We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,300

Open access books available

172,000

International authors and editors

190M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities

WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com

Children Living a Global Pandemic: Anxiety Repercussions

Salvador I. Garcia-Adasme and Alejandro López-Escobar

Abstract

A global pandemic caused by SARS-CoV-2 is still beaten our world. The disease, termed COVID-19 by the WHO, has a wide range of clinical manifestations, ranging from a mild, self-limiting form of the disease to multiple organ failure and death, forcing governments to take measures to mitigate the transmission and reduce the economic impact. However, the paediatric manifestation appears to take a milder form of the disease but they are not oblivious to the consequences of the disease. They suffered personal and parental lost, broke their social relationships, forced to home confinement, school closures, all of them with secondary implications. As a result, children's anxiety levels and manifestations have increased during pandemic. To prevent and counteract this situation, measures were implemented like increase physical activity, a balanced diet, and regular sleep pattern; and in relationship sphere use social media to stay in touch with school mates and relatives.

Keywords: COVID-19, Anxiety, Children, Mental Health, Nursing, Confinement, Pandemic

1. Introduction

The COVID-19 disease, produced by SARS-CoV-2 and its variants [1, 2], has had the most impact on human health globally in recent times; infecting a large number of people; causing severe disease and associated long-term health sequelae; resulting in death and excess mortality; in many counties exceeding the healthcare services capacity, even mortuary capability; interruption of business, travel, education and many other societal functions.

Children population have lived this pandemic from the background because have a milder course with better prognosis than adults [3, 4], being deaths extremely rare, although there have been inflammatory impact in children, in the form of Multisystem Inflammatory Syndrome [5–7] and Kawasaki disease [8, 9], both with severity impact.

Despite of moderated physical impact, COVID-19 directly or indirectly may have had a probable impact on children's mental health.

2. Anxiety in children: day-a-day

Mental health problems in children could became these children in a dysfunctional adults, creating a social, economics and health concerning [10].

Anxiety is the most common mental disorder in children between 9% and 32%, being a 14% in Europe population [11, 12]. Traditionally girls usually show more anxiety symptoms than boys [13, 14], but this paradigm are finding news research with opposite outcomes. Examples of that are Costa et al., and Iranian study, studies which find boys with more anxious manifestations than girls [15, 16]. These findings may be modulated by sociocultural or educational factors.

The symptoms depend on children' developmental stage [17]. Younger children are less able to symbolise subjective states and verbalise them, somatising with neurovegetative symptoms such as psychomotor restlessness, tachycardia, tachypnea or sweating; or somatic manifestations such as insomnia, somniloquy, hyperactivity-excitation, abdominal pain, hyperphagia/anorexia, nausea or headache [18]. On the other hand, elder children somatising trough restlessness, tiring easily, impaired concentration or feeling as thought the min goes black, irritability, muscle aches or difficulty sleeping [17]. Moreover, evidence suggests that stressful situations can trigger psychological distress [19, 20].

Anxiety and depression share comorbidities, which is why sometimes anxiety is addressed like as risk factor of depression [21] and both are related to Post Traumatic Disorder (PTSD). Marshall et al. found a direct relation between anxiety sensitivity and PTSD [17], being anxiety sensitivity a predictor of future PTSD symptoms [22].

Risk factor to develop anxiety include genetic heritage, parental mental disorders, inhibition behavioural patterns and environmental factors such as socioeconomically disadvantaged status, poor familiar functioning, parental separation in early children' ages, among others [23–25].

3. Anxiety and pandemic

Most of world's children routines were disrupted during COVID-19 pandemic.

The lockdown was a measurement to avoid the spread implemented by most of countries with a few exceptions like as South Korea [26], Taiwan [27], Sweden [28], some territories of Brazil [29, 30] and some states of United States [31], which enforcing different measures. Additionally, most of the countries which had applied lockdown added curfew to limit the population movements. Due to recurrent COVID-19 waves, several governments had reimposed these or partially measurements [32]. As a result of this measurements school classes were moved to their own homes due to school closures, as well as parks and playgrounds. These facts, added to home confinement imposed in some countries, provided a large feel of isolation. The duration of loneliness was more associated with anxiety than the intensity of loneliness [33].

