

Heidrun ADUMITRĂCHIOAIEI,  
Alina-Costina LUCA<sup>1</sup>

Gr. T. Popa University of Medicine and Pharmacy, Iași  
Department of Pediatric Cardiology, Sf. Mary Children's Emergency Hospital, Iași

# FAST-FOOD RESTAURANTS NEAR EDUCATION UNITS - CHILDREN'S OBESOGENEOUS ENVIRONMENT

Case  
Study

---

## Keywords

Fast-food;  
Obesity;  
Education;

---

## Abstract

*Nutritional education of adolescents is an essential pillar for learning balanced eating habits, it is difficult to manage this, due to the difficult period, in which most often this population group adheres to behaviors in contrast to those presented and supported by the family. The main changes observed in the diet are influenced by the unlimited access to foods rich in calories and poor in nutrients and by the desire to be accepted by the group of friends, thus increasing the consumption of carbonated drinks, not respecting the main meals and consuming junk food.*

---

<sup>1</sup> Corresponding author: [alina.luca@umfiiasi.ro](mailto:alina.luca@umfiiasi.ro)

Childhood obesity is a global health problem, food choices in childhood and adolescence most often define the adult's eating habit. For this reason, multiple public health strategies have intervened by increasing attention to food preparations that are provided in the vicinity of educational institutions, with the aim of reducing childhood obesity (Story, Nanney, & Schwartz, 2009; Sharma, Teret, & Brownell, 2010; Asirvatham, Thomsen, Nayga, & Goudie, 2019).

Adolescence represents a bridge to adult life, a bridge that comes with multiple physical and mental changes, the adolescent is easily influenced by the circle of friends from the desire to be accepted, and filtering information from the online environment is difficult to achieve if there are no nutritional information bases, for this reason, access to shops and fast-food restaurants has a negative influence and favors food choices that will lead to excess body weight. In these stores and restaurants, students have access to foods rich in calories and low in macronutrients and micronutrients (Llewellyn, Simmonds, Owen, & Woolacott, 2016; Skinner, Perrin, Moss, & Skelton, 2015; Virtanen, Kivimäki, Ervasti, Oksanen, Pentti, Kouvonen, Halonen, Kivimäki, & Vahtera, 2015). According to expert judges, excess weight from adolescence tends to persist into adulthood, a fact that leads to the appearance of non-communicable chronic diseases such as diabetes and coronary heart disease in a higher percentage compared to people who are of normal weight (Skinner et al., 2015; Virtanen et al., 2015)

The occurrence of obesity is influenced by sex, race, geographical area, socioeconomic level, unfortunately areas with low socioeconomic level present higher risks for adolescents to develop obesity, compared to adolescents who come from areas with higher incomes, we believe that this fact due to low-priced foods that are rich in calories and unhealthy substances as well as due to a lower quality level of education that makes access to adequate nutritional information unavailable (Davis & Carpenter, 2009).

In a study carried out in California on 500,000 students, it was found that the presence of fast-food restaurants influences food choices in a negative way by reducing the consumption of fruits and vegetables, increasing the consumption of carbonated drinks, choices that lead to an increased risk of overweight and/or obesity (Rummo, Wu, McDermott, Schwartz, & Elbel, 2020).

In a study conducted on students in New York, over a period of 5 years, it was shown that the distance between the school and the nearest fast-food store or restaurant was shown to have an inverse effect proportional to the appearance of obesity (Snel, Custers, & Engbersen, 2018).

In a study carried out in Finland, it was concluded that the distance between the educational unit and access to unhealthy food is inversely proportional to the occurrence of obesity, thus, students in schools with unhealthy food sources less than 100 meters away constitute an obesogenic environment for them, most declared the omission of serving breakfast and often also lunch (Davis & Carpenter, 2009).

In a study carried out in The Hague, it was found that most schools had sources of unhealthy food in the area, another conclusion of this cross-sectional study is the presence of an increased number of fast-food shops and restaurants near the educational units in the less developed socio-economic areas (Gemeente Den Haag, 2022; Inglis, Ball, & Crawford, 2005; Luca, Begezsan, & Iordache, 2012). We thus witness both the increase in obesity among students from disadvantaged areas due to a better developed obesogenic environment and an access to food rich in carcinogenic substances due to affordable food for the population with a low socioeconomic level, in conclusion people with low incomes have a double risk of developing health problems due to diet (Banta, Segovia-Siapco, Crocker, Montoya, & Alhousseini, 2019; Inglis et al., 2005; Snel et al., 2018).

The consumption of fast food was analyzed and in a study in London, in a disadvantaged area, it was concluded that the presence of these food sources influences the food choices of children during their time at school, but also that race plays an important role in the predisposition to obesity and culinary preferences, thus, a percentage greater than 50% of the study group consumed fast food two or more times a week, 10% declared a daily consumption, and of these, most were minority groups, blacks and Asians. The presence of stores and fast-food restaurants at short distances from schools (< 750 meters) was found in 58.9% of public educational establishments in Quebec. In the US, the analysis of more than 30,000 schools in more than fifty states showed that 37.12% had at least one fast food store or restaurant at a distance of less than 805 meters (Zenk, & Powell, 2008; Robitaille & Lalonde, 2014; Patterson, Risby, & Chan, 2012).

