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Psychological Effects Caused by COVID-19 on Moroccan Children

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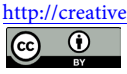

Abstract

Coronavirus disease 2019 is declared as a Public Health Emergency of International Concern by the World Health Organization. On March 22, 2020, the Moroccan government declared a health emergency and also confinement. This study aimed to clarify the adverse effects of confinement on children and to analyze the factors influencing these effects. Our study concerns 495 families with 973 children specifying their activities during confinement, we find that 35% of children spend more than 3 hours on the TV, 29% engaged with their smartphones and 14% playing video games. 76% also had the opportunity to be involved in distance learning. Among consequences of home confinement, there is an increase in behavioral problems from 14% to 31% at the end of the 2nd week of confinement. Overall 77% experienced difficulties such as emotional disturbance, behavioral problems as well as sleep and eating disturbance. The under 6 aged children appeared to be more vulnerable to confinement. 75% of parents, however, noted that confinement also afforded the opportunity to improve relationship with their children. This is an important study that contributes to discussion and further studies on adverse effects of home confinement for children during epidemics. This should lead to further identification of activities that may lead to minimizing the adverse consequences of the experience. Examples might be family outings into places that do not involve meeting other people with close contacts. Distance learning might also be enriched with virtual meetings and discussions of schoolmates that may also involve teachers and parents.

Keywords

COVID-19, Children, Confinement

1. Introduction

In March 2020, the World Health Organization declared COVID-19 a pandemic. Several governments have put in place measures of social containment and distancing to mitigate the spread of the virus. Among the measures taken is the closure of schools to prevent the spread of the pandemic. Although this is necessary, prolonged school closings, combined with home confinement, can have negative effects on the physical and psychological health of children [1] [2].

Confinement and epidemic such as that of the coronavirus (COVID-19) are major stressors. This stress is reinforced by the fear of being contaminated, of dying, and/or of seeing those close to falling ill, by isolation, uncertainty, feelings of loneliness, possible intrafamily tensions, loss of daily routine, rejection and discrimination [1].

The main objective of our study is to identify the potential effects of prolonged confinement on children's mental health and to analyze the factors that may influence the occurrence of these effects.

2. Patients and Methods

We designed this research as a cross-sectional survey design to assess the child's immediate psychological response during the epidemic of COVID-19 by using an anonymous online questionnaire. We focused on recruiting the general public living in Morocco during the epidemic of COVID-19, our study was utilized between the period 30 April and 15 May 2021. Descriptive statistics were obtained by calculating averages and standard deviations as all variables were normally distributed. Differences between generations were tested by repeated measures ANOVA.

3. Results

1) socio-demographic characteristics:

In total 500 questionnaires were sent to parents, and 495 participants returned responses to the questionnaire, a response rate of 99%.

We note a female predominance with a sex ratio (F/M) of 2.4. The average age of the participants was 38 years (±7.9), with extremes of 23 and 64 and a predominance of the 38 years age group.

In 69.1%% of the cases, it was the mother who participated in the study, followed by the father in 27.8%.

For the function, in 45.2% it is a health workforce and in the rest of the cases 54.8%, it is a civil servant or a liberal profession.

The total number of children is 973 with an average age of 7.38 years (±4.7),

and an average number of 2 children per family, and there is a slight female predominance with a sex ratio of 1.11.

Regarding the education of children, 50% of the children are young (<6 years) of which 28% are in kindergartens (Cf Table 1).

2) Children's activities before confinement: In 75% of the cases, parents share moments of playing with their children for at least 2 times a week, while 25.8% play with their babies daily.

Regarding the number of outings outside is variable among families, with an average of 6 outings (±6.4) per month, this number exceeds 10 times per week in 8.3% of families.

3) Activities of children during confinement:

During the confinement period, 35% of children spend more than 3 hours on television, 29% handle the telephone or tablet, while 14% play video games during the day.

Other activities were described by parents, including drawing, reading, free games, and sports (Figure 1). In terms of education, 76.6% of children of school age follow distance education by E-learning, thus 67% of parents attest to a great benefit of this e-learning.

4) Effects of confinement in children: The consequences of confinement at home was an increase in behavioral problems from 14% to 31% at the end of the

Table 1. Socio-demographic characteristics of the study participants.