During quarantine period, the main routines have been affected. Children reduced their physical activity, had irregular sleep patterns and changes diet habits, added to eventually familiar disputes and even domestic maltreatment [34]. These routines disruptions could develop some problems [34]. Nevertheless, pandemic seems to have had a little impact in the younger children' sleep [35] and in some studies the sleep time increased [36–38].

Restrictive measurements decreased physical activities among children and adolescents, being girls less active than boys and youth than children [36], changing physical activities' time for screen time [38, 39]. The prevalence of this reduction increased from 21.3% up to 65.6% according to a 2426 children and adolescent surveyed in Shanghai [40]. Outdoors activities during quarantine depend on the living environment and whether it was rural or metropolitan and exercises could be practised at home instead [41]. Adolescents specially missed their peers during quarantine and their extra-curricular activities [42].

Physical activity and diet are closely linked. Sedentary behaviours are associated with more caloric meals, and energy intake was higher when sedentary time enhanced [43]. Changes in diet were found during quarantine period. Lopez-Bueno et al. observed a reduction of fruit and vegetal consumption in young children, might be influenced for misbalanced familiar activities [38], similarly to Pietrobelli et al. who detected red meat, potato chip and sugary drink consumption increased [37].

Screen time has been increased due to children spent more time to accomplish school duties and stay in contact with their peers [38]. Videogames had been a reasonable tool to cape the pandemic stress, however, children with previous anxiety or depressive symptoms history positively predicted Internet Gaming Disorder (IGD) severity and videogame use during COVID-19 pandemic, but not inversely [44]. Nevertheless, spend more time in videogames activities coping pandemic-related stress could potentially became them more vulnerable to IGD.

In COVID-19 outbreak, Zhou et al. have studied the frequency of mild, moderate and mild-to-severe anxiety symptoms and they found 27%, 7.4% and 37.4% respectively among 8079 students [45]. Chen et al. have found by an online survey 18.92% and 11.78% answers related to anxiety and depression respectively [46]. Alike figures have found Duan et al., 29.27% of adolescent have shown levels of anxiety increased regarding to previous situation [47]. Magson et al. have studied a group of 248 Australian adolescents before and after pandemic and gathered girls with more anxiety and depression symptoms and boys reported more familiar conflict [42]. Depression was found in 3498 (36.6%) of 9744 Chinese adolescents surveyed, and of them, 45.15% had anxiety symptoms [48]. To a greater or lesser extent, the anxiety and depression emerged during COVID-19 pandemic.

During home confinement, a few researches have reported anxiety symptoms among children. Xie et al. have reported 22.6% and 18.9% depressive and anxiety symptoms respectively out of a total 2330 students in Hubei [49]. In southern Europe, Francisco et al. through online survey gathered a 1480 children and adolescents parents responses, have found 30.1% their children more anxious, with greater impact in Spanish children [39]. We have investigated anxiety levels in 2292 children during Spanish lockdown with home confinement through online survey. We divided our research in two parts, children under seven year's parents reported behavioural symptoms and children over seven years answered revised Children's Manifest Anxiety Scale's (RCMAS). In the elder group, 23.3% of those above seven years old scored above the 75th percentile in the RCMAS, with 47.7 ± 27.9 of mean of Total Anxiety percentile. Curiously, in this group, males reported higher anxiety levels than girls. However, considering the factors impacting a child, 53.6% described problems concentrating on homework and 92% of participants were reported high scores in all anxiety facets regarding to missing being in contact with their peers. We gathered higher scores on the Total Anxiety in children who have parents which are health workers or which has suffered COVID-19 at home [50].

Families have had to cape with several mishaps. During confinement many family members had to work from their homes, added to their children's classes. Other families had their work interrupted or directly were fired, with the consequently financial problem. In case of health care workers children' had more complications than their peers to adapt the confinement routines [51, 52], partly due to prolonged absence for work-related reasons in the first stages of pandemic; and developmental children' stages, breastfeeding-dependence in early ages, following by difficulty in understanding situation and fear to view their parents involved in potentially lethal disease in the eldest.

Duan et al. have highlighted as factors associated with increased levels of anxiety several characteristics, including female gender, denizen in urban regions,

emotion-focused coping style [47]. In contrast, de Miranda have found lower levels of anxiety and depression in metropolitan-regions [53]. Vulnerable socioeconomic status is a recognisable anxiety' risk factor and in this pandemic has had special impact in young people [47].

