Çocukluk Çağı Obezitesine Halk Sağlığı Bakışı

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Öz

Çocukluk çağı obezitesi, dünya genelinde giderek büyüyen ve endişe veren bir sorundur. Çocuklar bu durumla hayatlarının erken dönemlerinde karşılaştıkları takdirde, yetişkinlik döneminde fiziksel, psikolojik ve sosyal sorunlara yol açabilir. Bu nedenle, çocukluk çağı obezitesini engellemede erken dönem önlemler almak son derece önemlidir. Çocukluk çağı obezitesiyle mücadelede başarılı olabilmek için, bütünsel bir yaklaşım benimsemek gerekmektedir. Bu, obezite kontrol ve önleme programlarının tüm sosyoekonomik gruplara erişilebilir ve uygulanabilir olması anlamına gelmektedir. Ayrıca, çocukluk çağı obezitesini önlemek için sadece çocukları değil, aynı zamanda ailelerini de içine alan kapsamlı bir yaklaşım gereklidir. Okullar, bu mücadelede önemli bir rol oynamaktadır. Okullar, sağlıklı beslenme ve fiziksel aktiviteyi teşvik etmek için ideal bir platform sağlar. Okullar, çocuklara sağlıklı beslenme alışkanlıklarını öğretmek ve fiziksel aktiviteyi teşvik etmek için beslenme eğitimi programları sunarak katkıda bulunabilirler. Sonuç olarak, çocukluk çağı obezitesini kontrol altına almak için müdahale programlarının erken yaş gruplarına yönelik uygulanması ve çocukların aileleri, çevreleri ve okullarıyla birlikte ele alınması son derece etkili bir yol olabilir. Bu sayede, sağlıklı yaşam tarzlarını benimsemeleri ve obezitenin önlenmesine katkı sağlamaları mümkün olabilir.

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Public Health Perspective to Childhood Obesity

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Abstract

Childhood obesity is a growing and concerning issue worldwide. When children face this problem early in their lives, it can lead to physical, psychological, and social issues in adulthood. Therefore, taking early measures to prevent childhood obesity is critically important. To be successful in combating childhood obesity, a holistic approach is necessary. This means that obesity control and prevention programs should be accessible and applicable to all socio-economic groups. Furthermore, a comprehensive approach that includes not only children but also their families is essential to prevent childhood obesity. Schools play a significant role in this battle. They provide an ideal platform to promote healthy eating and physical activity. Schools can contribute by offering nutrition education programs to teach children healthy eating habits and encourage physical activity. In conclusion, implementing intervention programs targeting early age groups and involving children, their families, and their schools is highly effective in controlling childhood obesity. This can help children adopt healthy lifestyles and contribute to obesity prevention.

Keywords

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Introduction

According to the World Health Organization definition (WHO), overweight and obesity are defined as abnormal or excessive fat accumulation (World Health Organization, 2018). It is well known that individuals who are obese in childhood are at risk for obesity in adulthood. Studies on this topic have shown that one-third of obese children and 80% of obese adolescents are also obese in adulthood (Günöz, Saner, Demirkol and Gökçay, 2002). The increasing prevalence of obesity has led to an increase in its complications. Obesity affects almost all systems of the human body. Obesity leads to metabolic syndrome, diabetes mellitus type 2 (DM), polycystic ovary syndrome (PCOS) by causing insulin resistance. Cardiovascular complications of obesity include coronary heart disease, hypertension, cerebrovascular disease, deep vein thrombosis and varicose veins. Over the past decade, the incidence of cardiovascular disease in children has increased significantly, and family history, obesity, hypertension, smoking, and high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol levels are thought to play an important role in this increase. The origin of cardiovascular morbidity and mortality caused by obesity in adults is childhood. Obesity, acquired primarily in adolescence, has been shown to be an important determinant of obesity in adulthood and is responsible for increased mortality from heart disease such as coronary artery disease and congestive heart failure in adulthood (Ergül and Kalkım, 2011). Globally, the prevalence of overweight and obesity was reported to have increased by 27.5% in adults and 47.1% in children between 1980 and 2013 (Ng et al., 2014).