Nutritional education of adolescents is an essential pillar for learning balanced eating habits, it is difficult to manage this, due to the difficult period, in which most often this population group adheres to behaviors in contrast to those presented and supported by the family. The main changes observed in the diet are influenced by the unlimited access to foods rich in calories and poor in nutrients and by the desire to be accepted by the group of friends, thus increasing the consumption of carbonated drinks, not respecting the main meals and consuming junk food.

The presentation of healthy eating habits from early childhood, with the presence of the nutritionist in

the educational units, can contribute to a better management of the adolescent period. Increased attention should be directed to adolescent girls, who are at increased risk of anemia due to menstruation in the absence of adequate iron intake. The osteoarticular system reaches its bone density almost entirely towards the end of adolescence, for this reason, education is important in the prevention of chronic non-communicable diseases in adulthood, an adequate consumption of calcium, which can be provided from the consumption of milk and dairy products, can provide the whole calcium requirement (More, 2013; Payne & Barker, 2013; Tarcea, Crăciun, Ruța, Rus, 2017).

Analyzing numerous studies, we conclude that the presence of obese environments provided by easy access to fast-food stores and restaurants is an intensively studied topic in all regions of the world, thus health policies are needed to restrict access to rich food in the vicinity of educational institutions in calories and poor in essential nutrients, the promotion of healthy eating, access to healthy eating for students when they are in class, the management of these procedures should be based on a team made up of teaching staff, family and nutritionist, for favorable results (Shareck, Lewis, Smith, Clary, & Cummins, 2018; Luca, Duceac, Mitrea, Ciuhodaru, Ichim, Baciuc, Banu, & Iordache, 2018; Duceac, Luca, Mitrea, Banu, Ciuhodaru, Ciomaga, Ichim, & Baciuc, 2018; Ichim, Duceac, Marcu, Iordache, Ciomaga, Luca, Goroftei, Mitrea, Damir, & Stafie, 2019; Duceac, Calin, Eva, Marcu, Goroftei, Dabija, Mitrea, Luca, Hanganu, Gutu, Stafie, Banu, Grierosu, & Iordache, 2020; Smagge, van der Velde, & Kiefte-de Jong, 2022).

#### REFERENCE LIST

- [1] Asirvatham, J., Thomsen, M. R., Nayga, R. M., Jr, & Goudie, A. (2019). Do fast food restaurants surrounding schools affect childhood obesity?. *Economics and human biology*, 33, 124–133. <https://doi.org/10.1016/j.ehb.2019.01.011>
- [2] Banta, J. E., Segovia-Siapco, G., Crocker, C. B., Montoya, D., & Alhusseini, N. (2019). Mental health status and dietary intake among California adults: a population-based survey. *International journal of food sciences and nutrition*, 70(6), 759–770. <https://doi.org/10.1080/09637486.2019.1570085>
- [3] Davis, B., & Carpenter, C. (2009). Proximity of fast-food restaurants to schools and adolescent obesity. *American journal of public health*, 99(3), 505–510. <https://doi.org/10.2105/AJPH.2008.137638>
- [4] Duceac L.D., Calin G., Eva L., Marcu C., Goroftei E.R.B., Dabija M.G. Mitrea G., Luca A.C., Hanganu E., Gutu C., Stafie L., Banu E.A., Grierosu C., Iordache A.C. (2020). Third-generation cephalosporin-loaded chitosan used to limit microorganisms resistance. *Materials*, 13(21):4792.
- [5] Duceac L.D., Luca A.C., Mitrea G., Banu, E.A., Ciuhodaru M.I., Ciomaga I., Ichim D.L., Baciuc G. (2018). Ceftriaxone intercalated nanostructures used to improve medical treatment. *Mat. Plast*, 55: 613–615
- [6] Ichim D.L., Duceac L.D., Marcu C., Iordache A.C., Ciomaga, I.M., Luca A.C., Goroftei, B., Mitrea G., Damir D., Stafie L. (2019). Synthesis and characterization of colistin loaded nanoparticles used to combat multi-drug resistant microorganisms. *Rev. Chim.* 70(10).
- [7] Inglis, V., Ball, K., & Crawford, D. (2005). Why do women of low socioeconomic status have poorer dietary behaviours than women of higher socioeconomic status? A qualitative exploration. *Appetite*, 45(3), 334–343. <https://doi.org/10.1016/j.appet.2005.05.003>
- [8] Llewellyn, A., Simmonds, M., Owen, C. G., & Woolacott, N. (2016). Childhood obesity as a predictor of morbidity in adulthood: a systematic review and meta-analysis. *Obesity reviews : an official journal of the International Association for the Study of Obesity*, 17(1), 56–67. <https://doi.org/10.1111/obr.12316>
- [9] Luca A.C., Begezsan I.B, Iordache C. (2012). Particularities in diagnosis and treatment for infectious endocarditis in children. *Revista Medico-chirurgicala a Societatii de Medici si Naturalisti din Iasi. Volumul 116 (4):1028-1032.*
- [10] Luca, A.C., Duceac L.D., Mitrea G., Ciuhodaru M.I., Ichim D.L., Baciuc G., Banu E.A., Iordache A.C. (2018). Antibiotic Encapsulated Nanomaterials with Application in Medical Area. *Mat. Plast.*, 55: 552-554.
- [11] Patterson, R., Risby, A., & Chan, M. (2012). Consumption of takeaway and fast food in a deprived inner London Borough: are they associated with childhood obesity? *BMJ Open*, 2.
- [12] Rummo, P. E., Wu, E., McDermott, Z. T., Schwartz, A. E., & Elbel, B. (2020). Relationship between retail food outlets near public schools and adolescent obesity in New York City. *Health & place*, 65, 102408. <https://doi.org/10.1016/j.healthplace.2020.102408>
- [13] Shareck, M., Lewis, D., Smith, N. R., Clary, C., & Cummins, S. (2018). Associations between home and school neighbourhood food environments and adolescents' fast-food and