Variable	Numbers	Percent
Sex of parents		
F	347	70.5
M	147	29.5
Age of parents	Average = 38.1 Standard deviation = 7.9 Mode 38 Mini = 23 Maxi = 64	
Person participating in the study. N = 495		
Mother	340	69.1
Father	137	27.8
Other	15	3
Function of parents		
health professional	214	45.2
Not health professional	259	54.8
Number of children per family	Average 2 Standard deviation = 0.8	
Age of children		
<6 years old		50
6 - 10 years old		23
>10 years old		27

2nd week of confinement. Overall 77% experienced difficulties such as emotional disturbance, behavioral problems as well as sleep and eating disturbance (Figure 1). The under 6 aged children appeared to be more vulnerable to confinement. 75% of parents however, noted that confinement also afforded the opportunity to improve relationship with their children.

5) Compliance with protective measures:

In 95% of children respect protective measures at home.

6) Analysis of the factors influencing the occurrence of effects: Cf Table 2.

Through bivariate analysis, we tried to analyze different factors and their impact on children during the confinement period.

a) Age group

We note that the age group under 6 years is much more affected by the occurrence of disorders compared to older children, this with a statistically significant relationship threshold of Khi^2 test ($p = 0.001$).

b) Sex

According to the statistical analysis, we have a statistically significant relationship threshold (Khi^2 Test), thus we notice that male children are more affected by mood and behavior disorders with a p of 0.023 and 0.002 respectively.

c) Average number of outings per month

Outings before confinement influence the appearance of certain changes (mood,

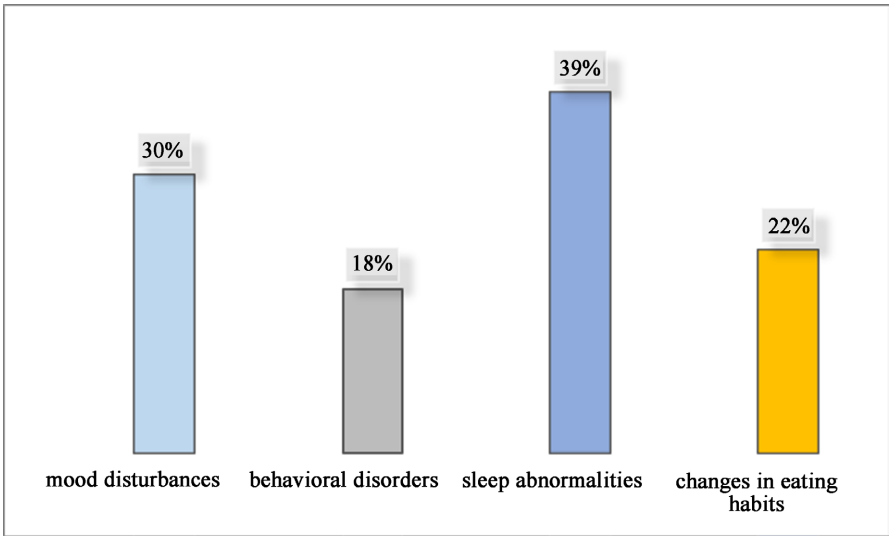

Figure 1. Description of the side effects in children after confinement

Table 2. Factors influencing the occurrence of side effects.

	Percent of disturbances	p
Age under 6 years old	38%	0.001
Male sex	36%	0.02
Average of outing > 4 per month	45%	0.003
Health professional parent	43%	<0.001

sleep and behavior) in children with a significant result respectively ($p = 0.00$, $p = 0.024$, and $p = 0.052$).

d) parents function

We note that the function of one or both parents as health professional influence the occurrence of change with a statically significant relationship ($p < 0.001$).

4. Discussion:

Sars-Cov-2 disease was noted for the first time in China in December 2019, since several cases were recorded in China and then in other countries. In March 2020, the World Health Organization (WHO) declared COVID-19 epidemic as a pandemic (WHO pandemic).

Most governments established measures of containment and social distancing to counter the spread of the virus. Many countries, first in Asia, then in Europe, and finally in the United States, have ordered the closing of schools to prevent the spread of this infection [1] [2]. In Morocco, the first case of Sars-Cov-2 was declared on March 2, 2020, just after several decisions were taken: suspension of flights, the closure of public places, shopping centers, restaurants and all places of assembly public are strictly prohibited. The Moroccan government has decided to close schools on March 22, 2020, following the declaration of a health emergency in the country.