According to the World Health Organization, the prevalence of overweight and obesity in children and adolescents aged 5 to 19 years increased from 4% in 1975 to 18% in 2016. This increase was similar for boys and girls: 18% of girls and 19% of boys were overweight in 2016 (World Health Organization, 2018). According to the 2016 Childhood Obesity Survey conducted in Turkey, 14.3% of children aged 6-10 years were classified as mildly obese and 6.5% were classified as obese, and obesity was found to increase with age (Ministry of Health, 2017). According to the Turkish Nutrition and Health Survey (TBSA), 17.9% of children aged 0-5 years were mildly obese and 8.5% were obese, and the problem of obesity was prevalent in males, taking into account parameters such as gender and place of residence. In the age group of 6 to 18 years, 14.3% were found to be mildly obese and 8.2% were obese (Ministry of Health, 2010).

1. Definition of Childhood Obesity

Obesity, one of the most important health problems of our century, is rapidly increasing day by day. Childhood obesity has become a worldwide epidemic. This situation has increased in the last 30 years. It is believed that many problems that may develop due to obesity can be eliminated by improving dietary habits. On the other hand, the loss of labour

and unemployment due to obesity, as well as the problems that can develop due to obesity, pose separate problems for the nation's economy. For this reason, prevention of childhood obesity should begin as early as possible. There are many different causes of childhood obesity. With the trainings planned for these reasons, an effective battle can be fought (Polyzos and Mantzoros, 2019).

The most risky periods for the increase of adipose tissue are infancy, age 5-6 years, and adolescence. Although the incidence of obesity decreases after the first year of life as the child walks, the incidence of obesity increases as adipose tissue increases in girls and boys during pre-puberty (Kahraman and Bolışık, 2017). Research data show that body mass index (BMI) increases in the first years of life and decreases in later years. After the age of 5, BMI increases again, and this situation is associated with obesity. It is known that the risk of being obese in adolescence and adulthood is higher in children who gain weight rapidly in the first five years of life than in children who do not gain weight until after age six or seven. Adolescence is the final stage of permanent obesity (Blüher, 2019; Flynn et al., 2006; Weihrauch-Blüher et al., 2018; Whittemore, Chao, Popick and Grey, 2013).

The definition of body mass index is used to determine obesity based on the obesity classification of the World Health Organization. BMI is determined by dividing a person's weight in kilograms by the square of their height in meters. For children and adolescents, percentile and "z" score values are used outside of this classification (Ergül and Kalkım, 2011).

Obesity is classified by body mass index (BMI). Although obesity is defined as BMI > 30, health risk progressively increases when body weight exceeds BMI 25. Morbid obesity (> 40) is a serious disease, and patients often live less than 60 years. In terms of life expectancy, the ideal BMI appears to be between 20 and 22. The use of BMI as a measure of obesity has gained worldwide acceptance and is used as an indicator of life expectancy and complications associated with obesity. In children, using BMI percentile curves established by age and sex, children with > 85th percentile are classified as overweight and those with > 90th percentile are classified as obese. Other diagnostic methods include body weight in relation to age, weight in relation to height, measurement of skinfold thickness, and body composition in relation to fat content (World Health Organization, 2018).

2. The Epidemiology of Childhood Obesity

Childhood obesity is on the rise worldwide. According to the World Health Organization, the number of obese children under the age of 5 is estimated to be more than 43 million worldwide, and this number is expected to increase rapidly to 70 million by 2025. The prevalence of obesity in children aged 2 to 19 years has been reported to be 38% in Europe, 22% in Asia, 24.6% in China, and 16.9% in the United States (Kahraman and Bolışık, 2017). While the prevalence of adolescent obesity was 34% in Taiwan, it was reported to be 14.1% in Canada (Aktaş, Öztürk and Kapan, 2015). According to the 2003 report of the

International Commission on Obesity, one in ten children aged 5 to 17 years worldwide is overweight or obese, and the countries with a higher prevalence of obesity in schoolchildren compared with both sexes are Spain and Portugal; the countries with the lowest rates are Slovakia, France, and Iceland (Ergül and Kalkım, 2011). Although obesity can occur at any age, it is more common in low-income countries and in middle-aged women. It is also known to be more common in high-income countries than in all other sex, age, and disadvantaged groups (Choi, Ding and Magkos, 2019).