Family relationship wellbeing were not affected by living in risk-zone contagion, environment or the living space characteristics, but when parents had less own space or time, or when they had to take care children' learning, they were more stressed. This stress have affected significantly on children' mental health [54]. When familiar roles are dysfunctional, extreme patterns could raise such as domestic violence, directly inflicted on the child or between relatives, generating stressful situations, with impossibility of scape from assailant resulting from confinement with his [55]. COVID-19 and the implemented measurements such as home confinement and limitation to social contacts could raise the figures [56, 57]. In this way, even though the school could provide a secure place where children can report home abuse [47], but the school is not always safe. Children who have been bullied may benefit from a quarantine period to be separated from their abusers. The problem during stay-at-home indication is where the children's abuser is.

Regarding to children with special educational needs and disabilities, a study in UK reported increased impact both parents and children [58]. In case of children with Autism Spectrum Disorder (ASD), after an initial deterioration in the first phases of confinement, symptoms were subsequently reduced with an average impact on behaviour, partly mediated by pharmacological changes [59]. Other study conducted in Italy by Colizzi et al. have shown more intense (35.5%) and more frequent (41.5%) behaviour problems, added to changes routines with difficult to manage free time (78.1%) and structured activities (75.7%) [60].

3.1 Anxiety in the youngest in pandemic

Anxiety in youngest children, under eight years of age, has not been commonly studied. However, a recent study conducted by Mira Vasileva et al. estimated in 8.5 the any anxiety disorders' prevalence in children between one and seven years [24]. In similar direction Duan et al., have shown that 23.87% children had significant anxiety level in a population of 3613 children, who 9.94% of were between seven to twelve years [47]. A Turkish study conducted by Zengin et al., found anxiety scores in children from nine to twelve years answering The State-trait Anxiety Inventory for Children (STAIC), as the children are elder, the state anxiety levels decreased and the trait anxiety levels increased. While they did not found difference between the genders in terms of the trait anxiety score, boys' state anxiety level was significantly higher than girls [61]. In our investigation, divided in two parts, children under seven year's parents reported behavioural symptoms in an online self-designed research team survey. 50.9% of the children aged below 7 reported four or more symptoms and 88.7% at least one. The most common paediatric symptoms included tantrums (56.4%), emotional changes (34.1%), restlessness (33.6%), and fear of being alone (33.2%) [50].

4. Long-term impact: Still unknown?

Undoubtedly, pandemic crisis can leverage a weak point in the most vulnerable and may induce to suicidal acts, as persons with previous attempts, history of mental disorders and emotional distress [62]. In children, despite this situation and increased pressure, suicidal attempts due to the first pandemic wave were not increased [63, 64].

Previous epidemics with quarantine measurements such as H1N1 and SARS-CoV, Sprang and Silman have reported 30% of PTSD in children exposed to this [65], likely in stressful events such as natural disasters or other catastrophes [19].

Domestic violence increased during pandemic could have increase the risk of develop further complications such as PTSD, drug abuse, anxiety and depression problems, among others [66].

Under Foucauldian sight, this pandemic could be generate some changes, or accelerate this, in occidental and capitalism paradigms. Starting from power and knowledge pairing as discipline, the evolution from disciplined societies to new forms of fast adaptability has had in pandemic, a global disease, a strong ally. This pandemic has enhanced new dispositives or dispositifs, understanding dispositive as anything that has, in one way or another, the capacity to capture, orient, determine, intercept, shape, control and secure the gestures, behaviours, opinions and discourses of living beings, with the aim to manage an emergency. It has a dominant strategic role [67, 68].

The Confinement measures, keeping social distance, disinfections in public places during early stages, military in streets, the curfew, new laws adapting to changeable circumstances, and much more, could be examples of dispositives implemented in COVID-19 pandemic. Some of them may remain for some time or permanently while others will be phased out as the pandemic could be keep under control, but the final impact remains to be seen. Special mention need the extensive deployment of technology capable of keeping us all permanently connected, which have reinforced the role of social media as sources of contact between people, just as videoconferencing has become a meeting room where parents work and children attend classes with their peers. But at the same time this technology is becoming step by step in an externalised panopticon, applying disciplinary power, generate a state of constant monitoring and surveillance, causing a self-governing and self-censorship in each member of society, where privacy is constantly challenged [67].

