, which also show an increase in conduct disorders, both in outpatient and inpatient settings.

With regard to child abuse, low-income families are the most at risk of child abuse. Sexual abuse of girls and physical abuse of boys are more common. The risk factors usually found are parental exposure to violence, substance abuse, poverty, and child labor.<sup>20</sup> The closure of schools in disaster situations is a factor that increases the risk of violence against children. The additional constraints that families undergo as a result of the COVID-19 crisis, such as loss of employment or drop in income, social isolation, excessive confinement in often cramped quarters, fear engendered by the pandemic situation and health-related concerns, increase the risk of violence in the home, whether it is inflicted between partners or on children by the adults caring for them.<sup>23</sup>

Simultaneously, the COVID-19 crisis increases the risk of child sexual exploitation on the internet.<sup>24</sup> Europol reported in April 2020 that law enforcement auxiliaries were reporting more online activity from individuals seeking content from child abuse.

Child psychiatrists, like all physicians and health care personnel, are on the front lines of screening for child abuse.

In our context, we have also noticed an increase in the rate of violence against children and adolescents in the post-containment period compared to the containment and pre-containment periods.

A study recently conducted in Brazil concludes that during the containment period; reporting rates of violence against children and adolescents decreased significantly due to underreporting of cases. These results encourage strategies to improve the identification of suspected cases of violence during the pandemic.<sup>25</sup> This highlights the need for cross-sectoral planning and rapid and specific actions (health,

social protection, justice, and public security) to ensure the rights of children and adolescents.

According to recent United Nations International Children's Emergency Fund (UNICEF) recommendations, appropriate training of all health professionals, teachers and social workers is necessary to detect these cases of violence and to ensure appropriate support for these children.<sup>26</sup>

The increase in depressive disorders is one of the many psychological consequences of a pandemic and of the containment, related to the infectious risk.<sup>27</sup> The pandemic in fact signifies a vital risk to the person himself/herself and family; it forces him/her to call on the personal resources to adapt to a society that has seen its points of reference reshuffled.<sup>28</sup> Even if containment and social distancing are synonymous with protection for oneself and others, they are also vectors of isolation and feelings of powerlessness, even distrust and exclusion, especially for children and adolescents.<sup>29</sup>

A recent study in China, involving adolescents (aged 11 to 18 years), and based on the Center for Epidemiological Studies (CED-S) depression scale, found that 39.5% of the participants in the study suffered from depression with CED-S scores above 15.<sup>30</sup>

As for the suicidal risk, it is increased in subjects suffering from psychiatric disorders whose follow-up is decreased due to health measures. Hence the importance of maintaining the link with patients: by telephone, teleconsultation or face-to-face in emergency situations.<sup>31</sup> There are few studies on this subject in the literature, but it remains essential to prevent suicidal risk in psychologically vulnerable populations, particularly adolescents. In Montpellier, Brest, Rouen, Strasbourg, Lyon and Lille, liaison psychiatry teams have noted an increase in hospital stays for caustic ingestions, after hanging and/or defenestration, in adolescents. One of the populations at risk: confined students, who are the most isolated, the most cut off from their emotional loved ones, in the smallest and least comfortable places; suicide attempts and deaths by suicide have already been reported. In Toronto in 2003, this rate was estimated at 31.2% in 129 volunteers who had responded to the end of the SARS epidemic.<sup>32</sup> Depression may therefore affect the most vulnerable subjects but also those with no psychiatric history.<sup>33</sup>

The results of our study are also consistent with the results of studies conducted worldwide, showing a higher rate of suicide attempts during the period of containment, requiring more frequent hospitalizations.

It is therefore important to analyze the factors that could increase the risk of suicidal acts in order to better prevent them<sup>34</sup> and to promote an integrative health policy.

In the long term, recent epidemiological data provided by the Chinese literature allow us to estimate that 10 to 15% of the pediatric population have developed post-traumatic stress disorder (PTSD) symptomatology, compared to a prevalence of 3% in normal times.<sup>35</sup> Comorbidities (addictions, depression, anxiety disorders, and decompensations of pre-existing pathologies...) will also be associated in the long term, with a risk of increasing the suicide rate in adulthood.<sup>36</sup>

As a consequence of the long-term effects, the authors suggest the following recommendations<sup>37</sup>: paying attention to the specific needs of vulnerable groups such as children and young adolescents; helping them to self-regulate by teaching them activities such as breathing exercises, physical exercise and yoga; setting up support and accompaniment services such as those set up in situations of major

disasters ; deploying targeted interventions to reduce psychological stress and prevent later mental health problems.

In this context, the child and adolescent psychiatry department of the Abderrahim Harouchi Mother and Child Hospital of the IBN ROCHD University Hospital in Casablanca took the initiative of setting up a listening and support unit for children and adolescents, as well as their parents, throughout the period of the COVID19 pandemic, allowing them direct access to care and help.

## Conclusion

The pandemic crisis COVID-19 and the imposed confinement is unprecedented to participate in the exacerbation of some dimensions of the suicidal process, abuse and conduct disorders in children and adolescents through its psychic, social, economic or biological impact. This crisis also opens certain perspectives in terms of research, prevention and treatment of psychological disorders in the pediatric population.

The little place given to children in the reflection on the decisions taken in this health context incites us to reflect on the protection of children in our society. We talk about child protection by targeting the most vulnerable who must be included in a more comprehensive way in the protection of all children, which seems very fragile in light of this crisis.

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## Conflicts of interest

There is no conflict of interest regarding the publication of this article.

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