A large-scale study has been conducted in Turkey. In a study that examined the effects of regional differences, settlements, education and income levels, and demographic variables such as age and gender on dietary behavior and habits, it was found that the prevalence of mildly obese children aged 0 to 5 years was 17.9% and 8.5%, respectively; the prevalence of overweight and obesity in children aged 6 to 18 years was 14.3% and 8.2%, respectively (Ministry of Health, 2010). In the TOÇBİ study conducted to monitor the growth of school-age children in Turkey, it was found that 6.5% of school-age children were obese, 14.3% were mildly obese, and 70% had normal body weight (Ministry of Health, 2017). In this study, it was found that 10.8% of children had not eaten breakfast and 9.1% of them skipped lunch. In addition, the study found that children mainly brought fast food from home to school and consumed 25.8% vegetables, 31.1% fruits, and 14.5% ajran daily. The consumption of meat and fish was found to be quite low. In addition, COSI (WHO European Childhood Obesity Surveillance Initiative) was conducted by the European Region to monitor the prevalence of childhood obesity in member countries. COSI-TR in the 7-8 year age group, the obesity rate was 8.3% and the overweight rate was 14% (Ministry of Health, 2017).

3. Complications of childhood obesity

In addition to diseases that severely affect physical health, such as type 2 DM, fatty liver, HT, MI, paralysis, dementia, osteoarthritis, gallstones, gastroesophageal reflux, muscle-joint problems, obese children cause many psychosocial and emotional problems, affecting mental health, as well as anger, anxiety, propensity for violence, inability to make friends, unwanted drug use, the possibility of unprotected sex, and the possibility of many unprotected sexual encounters. Risk factors for cardiovascular disease: elevated insulin levels, impaired glucose tolerance, dyslipidemia, and hypertension. Elevated BMI is known to be associated with leukopenia, Hodgkin's lymphoma, colorectal cancer, and breast cancer (Blüher, 2019; Delgado-Noguera, Tort, Bonfill, Gich and Alonso-Coello, 2009; Flynn et al., 2006; Weihrauch-Blüher et al., 2018; Whittemore et al., 2013).

4. Risk factors for childhood obesity

4.1. Causes of obesity

Childhood obesity is influenced by biological, genetic, and environmental factors (Delgado-Noguera et al., 2009; Hung et al., 2015; Kahraman and Bolışık, 2017; Olson, Aldrich,

Callahan, Matthews and Gance-Cleveland, 2016; Parlak and Çetinkaya, 2007; Pelletier, 2015). Food choices and physical activity levels play an important role in environmental and social factors, and it has been reported that the deterioration of the balance between food intake, metabolic rate, and physical activity leads to obesity (Weihrauch-Blüher et al., 2018).

4.2. Factors affecting food intake

Overeating, sociocultural factors, lack of and inadequate information, lack of peer support, uncontrollable desire to eat, excessive consumption of snacks, inadequate sleep, and certain medications affect this situation (Aktaş et al., 2015; Blüher, 2019; Delgado-Noguera et al., 2009).

4.3. Factors affecting metabolism and energy expenditure

Age, gender, genetic and epigenetic factors, the presence of inflammation in the body, neuroendocrine factors, microbiota, insulin resistance, insufficient sleep, binge eating, and some psychiatric disorders can influence this situation (Blüher, 2019; Delgado-Noguera et al., 2009). In a study examining age and sex differences and food choices of children, 1291 children aged 4-16 years were included in the study. It was concluded that girls like more fruits and vegetables than boys and boys prefer more fatty and sugary foods. Accordingly, it was found that males consume less healthy foods. It can be said that it would be positive to introduce children to non-consumed healthy foods in a repeated manner in different models.