5. Prevention: politics and facts

However, uncorroborated, false information and rumours have had in media an influential ally due to easy spread them. These misleading reports may have intensified anxiety symptoms in children [69] but also in general population [70], despite of the efforts of media companies to curb the propagation [71]. Therefore, the government and health authorities should provide accurate information on the epidemic situation, refute rumours in time, and reduce the impact of rumours on the public emotional state [71].

Some reviews point to preserve physical health and activity [53] and promote home-based activities [72]. Many governments implemented different programs to stimulate physical exercise among population, using TV programs or other strategies.

Ensuring continuity of psychiatric support, both children under treatment and debut or stressful situations, countries such as France or Germany had improved teleconsultations of mental health professionals [73].

Related to vulnerable situations, governments have to reinforce help resources and tighten surveillance over most frail, encouraging tele-consultations, developing routines, promoting technical support to children without online connection [74].

Schools are turning to creative and diversity model abandon the disciplinary model, in line with previous words. They are acting as one of the main pillar of the socialisation and formation of the young child, and without doubt may and must develop an active role to promote healthy practices [67, 75].

6. Conclusion

COVID-19 pandemic has had a strong impact on the world's youth population. These consequences, now-a-days, still are unknown and hidden. Previous stressful situations such as natural disaster or violence situations have shown that children are able to adapt and go ahead thus resilience. However, always there are consequences and children that derived from special and vulnerable circumstances could develop mental problems. That is why we shall reinforce our mental health resources and carry out a detailed screening of the most vulnerable people and deploy strategies and multidisciplinary interventions in early steps of problem development. Mental health professionals, paediatricians, nurses in many areas such as school or primary care, social workers and teachers may be implied in surveillance of children's mental health status. This reinforcement should include a special surveillance of suicide figures. Maybe it is too early to assess the real impact on suicide and suicidal attempts and we should be updating and tracking figures to quickly observe a change in trend.

Acknowledgements

Authors thank HM Hospitales for their support and CEU-San Pablo for their collaboration, both implied in the accomplishment of this project.

Conflict of interest

Salvador I. Garcia-Adasme has received private funds by HM Hospitales to course his doctoral studies in CEU International Doctoral School – CEINDO, CEU-San Pablo University.

Alejandro Lopez-Escobar declares no conflict of interest.