Although this measure is necessary, the prolonged closure of schools associated with confinement at home will have obvious negative effects on the physical and psychological health of children, it is in this sense that our study was done as the first study in this context in our country this to propose solutions that can mitigate the harmful effects of confinement on children [3] [4]. This Confinement and pandemic as COVID-19 are major stressors for both adults and children, which is reinforced by the fear of being contaminated, of dying, and of infecting loved ones (increased perceived stress), by isolation, feelings of loneliness, and possible intrafamily tensions (decreased perceived social support), and lost routine. All of these factors can have significant psychological repercussions (anxiety, irritability, anger, and depression) [3] [4] [5]. In our study, overall 77% experienced difficulties such as emotional disturbance, behavioral problems as well as sleep and eating disturbance.

In children and adolescents, there are specific repercussions linked to education, with a significant psychological impact which is easily overlooked [5].

Many studies suggest that when children are out of school (weekends and summer holidays), they are less active physically, have time much longer screen, irregular sleep patterns, and less favorable diets.

They can also have a weight gain with a risk of side effects in the absence of outdoor activities, and with children of the same age such as anxiety, depression, lethargy [4] [5] [6] [7]. In accordance of our study, 30% of children have mood disorders and 22% eating abnormalities.

Yan Jio and colleagues as a China-EPA-UNEPSA collaborative working group,

reported that children in the younger age group (3 - 6 years) were more likely than children and more older people to manifest symptoms, such as adhesion and fear that family members may contract the infection, while children aged 6 to 18 years old were more likely to show inattention, while the irritability was the most serious psychological conditions demonstrated by children of all age groups [8].

These data are largely validated in our study, so we note that 55% of the children had at least one change of behavior 2 weeks after beginning of confinement. Our study was carried out after just 4 weeks from the start of confinement, the results are alarming since all age groups and categories of children are affected by the effects of confinement. Some effects were noted despite the efforts of parents and children for distraction. These disorders were worsened over time, with media coverage, the obligation to wear mask and especially the overconsumption of information concerning the pandemic and its effects.

Although the potential risks and protective factors have already been identified, further studies on the long-term psychological consequences of COVID-19 epidemic remain necessary [9] [10].

In our country, many learned societies of pediatrics child psychiatry have alerted to expected serious effects of this period of confinement, in particular on children, and risk of post-traumatic stress, or mood disorders, psychotic disorders, and increased suicidality in adulthood as suggested by some authors [11] [12].

Conclusions and practical implications: public mental health interventions should be formally integrated into a public health emergency. We must not only discuss the published studies, but also anticipate the psychological problems that could arise during or at a distance from confinement.

For this reason, in light of recommendations developed by several organizations, we suggest to decision-makers to adopt a short, medium, and long-term strategy:

In the short term, we suggest: 1) Creation of telemedicine hotlines for parents of children with difficulties (autistic disorders, behavioral disorders, psychiatric illness, etc.). 2) Dissemination of advertising links adapted to children in official television channels on the right way to conduct confinement with lesser effects: keeping a good meal rhythm, respecting sleep schedules, practicing a collective family activity… 3) Organization of webinars by child mental health professionals for distribution to the general public to ensure reliable information.

In the medium term, our vision of involvement in care highlights: 1) Psychological support during next school years in infant schools, for children and for the teachers. 2) Children's promotion to express their suffering during this period through artistic means: art, cinema, choreography, this by organizing national days for the fight against the effects of confinement.

In the long term, given the risk of the recurrence of a new pandemic, it is necessary to use:

1) Formally integrate public mental health interventions into public health

emergency.

2) Incorporate measures into emergency plans to protect children during a COVID-19 epidemic.

3) Provide a strategy for managing class outages by encouraging E-learning training, virtual meetings and discussions of schoolmates that may also involve teachers and parents.

4) Advocate making telemedicine an essential tool to overcome the cruelty of social pain during the confinement period [13] [14] [15] [16] [17].

Confinement in the context of the pandemic of COVID-19 and through its harmful effects must push the mental health care system to introduce new operating methods to reach the general public, to ensure proper management of a global public health emergency such as the COVID-19 pandemic.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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