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Opinion

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Mental health and metabolic disorders in children and Adolescents during the COVID-19 pandemic

Abstract

This Opinion type manuscript aimed to raise whether the mental health of children and adolescentes, during the COVID-19 pandemic, could impact the increase of metabolic disorders for this target group. This is based on reports obtained in the teleconsultancy of COVID-19 at the Public University in the city of Recife, northeastern Brazil, and on the literature consulted. Greater control of this age group and more specific research on the subject and possible impacts on quality of life are recommended.

Keywords: coronavirus, metabolic diseases, comprehensive health care, anxiety, depression

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Abbrevations: ROS, reactive oxygen species; Mets, metabolic syndrome; MHDs, mental health disorders; COVID-19, coronavirus-19; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; GSH, glutathione

From March 2020, with the emergenceof a novel coronavirusinfection, in the city of Recife, northeastern Brazil, there wasanexpansion of telehealth for improving the health system's response to the current crisis. A process of screening and referral of situations with potential risk has been initiated. Since June there has been an increase in the demands for mental health, especially of children and adolescents in a situation of social withdrawal and with reports of some metabolic disorders. Since the beginning of this pandemic, the elderly have been identified as the age group with the highest risk of death or severe complications of COVID-19; particularly with chronic diseases such asheart disease, diabetes, kidney disease, obesity or a condition with even greater impairment of immunity.There are still few data about individuals aged 18 years old or younger withsevere acute respiratory syndrome coronavirus 2 (SARS-CoV-2 infection) across published. There is a second or perhaps even a third wave of this pandemic, but there are still many information gaps, especially on immunisation, the re-infection cases and the very serious involvement of the younger population. The incidence of COVID-19 on children and adolescents is not yet well established, but there has been an increase in confirmed cases in this population. It is nuclear whether children and adolescents are as susceptible to COVID-19 compared with other groups of age and whether they can transmit the vírus effectively.Clinical course of COVID-19 in children and adolescents uncommonly resulted in life-threatening illness with severe outcomes. Without a definitive solution to this problem (at this moment), it is necessary to invest in increasing immunity and strategies to reducing close contact between people.Children and adolescents are probably more likely to experience high rates of depression and probably anxiety during and after enforced isolation ends. This may increase as enforced isolation continues. Clinical services should offer preventative support and early intervention where possible and be prepared for an increase in mental health problems.[1]

The shock or impairment in mental health, however, can represent a commom aspect, especially in these stages of life, where the interaction with individuals of similar ages is very important to development, the identity formation and the construction of social groups and strengthening of human relations. As volunteers in COVID-19 telehealth, there is a growing demand for the mental health of children and adolescents or their families or caregivers. Changes in behaviour, with hostile temperament and aggressive reactions or lack of communication, anxiety and depression crises, excessive carbohydrate consumption, difficulties in sleeping and absence of physical activities are now mentioned frequently. Thinking about what has been reported above, the possibility of the association of these habits related to mental health and metabolic disorders, which can increase the risk of COVID-19, with impacts on the quality of life of individuals in such a differentiated growth and development phase, is questioned. The pathogenesis of endocriny and metabolic disorders in children and adolescents envolves many factors as sleep abnormalities, dietary pattern, obesity, physical exercises perform anddiabetes mellitus.[2–4] It is also observed an increase prevalence and high comorbidity of Metabolic Syndrome (MetS) and Mental Health Disorders (MHDs).[5] Although there is still no evidence of higher predisposition to contract the infection in patients with metabolic disorders, the coexistence of these conditions contributes to a worse prognosis because both conditions confer an impaired immunologic system.[6] Childhood and Adolescent adversity is a potent risk factor for mental health conditions via disruptions to stress response systems. Dysregulations in oxidative stress systems have been associated with both childhood and adolescent adversity and several psychological disorder in adult populations.[7]

Oxidative stress, a state of lost balance between the oxidative and anti-oxidative systems of the cells and tissues, results in the over production of oxidative free radicals and reactive oxygen species (ROS). Excessive ROS generated could attack the cellular proteins,

lipids and nucleic acids leading to cellular dysfunction including loss of energy metabolism, altered cell signalling and cell cycle control, genetic mutations, altered cellular transport mechanisms and overall decreased biological activity, immune activation and inflammation. In addition, nutritional stress such as that caused by high fat high carbohydrate diet also promotes oxidative stress as evident by increased lipid peroxidation products, protein carbonylation, and decreased antioxidant system and reduced glutathione (GSH) levels.[8] In addition to being a public physical health emergency, COVID-19 affected global mental health, as evidenced by panic-buying worldwide as cases soared. Little is known about changes in levels of psychological impact, stress, anxiety and depression during this pandemic.[9] A high prevalence of psychological health problems (depressive and anxiety symptoms) have been reported among children and adolescentes, which are negatively associated with the level of awareness of COVID-19. The child's psychological response is determined by their cognitive developmental level and understanding of the cause of the disaster, the reactions of family members, and the child's personality and coping mechanisms (their resilience).[10,11]

Preschool children may have sleep and appetite disturbances, be clingy or have separation anxiety, fear the dark or have nightmares, display regressive behaviours or have behaviour change. School-aged children may be more disorganised, exhibit disruptive behaviours, have increased arousal and hypervigilance, experience somatic symptoms or have decreased academic performance. As children move through adolescence, their symptoms approximate those of adults, and they may experience anxiety, lowered mood, guilt, anger, disillusionment and fears of a limited future.The government needs to pay more attention to psychological health among these group of population, while combating COVID-19.[11,12] We need to learn much more about our "invisible and dangeours enemy" and its infection:how to prevent, treat and control its manifestations and impacts on the quality of life of human beings. Children and adolescentes, initially considered as low-risk group, can suffer many consequences from COVID-19. Here, in the form of "Opinion", we recommenda topic for further investigation.

Conclusion

Considering this Opinion based on experiences in telehealth and the literature consulted, it is suggested a methodologically rigorous research on mental health conditions and the occurrence of metabolic disorders in children and adolescents during the COVID-19 pandemic.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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