Author details

Salvador I. Garcia-Adasme^{1,2,3} and Alejandro López-Escobar^{1,3,4*}

1 Pediatrics Department, HM Hospitales, Madrid, Spain

2 Nursing School, Universidad CEU-San Pablo, Madrid, Spain

3 Fundación de Investigación HM Hospitales, Madrid, Spain

4 Faculty of Medicine, Universidad CEU-San Pablo, Madrid, Spain

*Address all correspondence to: alopezescobar@hmhospitales.com

IntechOpen

© 2021 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

References

- [1] World Health Organization. Weekly epidemiological update - 23 February 2021 [Internet]. 2021 [Accessed 16 MAR 2021]. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20210223_weekly_epi_update_28.pdf?sfvrsn=8064676c_16&download=true
- [2] World Health Organization. Weekly epidemiological update - 25 February 2021 - Special edition: Proposed working definitions of SARS-CoV-2 Variants of Interest and Variants of Concern [Internet]. 2021 [Accessed 16 MAR 2021]. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20210225_weekly_epi_update_voc-special-edition.pdf?sfvrsn=1eacfa47_7&download=true
- [3] Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiology of COVID-19 Among Children in China. *Pediatrics*. 1 JUN 2020;145(6):e20200702.
- [4] Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr*. JUN 2020;109(6):1088-1095.
- [5] Consiglio CR, Cotugno N, Sardh F, Pou C, Amodio D, Rodriguez L, et al. The Immunology of Multisystem Inflammatory Syndrome in Children with COVID-19. *Cell*. 12 NOV 2020;183(4):968-+.
- [6] Bautista-Rodriguez C, Sanchez-de-Toledo J, Clark BC, Herberg J, Bajolle F, Randanne PC, et al. Multisystem Inflammatory Syndrome in Children: An International Survey. *Pediatrics*. FEB 2021;147(2):e2020024554.
- [7] Jiang L, Tang K, Levin M, Irfan O, Morris SK, Wilson K, et al. COVID-19 and multisystem inflammatory syndrome in children and adolescents. *Lancet Infect Dis*. NOV 2020;20(11):E276-E288.
- [8] Toubiana J, Poirault C, Corsia A, Bajolle F, Fourgeaud J, Angoulvant F, et al. Kawasaki-like multisystem inflammatory syndrome in children during the covid-19 pandemic in Paris, France: prospective observational study. *Bmj-Br Med J*. 3 JUN 2020;369:m2094.
- [9] Jones VG, Mills M, Suarez D, Hogan CA, Yeh D, Segal JB, et al. COVID-19 and Kawasaki Disease: Novel Virus and Novel Case. *Hosp Pediatr*. 6 APR 2020;10(6):537-40.
- [10] Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. Global Mental Health 2 Child and adolescent mental health worldwide: evidence for action. *Lancet*. 22 OCT 2011;378(9801):1515-25.
- [11] Creswell C, Waite P, Cooper PJ. Assessment and management of anxiety disorders in children and adolescents. *Arch Dis Child*. JUL 2014;99(7):674-678.
- [12] Wittchen HU, Jacobi F, Rehm J, Gustavsson A, Svensson M, Jonsson B, et al. The size and burden of mental disorders and other disorders of the brain in Europe 2010. *Eur Neuropsychopharmacol*. SEP 2011;21(9):655-679.
- [13] Canals J, Voltas N, Hernández-Martínez C, Cosi S, Arija V. Prevalence of DSM-5 anxiety disorders, comorbidity, and persistence of symptoms in Spanish early adolescents. *Eur Child Adolesc Psychiatry*. 1 de enero de 2019;28(1):131-43.
- [14] Costello EJ, Egger HL, Angold A. The developmental epidemiology of anxiety disorders: Phenomenology, prevalence, and comorbidity. *Child Adolesc Psychiatr Clin N Am*. OCT 2005;14(4):631-648.

- [15] Costa D, Cunha M, Ferreira C, Gama A, Machado-Rodrigues AM, Rosado-Marques V, et al. Self-reported symptoms of depression, anxiety and stress in Portuguese primary school-aged children. *Bmc Psychiatry*. 27 FEB 2020;20(1):87.
- [16] Ahmadpanah M, Nazaribadie M, Mohammadi MR, Hooshyari Z, Alavi SS, Ghaleiha A, et al. The Prevalence of Psychiatric Disorders in Children and Adolescents in Hamadan Province, West of Iran. *J Res Health Sci*. FAL de 2018;18(4):e00432.
- [17] Beesdo K, Knappe S, Pine DS. Anxiety and Anxiety Disorders in Children and Adolescents: Developmental Issues and Implications for DSM-V. *Psychiatr Clin North Am*. 1 SEP 2009;32(3):483-524.
- [18] Orchando Perales G, Peris Cancio SP. Actualizacion de la ansiedad en la edad pediatrica. *Pediatr Integral*. 2017;XXI(1):39-46.
- [19] Giannakopoulos G, Ntre V, Moulla V, Tzavara C, Tomaras V, Kolaitis G. Posttraumatic stress, depression and anxiety in children and adolescents following a massive fire disaster: prevalence and related factors. *Eur Child Adolesc Psychiatry*. JUN 2011;20(1):S74-S75.
- [20] Kolaitis G, Giannakopoulos G, Mihas C, Ntre V, Moulla V, Sotiropoulou E, et al. Symptoms of Posttraumatic Stress, Depression and Anxiety among Youths Exposed to a Massive Fire Disaster in Greece. *J Adv Med Med Res*. 25 AUG 2011;320-32.
- [21] Bittner A, Goodwin RD, Wittchen HU, Beesdo K, Hofler M, Lieb R. What characteristics of primary anxiety disorders predict subsequent major depressive disorder? *J Clin Psychiatry*. MAY 2004;65(5):618-626.
- [22] Marshall GN, Miles JNV, Stewart SH. Anxiety Sensitivity and PTSD Symptom Severity Are Reciprocally Related: Evidence From a Longitudinal Study of Physical Trauma Survivors. *J Abnorm Psychol*. FEB 2010;119(1):143-150.
- [23] Beesdo K, Pine DS, Lieb R, Wittchen H-U. Incidence and Risk Patterns of Anxiety and Depressive Disorders and Categorization of Generalized Anxiety Disorder. *Arch Gen Psychiatry*. JAN 2010;67(1):47-57.
- [24] Vasileva M, Graf RK, Reinelt T, Petermann U, Petermann F. Research review: A meta-analysis of the international prevalence and comorbidity of mental disorders in children between 1 and 7 years. *J Child Psychol Psychiatry*. APR 2021;62(4):372-381.
- [25] Reiss F. Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Soc Sci Med*. AGO 2013;90:24-31.
- [26] Charlie Campbell. South Korea's Health Minister on How His Country Is Beating Coronavirus Without a Lockdown. *Time* [Internet]. 30 APR 2020 [Accesed 21 de abril de 2021]; Available from: <https://time.com/5830594/south-korea-covid19-coronavirus/>
- [27] Kirby J. What we can learn from the «second wave» of coronavirus cases in Asia [Internet]. *Vox*. 2020 [Accesed 21 APR 2021]. Available from: <https://www.vox.com/2020/4/17/21213787/coronavirus-asia-waves-hong-kong-singapore-taiwan>
- [28] Explained Desk. Explained: These are the countries that have not imposed lockdowns. *The Indian Express* [Internet]. 16 MAY 2020 [Accesed 21 de abril de 2021]; Available from: <https://indianexpress.com/article/explained/explained-the-countries-that-have-not-imposed-lockdown-and-why-6389003/>