4.4. Factors affecting physical activity

Muscle pain, chronic fatigue, and skeletal pain can affect physical activity. In addition, social media, smoking, shopping addiction, time spent in front of screens, countries' dietary guidelines, shift work, noise, and the work environment are important factors that can affect obesity (Blüher, 2019; Delgado-Noguera et al., 2009).

In addition, social stigmatization by the environment is often associated with obesity, which in turn causes the desire to eat more, dragging the person into an unresolvable vicious circle. For this reason, all initiatives should be planned with environmental and social dimensions in mind (Blüher, 2019; Flynn et al., 2006; Weihrauch-Blüher et al., 2018; Whittemore et al., 2013).

5. Prevention of childhood obesity

Preventive measures for childhood obesity, as well as raising awareness among children and parents about this growing public health issue before obesity develops, can help

mitigate the problem. The Turkish Ministry of Health has implemented numerous projects in this regard. The Turkey Healthy Eating and Active Lifestyle Program aims to create awareness among students by incorporating topics such as appropriate and balanced nutrition for preschool and school-age children, and the importance of regular physical activity in combating obesity into smart board programs in schools. Additionally, the Ministry has provided brochures and information on the websites www.beslenme.gov.tr and www.fizikselaktivite.gov.tr to educate students. In collaboration with the Turkish Ministry of National Education, the Ministry of Health has created sample menus and food lists for schools. The efforts of both ministries have encouraged schools to adopt a "Healthy Eating-Friendly School" Project, which is not yet implemented in all schools, promoting healthy and active lifestyles. School canteens and cafeterias are continuously monitored to ensure the provision of high-quality foods such as fresh vegetables/fruits, milk, and buttermilk to encourage students to consume these instead of high-fat and high-carbohydrate foods (Ministry of Health, 2014, 2016).

School initiatives form the basis for childhood obesity studies because children spend most of their day in the school environment. Individuals spend the most important processes of their lives in school. The school years are a period during which rapid physiological, psychological, and social development occurs, lifelong patterns of behavior are established and solidified, and children are extremely inquisitive and receptive. For this reason, the elementary school years are an area that should be evaluated to establish healthy eating behaviors. It is well known that dietary behaviors in this age group are influenced by many variables. As the independence habits of school-aged children begin to develop, children like to eat simple meals at home, but also like to store and eat out. As they enjoy shopping, eating the food they buy outside with their friends becomes more appealing over time, rather than sitting at the table at home.

Since schools are an appropriate environment for building and developing positive knowledge, attitudes, and behaviors, nutrition education, which is to be given for the formation of healthy eating behaviors, plays an important role in the formation and consolidation of positive eating behaviors in school-aged children in the early years. Nutrition education in schools plays a protective role in preventing childhood obesity (Günay, Aydın, Aksakoğlu and Cambaz Ulaş, 2016). In addition to the positive effects of nutrition programs implemented in schools on growth, development, and learning, proper dietary habits acquired during the school years ensure that children are protected from many diseases such as obesity, coronary heart disease, and diabetes in adulthood (Baysal, 2009). The Ministry of Health has also made recommendations in the action plan it created to support all obesity and diabetes prevention efforts in schools (Ministry of Health, 2014, 2016).

Elementary schools are the places where childhood obesity prevention can be most effectively implemented. However, studies conclude that school nurses do not provide effective protection and cannot provide primary care because there are not enough school nurses, there are not enough resources, and there is not enough time (Morrison-Sandberg,

Kubik and Johnson, 2011). To effectively address childhood obesity, health care providers, government agencies, the media, and the food marketing industry must collaborate on protective measures. Efforts should be made to ensure that school-based initiatives are multidimensional and sustainable (Delgado-Noguera et al., 2009).

