

The Effects of the Pandemic on Childhood Obesity

Pandeminin Çocukluk Çağı Obezitesi Üzerine Etkisi

Hilal KURT SEZER^a, Sibel KÜÇÜKOĞLU^b

^aDepartment of First and Immediate Aid, KTO Karatay University Vocational School of Health Services, Konya, TURKEY

^bDepartment of Child Health Nursing, Selçuk University Faculty of Nursing, Konya, TURKEY

ABSTRACT Obesity is among the leading global health problems in children under five years of age. Obesity, which is caused by genetic factors, inactive lifestyle, negative eating behaviors, endocrine disorders and malnutrition, has become a health problem with the growing risk given the conditions in the pandemic process. As a result of protective restrictions, such as mandatory shut down schools and lockdowns during the pandemic, children's time spent at home has increased, leading to a decrease in physical activity and changes in diet and sleep patterns. All these factors increase the risk of obesity in children. In addition, this situation has highlighted potential health problems for obese children. Childhood obesity is an important problem that needs to be addressed in the pandemic process, and appropriate approaches need to be developed and awareness of both parents and children need to be raised about this issue. During the pandemic process, some technological methods have been used for disease management in individuals with chronic diseases. One of the technological methods, the "Telehealth Solution", is one of the methods recommended for weight management of voluntarily children with obesity. In this article, obesity risks of children during the pandemic period were presented together with some appropriate solutions.

ÖZET Obezite riski, 5 yaşın altındaki çocuklarda önde gelen küresel sağlık sorunları arasında yer almaktadır. Genetik faktörler, inaktif yaşam tarzı, olumsuz yeme davranışları, endokrin bozukluklar ve dengeless beslenme gibi nedenlerle oluşan obezite, pandemi sürecindeki koşullar göz önüne alındığında, risk durumu daha da artan bir sağlık sorunu hâlini almıştır. Pandemi sürecinde zorunlu olarak kapatılan okullar ve sokağa çıkma yasakları gibi koruyucu kısıtlamaların bir sonucu olarak, çocukların evde geçirdikleri süre artmış, bu da fiziksel aktivitede azalmaya, diyet ve uyku düzeninde değişikliğe yol açmıştır. Tüm bu faktörler çocuklarda obezite riskini artmıştır. Ayrıca bu durum, obez çocuklar için potansiyel sağlık sorunlarını daha ön plana çıkarmıştır. Çocukluk çağı obezitesi pandemik süreçte üzerinde durulması gereken önemli bir sorundur ve uygun yaklaşımların oluşturulması ve bu konuda hem ebeveynlerin hem de çocukların bilgilendirilmesi gerekmektedir. Pandemi sürecinde bazı teknolojik yöntemler, kronik hastalığı olan bireylerde hastalık yönetimi için kullanılmaya başlanmıştır. Teknolojik yöntemlerden biri olan "Telehealth Solution", gönüllü obez çocukların kilo yönetimi için tavsiye edilen yöntemlerden biridir. Bu derlemede, pandemi döneminde çocukların obezite riskleri ve uygun bazı çözüm önerileri sunulmuştur.

Keywords: Pandemics; COVID-19; child; obesity

Anahtar Kelimeler: Pandemiler; COVID-19; çocuk; obezite

The recent pandemic of coronavirus disease-2019 (COVID-19) in Wuhan, China, has spread rapidly over time and affected almost the entire world. Travels and interactions accelerated the spread of the coronavirus to other countries, where the number of cases has continued to increase, although there have been fewer new cases in China. The outbreak was declared a pandemic by the World Health Organization (2020).¹ As of September 8, 2020, there were 27 032 617 confirmed cases and 881 464 deaths worldwide.² However, there were 279,806 confirmed positive

cases of COVID-19 and 251,105 recovered cases and 6,673 deaths in Turkey as of September 6, 2020.¹

Although the transmission and vitality of the virus are unclear, the incubation period ranges from 2 to 14 days.³ The coronavirus affects people of all ages, but there is limited data on how symptoms can be monitored in children.¹ According to the United Nations Children's Fund (April 9, 2020), 2.34 billion children worldwide live in 186 countries with social restrictions.⁴ According to the recent data from China and Italia, most children with COVID-19 present mild

Correspondence: Sibel KÜÇÜKOĞLU

Department of Child Health Nursing, Selçuk University Faculty of Nursing, Konya, TURKEY/TÜRKİYE

E-mail: s_nadaroglu@hotmail.com



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to moderate symptoms or are likely to be asymptomatic.^{5,6} Dong et al. have recently reported that although COVID-19 is much less severe in children, young children, especially infants, are more vulnerable to it than adults.⁷

Almost all countries have taken preventive measures against the spread of the coronavirus. They have imposed city lockdowns, travel restrictions, evacuations, and border and school closures, and banning social gatherings. Turkey has enforced a curfew on people aged 65 or older, individuals with chronic illnesses, pregnant women, and children under 18 years of age. It has also shut down all schools and universities and decided to transition towards distance education (online platforms).⁸ However, these measures may have some adverse consequences, one of which is obesity. High body mass index (BMI) is associated with a poor prognosis in comorbid patients with COVID-19.⁹ Research shows that obesity is as a risk factor to increase the requirement for advanced medical care.^{10,11} Lighter et al. reported that young patients with obesity grade I and II were more likely to receive critical care than normal-weight and overweight patients.¹² However, the data in question are available only for adult patients, and there is yet no report on the effect of obesity on pediatric patients, although it may be a major risk factor for them.