- [29] Perin G. Palavras do Governador - Não vamos adotar o lockdown [Internet]. Tribuna Popular. [Accesed 21 APR 2021]. Available from: <https://tribunapopular.com.br/2020/06/palavras-do-governador-nao-vamos-adotar-o-lockdown/>
- [30] Fabrício Araújo. Justiça nega pedido do MP para obrigar governo e prefeitura de Boa Vista a decretar «lockdown» [Internet]. Globo.com. 2020 [Accesed 21 APR 2021]. Available from: <https://g1.globo.com/rr/roraima/noticia/2020/06/03/justica-nega-pedido-do-mp-para-obrigar-governo-e-prefeitura-de-boa-vista-a-decretar-lockdown.ghhtml>
- [31] Kali Coleman. These 6 States Never Went into Lockdown. Here's How They're Doing. Best Life [Internet]. 10 de junio de 2020 [Accesed 21 APR 2021]; Available from: <https://bestlifeonline.com/states-never-went-into-lockdown/>
- [32] Philip Whiteside. Coronavirus: Which countries have had to reimpose COVID-19 restrictions after easing lockdown? [Internet]. Sky News. 2020 [Accesed 21 APR 2021]. Available from: <https://news.sky.com/story/coronavirus-which-countries-have-had-to-reimpose-covid-19-restrictions-after-easing-lockdown-12037855>
- [33] Loades ME, Chatburn E, Higson-Sweeney N, Reynolds S, Shafran R, Brigden A, et al. Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19. *J Am Acad Child Adolesc Psychiatry*. NOV 2020;59(11):1218-+.
- [34] Mengin A, Alle MC, Rolling J, Ligier F, Schroder C, Lalanne L, et al. Psychopathological consequences of confinement. *Enceph-Rev Psychiatr Clin Biol Ther*. JUN 2020;46(3): S43-S52.
- [35] Dellagiulia A, Lionetti F, Fasolo M, Verderame C, Sperati A, Alessandri G. Early impact of COVID-19 lockdown on children's sleep: a 4-week longitudinal study. *J Clin Sleep Med*. 15 SEP 2020;16(9):1639-40.
- [36] Moore SA, Faulkner G, Rhodes RE, Brussoni M, Chulak-Bozzer T, Ferguson LJ, et al. Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: a national survey. *Int J Behav Nutr Phys Act*. 6 JUL 2020;17(1):85.
- [37] Pietrobelli A, Pecoraro L, Ferruzzi A, Heo M, Faith M, Zoller T, et al. Effects of COVID-19 Lockdown on Lifestyle Behaviors in Children with Obesity Living in Verona, Italy: A Longitudinal Study. *Obes Silver Spring Md*. AUG 2020;28(8):1382-1385.
- [38] Lopez-Bueno R, Lopez-Sanchez GF, Casajus JA, Calatayud J, Gil-Salmeron A, Grabovac I, et al. Health-Related Behaviors Among School-Aged Children and Adolescents During the Spanish Covid-19 Confinement. *Front Pediatr*. 11 SEP 2020;8:573.
- [39] Francisco R, Pedro M, Delvecchio E, Espada JP, Morales A, Mazzeschi C, et al. Psychological Symptoms and Behavioral Changes in Children and Adolescents During the Early Phase of COVID-19 Quarantine in Three European Countries. *Front Psychiatry*. 3 DEC 2020;11:570164.
- [40] Xiang M, Zhang Z, Kuwahara K. Impact of COVID-19 pandemic on children and adolescents' lifestyle behavior larger than expected. *Prog Cardiovasc Dis*. AUG 2020;63(4): 531-532.
- [41] Hammami A, Harrabi B, Mohr M, Krusturup P. Physical activity and coronavirus disease 2019 (COVID-19): specific recommendations for