Some studies conducted in low-income settings have found that there are inequities in access to obesity programs. To prevent this, it is necessary to improve access to programs for these groups, design school environments in these regions with supportive qualities, and inform and train school administrators and staff about protective programs. Different approaches such as play-based education should be tried instead of traditional educational approaches, and patterns of malnutrition in the school environment should be reduced and at-risk groups should not be ignored in this context (Evans, Albar, Vargas-Garcia and Xu, 2015). Corporate programs should be organized to minimize inequalities, be nondiscriminatory, sensitive and empathetic, and incorporate the concept of gender. It is important that everyone can reach the childhood weight control studies. To this end, one study included 47 families living in a rural area in the research group and listed their difficulties in participating in prevention programs; it was found that the referral process or follow-up was inadequate, the cost and time pressure, the content of the program was not fully known, and the family lacked motivation. It is believed that effective participation can be achieved through a well-functioning, free referral system and a well-structured organization (Kulik et al., 2017).

It is critical to take a whole-system approach to childhood obesity control. Control programs should be accessible and applicable at all socioeconomic levels. In addition, not only children but also their families should be involved in efforts to increase nutrition education and physical activity to prevent childhood obesity (Guerra, da Silveira and Salvador, 2016).

To date, obesity prevention programs have focused on behavior modification. Studies of behavior modification are limited in the long term. A mixed approach involving the environment and society is thought to be more effective (Weihrauch-Blüher et al., 2018). In a study that increased patient participation in pediatric obesity clinics and ensured that patients had positive attitudes toward follow-up, it was found that half of the participants in this program regularly attended follow-up visits. Regular attendance at follow-up programs resulted in positive outcomes in terms of both body mass index reduction and health status improvement. In addition, it was found that it would be useful to use different methods by creating participation in social media to ensure effective patient participation before, during, and after the control programs (Geer, Porter, Haemer and Krajicek, 2014)
In a study examining the effectiveness of the obesity control program in 6-to 7-year-old children in a randomized controlled manner, students were enrolled in the intervention program for 12 weeks, which included participation in physical activities and healthy eating behaviors. The program was delivered in collaboration with the school and family; behavioral interventions targeted the child's diet, behavior, and physical activity. At the end of the program, there was no significant change in adipose tissue, healthy food intake,

or physical activity in the intervention group (Adab et al., 2018).

In a randomized controlled trial involving overweight and obese children and their families in the primary obesity control program, 60 children aged 4 to 8 years were included. A 4-week program was established for this purpose. The children's body mass index did not change at the end of the study or at 3 and 6 months (Small, Bonds-McClain, Melnyk, Vaughan and Gannon, 2014).

In a study comparing adult and peer education methods in the development of healthy eating behaviors in school-aged children, no statistically significant difference was found between the pretest dietary outcomes of the two groups, whereas dietary self-efficacy and dietary behavior scale scores increased in the group taught by adults after training.
In a study that conducted a meta-analysis of weight control programs conducted between 2002 and 2015, it was concluded that studies of focus group characteristics, diet, physical activity, behavior change, family involvement, and various disciplines were more effective (Snethen, Broome, Treisman, Castro and Kelber, 2016).

In a study examining childhood obesity using an education-based intervention method, it was found that 73% of nurses had insufficient time and 77% of parents were not interested in their children's weight management. Adherence to recommendations was found to increase from 6% to 16% with education on this topic, whereas no change was found in BMI (Busch, Hubka and Lynch, 2018).

A study examining whether children adequately fill their portions included 385 studies that examined families with one or more children aged 2 to 12 years. In this context, it was concluded that families generally engage in different dietary behaviors than what they recommend for their children. Because families' dietary behaviors and attitudes affect their children's diets, they should be appropriate role models, allow children to make their own choices in an appropriate manner, and keep portions at a reasonable level that is not too large (Kairey et al., 2018). In a study that examined the attitudes of families toward their overweight children, 173 families were surveyed on this topic. As a result of the survey, physical activity was found to be inadequate. Among the reasons for this were the lack of places to be physically active and the lack of information on how to be physically active. In addition, it was found that advertisements present unhealthy foods in an attractive way, lack of motivation to eat healthy, lack of information about healthy eating, spending less time sleeping, spending a lot of time in front of screens, and going to bed too late as a result. There was no significant association with socioeconomic level (Shahsanai, Bahreynian, Fallah, Hovsepian and Kelishadi, 2019).