- sugar-sweetened beverage intakes: findings from the Olympic Regeneration in East London (ORIEL) Study. *Public health nutrition*, 21(15), 2842–2851. <https://doi.org/10.1017/S1368980018001477>
- [14] Sharma, L. L., Teret, S. P., & Brownell, K. D. (2010). The food industry and self-regulation: standards to promote success and to avoid public health failures. *American journal of public health*, 100(2), 240–246. <https://doi.org/10.2105/AJPH.2009.160960>
- [15] Skinner, A. C., Perrin, E. M., Moss, L. A., & Skelton, J. A. (2015). Cardiometabolic Risks and Severity of Obesity in Children and Young Adults. *The New England journal of medicine*, 373(14), 1307–1317. <https://doi.org/10.1056/NEJMoa1502821>
- [16] Smagge, B. A., van der Velde, L. A., & Kieftede Jong, J. C. (2022). The Food Environment Around Primary Schools in a Diverse Urban Area in the Netherlands: Linking Fast-Food Density and Proximity to Neighbourhood Disadvantage and Childhood Overweight Prevalence. *Frontiers in public health*, 10, 838355. <https://doi.org/10.3389/fpubh.2022.838355>
- [17] Story, M., Nannery, M. S., & Schwartz, M. B. (2009). Schools and obesity prevention: creating school environments and policies to promote healthy eating and physical activity. *The Milbank quarterly*, 87(1), 71–100. <https://doi.org/10.1111/j.1468-0009.2009.00548.x>
- [18] Virtanen, M., Kivimäki, H., Ervasti, J., Oksanen, T., Pentti, J., Kouvonen, A., Halonen, J. I., Kivimäki, M., & Vahtera, J. (2015). Fast-food outlets and grocery stores near school and adolescents' eating habits and overweight in Finland. *European journal of public health*, 25(4), 650–655. <https://doi.org/10.1093/eurpub/ckv045>
- [19] Zenk, S. N., & Powell, L. M. (2008). US secondary schools and food outlets. *Health & place*, 14(2), 336–346. <https://doi.org/10.1016/j.healthplace.2007.08.003>

#### Non-English reference

- [1] Robitaille, E., Lalonde B. (2014). L'environnement bâti autour des écoles et les habitudes de vie des jeunes : état des connaissances et portrait du Québec. *Montreal, QC: Institut national de sante publique du Quebec*. Report number: 1894
- [2] Snel, E., Custers, G., & Engbersen, G. (2018). Ongelijkheid in de participatiestad: Stadsbuurten en burgerparticipatie. *Mens en Maatschappij*, 93(1), 31-58. <https://doi.org/10.5117/MEM2018.1.SNEL>

#### Books

- [1] More, J. (2013). *Infant, Child and Adolescent Nutrition: A Practical Handbook* (1st ed.). CRC Press. <https://doi.org/10.1201/b15018>
- [2] Payne, A., & Barker, H. (Eds.) (2010). *Advancing dietetics and clinical nutrition*. Elsevier. [http://www.elsevier.com/wps/find/bookdescription.cws\\_home/722723/description](http://www.elsevier.com/wps/find/bookdescription.cws_home/722723/description)
- [3] Tarcea, M., Crăciun, C., Ruța, F., Rus V. (2017). *Alimentația în colectivități*. Târgu Mureș: University Press. ISBN: 9789731695068.

#### Other sources

- Gemeente Den Haag (2022). *Scholenwijzer Den Haag*. <https://scholenwijzer.denhaag.nl/>