home-based physical training. *Manag Sport Leis.*

[42] Magson NR, Freeman JYA, Rapee RM, Richardson CE, Oar EL, Fardouly J. Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *J Youth Adolesc.* JAN 2021;50(1):44-57.

[43] Margaritis I, Houdart S, El Ouadrhiri Y, Bigard X, Vuillemin A, Duche P. How to deal with COVID-19 epidemic-related lockdown physical inactivity and sedentary increase in youth? Adaptation of Anses' benchmarks. *Arch Public Health.* 3 JUN 2020;78(1):52.

[44] Teng Z, Pontes HM, Nie Q, Griffiths MD, Guo C. Depression and anxiety symptoms associated with internet gaming disorder before and during the COVID-19 pandemic: A longitudinal study. *J Behav Addict.* 10 MAR 2021;

[45] Zhou S-J, Zhang L-G, Wang L-L, Guo Z-C, Wang J-Q, Chen J-C, et al. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *Eur Child Adolesc Psychiatry.* JUN 2020;29(6):749-758.

[46] Chen F, Zheng D, Liu J, Gong Y, Guan Z, Lou D. Depression and anxiety among adolescents during COVID-19: A cross-sectional study. *Brain Behav Immun.* AUG 2020;88:36-38.

[47] Duan L, Shao X, Wang Y, Huang Y, Miao J, Yang X, et al. An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *J Affect Disord.* 1 OCT 2020;275:112-8.

[48] Liu R, Chen X, Qi H, Feng Y, Xiao L, Yuan X-F, et al. The proportion and associated factors of anxiety in Chinese

adolescents with depression during the COVID-19 outbreak. *J Affect Disord.* 1 APR 2021;284:114-9.

[49] Xie X, Xue Q, Zhou Y, Zhu K, Liu Q, Zhang J, et al. Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China. *Jama Pediatr.* SEP 2020;174(9):898-900.

[50] Garcia-Adasme SI, Cárdenas-Rebollo JM, Jimenez-Perianes A, Lalinde M, Jimeno S, Ventura PS, et al. Pediatric home confinement due to COVID-19: somatic and anxiety spectrum consequences. *J Clin Nurs.*

[51] Davico C, Ghiggia A, Marcotulli D, Ricci F, Amianto F, Vitiello B. Psychological Impact of the COVID-19 Pandemic on Adults and Their Children in Italy. *Front Psychiatry.* 12 MAR 2021;12:572997.

[52] Dubey S, Dubey MJ, Ghosh R, Chatterjee S. Children of frontline coronavirus disease-2019 warriors: our observations. *J Pediatr.* SEP 2020;224:188-189.

[53] de Miranda DM, Athanasio B da S, Sena Oliveira AC, Simoes-e-Silva AC. How is COVID-19 pandemic impacting mental health of children and adolescents? *Int J Disaster Risk Reduct.* DEC 2020;51:101845.

[54] Spinelli M, Lionetti F, Pastore M, Fasolo M. Parents' Stress and Children's Psychological Problems in Families Facing the COVID-19 Outbreak in Italy. *Front Psychol.* 3 JUL 2020;11:1713.

[55] Fegert JM, Vitiello B, Plener PL, Clemens V. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child Adolesc Psychiatry Ment Health.* 12 MAY 2020;14(1):20.