6. Treatment of obesity in childhood

The treatment of childhood obesity is a process that requires a multidimensional approach. The environment in which the child lives, family factors, dietary habits, family attitudes toward the child's diet, physical activity status, the presence of other diseases besides obesity, the person's belief in treatment, and previous experiences all play an

important role in the treatment of obesity. In this context, personalized nutrition therapy, exercise planning, behavior modification, drug therapy, and surgical treatment should be evaluated, taking into account all the underlying factors of the problem. The process of behavior change is a concept that should be emphasized in the treatment of obesity and has comprehensive dimensions, such as psychological beliefs, the reinforcement and support of social support mechanisms, the ability to monitor oneself objectively, and the adoption of parents in the treatment of obesity as the proper role models (Yiğit, 2011). It is necessary for families to take a supportive role in children's weight management, not to demotivate children with stimuli such as blaming or ridiculing, to be aware of the child's emotional state due to his or her weight, and to support the child's self-confidence. In this context, it should be ensured that both children and families support each other by organizing camps, meetings, and family reunions with children in similar situations (McBride, 2018). It is also very important that families have a positive attitude toward physical activity. The status of physical activity in the family and the positive attitude that the child receives from his family when he is physically active increase his social support and play a positive role in the weight control program (Trost and Loprinzi, 2011).

In addition, in the prevention of childhood obesity, regular monitoring of pregnancy is important. In this sense, it is necessary to educate society to raise awareness of childhood obesity among expectant mothers, mothers and the whole society. In this regard, teachers working in preschools, elementary schools, secondary schools, and high schools should be involved in the education programs, and healthy eating and physical activity programs should be implemented as part of the program and continuously. Efforts should be made to ensure that national policies support them and that media tools are in place. Raising awareness of childhood obesity among all who work with children is very important for future healthy generations (Altıncı, 2017).

Another method used in the treatment of obesity is motivational interviewing. Motivational interviewing is an evidence-based method for guiding behavior change. It can be used effectively in programs to address obesity. Programs can be enhanced by improving motivational interviewing skills. Adequate time should be given to the child and he or she should be actively listened to (Gruhl and Van Leuven, 2014). In a study examining the effect of obesity control programs on behavior change, it was found that people's resistance to situations under the influence of the style changes of the intervention programs should not be denied. In this context, it was concluded that obesity can be effectively controlled with motivational interviewing (Tyler and Horner, 2008).

Conclusion

In conclusion, it has become very important to take sustainable steps and combat childhood obesity in our country and in the world. It is believed that it will be very effective to implement these intervention programs in early age groups and treat the child as a

whole with his family, environment and school. It is necessary to promote healthy eating, make physical activity a lifestyle and act with an awareness that begins in the prenatal period, not after the child is born.

Prevention of childhood obesity is a problem that can be solved with a multidisciplinary perspective. In this context, desirable behaviors can be achieved with an approach that requires the coordinated work of many different professions, such as policy makers, local governments, school administrators, teachers, physicians, school nurses, dietitians, and child development specialists.

- It is very important that the family be a role model for healthy eating behaviors in children. For this reason, although training on healthy eating behaviors conducted only for children is of limited importance, the family and the child's environment should be involved in comprehensive educational programs, and reminder activities should be conducted after the training is completed.

- Since children spend a lot of time in front of screens in our era, screen time should be regulated according to the children's age group, and a regular system for mealtimes at the table should be implemented.

- Since there is a link between stress and eating, children should be taught stress management techniques by explaining to them that stress cannot be solved with food.

- Children should be taught to get away from sedentary lifestyles and add movement to their lives, and the school environment and living spaces should be designed to support movement.

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