RISK OF OBESITY

BMIs over the 85th, 95th, and 99th percentiles put children over two years of age in the categories of overweight, obese, and severely obese, respectively.¹³ Obesity can be seen at any age in childhood, but the risk is highest in the first five years and adolescence because fat storage capacity is higher at that time.¹⁴ The current data shows that over 41 million children under the age of five are either overweight or obese.¹⁵ As one of the major health problems of the twenty-first century, obesity is more common in developed and emerging countries, regardless of socioeconomic status. According to the Turkish Demographic and Health Survey (2018), eight in ten children under the age of five are obese.¹⁶ Childhood obesity depends on various factors, such as genes, mental health, social setting, birth weight, eating habits, and obesogenic environments.^{17,18}

Sedentary lifestyles and high-fat, high-sugar, and high-calorie foods increase the risk of obesity. Bad eating habits, such as not chewing enough, consuming junk food, eating large portions, and eating when not hungry.¹⁹

The goal of obesity management in children is to lower the BMI percentile by preventing them from gaining weight and encouraging them to lose weight. Behavioral therapy, medication, and diet, exercise, and surgical interventions can be used. These methods can be applied through individual and group motivational interviews and computer-based tracking and warning systems. A combination of diet and exercise interventions that target lifestyle changes prove to be the most effective.²⁰

School closures due to the COVID-19 pandemic have exacerbated the epidemic of childhood obesity because normally, students eat healthy meals and exercise and sleep regularly in school, which plays a crucial role in reducing the risk of obesity.²¹ However, staying indoors during the pandemic has disrupted the children's routine. Many studies show that children gain weight faster over summer break than in school.²¹⁻²⁴ Childhood weight gain increases the risk of adult obesity. Adults consumed higher calorie foods (flour, rice, crackers, chips, soda, sugary cereals, and processed foods) during the pandemic.²⁵ This consumption behavior during the pandemic extended the length of stay at home and made children more likely to eat high-calorie foods during the pandemic. Social distancing and lockdowns all over the world have prevented children especially those living in small apartments in cities, from participating in exercise.²⁶ Baidal et al. noted that unhealthy foods, insufficient physical activity, too much screen time, and curtailed sleep increased the risk for childhood obesity.²⁷ Children with obesity are more likely to suffer from mental problems, hypertension, diabetes, orthopedic and musculoskeletal disorders, and cardiovascular diseases.²³ Pietrobelli et al. found that children were less active and slept more and spent more time on digital devices and consumed more fruit, red meat, and sugary drinks but the same amount of vegetable during the lockdown.²⁶

WEIGHT MANAGEMENT IN PANDEMIC

The global prevalence of pediatric obesity increased considerably in recent decades. Therefore, children need effective interventions (dietary and behavioral therapy and physical exercises at home) to prevent obesity during the pandemic.²⁷ However, incorrect interventions may cause negative consequences. For example, Rahmati-Ahmadabad and Hosseini argue that intense exercise may be dangerous for people with obesity suppresses the immune system and reduces the production of antioxidants during the pre-symptomatic period.²⁸ Therefore, both parents and children should be informed about obesity and other related health problems. Scientific recommendations should be taken into account to determine the needs of obese children and healthcare professionals and to encourage those children to develop healthy eating behaviors during the COVID-19 pandemic. However, the pandemic has placed a massive responsibility on the shoulders of healthcare professionals.

Healthcare professionals try to help patients with obesity as much as they can even during the pandemic. For example, the European Coalition for People Living with Obesity (ECPO) works hard to identify the needs of obese patients for information and support and to meet those needs in a patient-focused and evidence-based manner during the pandemic. ECPO provides on its website practical information for all individuals with obesity on how to maintain health-promoting behaviors during the COVID-19 pandemic.²⁹ Telehealth and telemedicine are also used for the education and follow-up of children with obesity during the pandemic.³⁰⁻³³ Telehealth is defined as the use of technology (videoconferencing, streaming media, wireless communications, etc.) to provide long-distance healthcare and health-related education and training. Telemedicine is defined as the use of technology to diagnose, monitor, and treat medical conditions from a distance.³⁴ Research shows that telehealth or mobile health applications are feasible and cost-effective methods for pediatric weight

management during the pandemic. However, there is little data on the effectiveness of telehealth in pediatric weight management.

Countries that have not yet implemented such practices should integrate training on weight management and eating habits into online educational programs. Parents should also be provided online education so that they can help their children develop the right eating habits, perform physical activities at home, and manage weight during the pandemic

CONCLUSION

It is of paramount importance to provide the right resources to help children adopt a healthy lifestyle and to help parents support them in this process during the pandemic. Therefore, evidence-based guidelines for adults and children with obesity should be shared globally to support all countries in protecting public health. What is more, all countries should monitor patients with obesity and take precautions to prevent them from being ignored during the pandemic.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Sibel Küçükkoğlu; **Design:** Hilal Kurt Sezer; **Control/Supervision:** Sibel Küçükkoğlu; **Data Collection and/or Processing:** Sibel Küçükkoğlu, Hilal Kurt Sezer; **Analysis and/or Interpretation:** Sibel Küçükkoğlu, Hilal Kurt Sezer; **Literature Review:** Sibel Küçükkoğlu, Hilal Kurt Sezer; **Writing the Article:** Sibel Küçükkoğlu, Hilal Kurt Sezer; **Critical Review:** Sibel Küçükkoğlu.

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