- [56] Usher K, Bhullar N, Durkin J, Gyamfi N, Jackson D. Family violence and COVID-19: Increased vulnerability and reduced options for support. *Int J Ment Health Nurs* [Internet]. 7 MAY 2020 [Accesed 22 de abril de 2021]; Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7264607/>
- [57] Bradbury-Jones C, Isham L. The pandemic paradox: The consequences of COVID-19 on domestic violence. *J Clin Nurs*. 12 APR 2020;
- [58] Asbury K, Fox L, Deniz E, Code A, Toseeb U. How is COVID-19 Affecting the Mental Health of Children with Special Educational Needs and Disabilities and Their Families? *J Autism Dev Disord*.
- [59] Lugo-Marin J, Gisbert-Gustemps L, Setien-Ramos I, Espanol-Martin G, Ibanez-Jimenez P, Forner-Puntonet M, et al. COVID-19 pandemic effects in people with Autism Spectrum Disorder and their caregivers: Evaluation of social distancing and lockdown impact on mental health and general status. *Res Autism Spectr Disord*. 25 FEB 2021;83:101757.
- [60] Colizzi M, Sironi E, Antonini F, Ciceri ML, Bovo C, Zoccante L. Psychosocial and Behavioral Impact of COVID-19 in Autism Spectrum Disorder: An Online Parent Survey. *Brain Sci*. JUN 2020;10(6):341.
- [61] Zengin M, Yayan EH, Vicnelioglu E. The effects of the COVID-19 pandemic on children's lifestyles and anxiety levels. *J Child Adolesc Psychiatr Nurs Off Publ Assoc Child Adolesc Psychiatr Nurses Inc*. 1 APR 2021;
- [62] Sher L. The impact of the COVID-19 pandemic on suicide rates. *Qjm- Int J Med*. OCT 2020;113(10):707-712.
- [63] Mourouvaye M, Bottemanne H, Bonny G, Fourcade L, Angoulvant F, Cohen JF, et al. Association between suicide behaviours in children and adolescents and the COVID-19 lockdown in Paris, France: a retrospective observational study. *Arch Dis Child*. 22 DEC 2020;
- [64] Isumi A, Doi S, Yamaoka Y, Takahashi K, Fujiwara T. Do suicide rates in children and adolescents change during school closure in Japan? The acute effect of the first wave of COVID-19 pandemic on child and adolescent mental health. *Child Abuse Negl*. DEC 2020;110:104680.
- [65] Sprang G, Silman M. Posttraumatic Stress Disorder in Parents and Youth After Health-Related Disasters. *Disaster Med Public Health Prep*. febrero de 2013;7(1):105-110.
- [66] Ortega Pacheco YJ, Martinez Rudas M. Domestic violence and COVID-19 in Colombia. *Psychiatry Res*. 4 APR 2021;300:113925.
- [67] Santiago Muñoz A. La sociedad de control: una mirada a la educación del siglo XXI desde Foucault. *Rev Filos*. OCT 2017;73:317-336.
- [68] Agamben G. ¿Qué es un dispositivo? *Sociológica México*. AUG 2011;26(73):249-264.
- [69] Radwan E, Radwan A, Radwan W. The role of social media in spreading panic among primary and secondary school students during the COVID-19 pandemic: An online questionnaire study from the Gaza Strip, Palestine. *Heliyon*. DEC 2020;6(12):e05807.
- [70] Lee JJ, Kang K-A, Wang MP, Zhao SZ, Wong JYH, O'Connor S, et al. Associations Between COVID-19 Misinformation Exposure and Belief With COVID-19 Knowledge and Preventive Behaviors: Cross-Sectional Online Study. *J Med Internet Res*. 13 NOV 2020;22(11):e22205.
- [71] Chamola V, Hassija V, Gupta V, Guizani M. A Comprehensive Review of

the COVID-19 Pandemic and the Role of IoT, Drones, AI, Blockchain, and 5G in Managing its Impact. *Ieee Access*. 2020;8:90225-90265.

[72] Imran N, Zeshan M, Pervaiz Z. Mental health considerations for children & adolescents in COVID-19 Pandemic. *Pak J Med Sci*. MAY 2020;36(4):S67-S72.

[73] Guessoum SB, Lachal J, Radjack R, Carretier E, Minassian S, Benoit L, et al. Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown. *Psychiatry Res*. SEP 2020;291:113264.

[74] Galea S, Merchant RM, Lurie N. The Mental Health Consequences of COVID-19 and Physical Distancing The Need for Prevention and Early Intervention. *Jama Intern Med*. JUN 2020;180(6):817-818.

[75] Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet*. 21 MAR 2020;395(10228):945-7.