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ORIGINAL ARTICLE / ОРИГИНАЛНИ РАД

Prevalence of and contributing factors to overweight and obesity among schoolchildren of Podgorica, Montenegro

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SUMMARY

Introduction/Objective Childhood obesity is an emerging public health problem. The national prevalence of child overweight/obesity in Montenegro has increased by one third in the last decade. As the overwhelming majority of Montenegrin population is urban, investigation of obesity and correlates among urban children is of special public health interest.

The aim of this study was to investigate the prevalence of and contributing factors to obesity among schoolchildren of Podgorica.

Method The sample included 1,134 schoolchildren (49.8% boys) aged 7–12 years, from 10 elementary schools in Podgorica. We measured children's body mass, body height, and waist circumference to calculate body mass index (BMI) and waist-to-height ratio. The research instrument was a closed type of the original questionnaire. Nutritional status was assessed according to the criteria recommended by the American Centers for Disease Control and Prevention, World Health Organization and International Obesity Task Force.

Results Among the investigated children there were 21.2% and 6% overweight and obese children, respectively. Obesity was more frequent among boys (7.6%) compared to girls (4.4%). In a multiple regression, childhood obesity was positively related to the following: male gender, younger age, lower number of siblings, parental obesity, and low physical activity.

Conclusion One out of five urban Montenegrin schoolchildren is overweight/obese, with obesity being twice as frequent among boys compared to girls. A program against obesity among urban Montenegrin children should focus on the revealed contributing factors.

Keywords: children; overweight; obesity; body mass index

INTRODUCTION

Obesity is a disease and one of the most common metabolic disorders nowadays. In 2015, the number of overweight/obesity (OWOb) children worldwide is about 1.5 billion. Childhood obesity (COb) is an emerging public health problem. In 2010, the number of OWOb children under the age of five amounted to over 42 million, 35 million of which come from developing countries. In the European Union, about 22 million children are overweight, five million of which are obese [1].

Complications of COb include hypertension, dyslipidemia, premature puberty, ovarian hyperandrogenism, orthopedic complications, sleep apnea, as well as psycho-social problems. Investigation of childhood obesity is approved by the fact that about 80% of obese children are prone to be obese in adult life [2].

Only one national study on childhood obesity has been carried out in Montenegro so far [3]. In this study we focus on the largest Montenegrin urban area, as the overwhelming majority of Montenegrin population is urban.

The aim of this study was to investigate OWOb and contributing factors among schoolchildren of Podgorica.

METHODS

The sample consisted of 1,134 schoolchildren aged 7–12 years from 10 elementary schools in Podgorica with similar gender distribution (49.8% boys). The response rate of positive parental answers on a request for interviewing and examination of children was 71% (1,597 letters delivered). To obtain representativeness, a two-stage cluster sample was determined. In the first step, 10 schools were randomly selected from the list of 30 primary schools in Podgorica. In the second step, one class from each of the second to the seventh class generations was

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randomly selected from each school. We used a questionnaire, which consisted of five parts. The first part included socio-economic data (date of birth, gender, class, parental education, family income). The second part was related to parental body weight and height and smoking habits. The third part was related to child's weight at birth, term of birth (premature birth = before the 36th week of gestation), and breastfeeding. The fourth section was related to child's physical activity, watching television and playing on a computer. The fifth section was related to child's dietary habits in terms of consumption frequency of specific food groups.

Anthropometric measurements were performed in the schools from December 2012 to February 2013. Body height was measured using a stadiometer (Gima S.p.A., Gessate, Italy) accurate to 0.1 cm. Body weight was measured on barefoot children in light clothes, using a digital scale (Seca GmbH & Co. KG., Hamburg, Germany) accurate to 0.1 kg. Body mass index (BMI) was calculated dividing body weight in kilograms by the square of height in meters. Waist circumference was measured by a measuring tape midway between the lower edge of the rib cage and the upper edge of the iliac bone, accurate to 0.1 cm. In order to make the results of our study comparable with similar researches worldwide, we assessed the children's nutritional status using the following three current criterions: World Health Organization (WHO), the American Centers for Disease Control and Prevention (CDC), and International Obesity Task Force (IOTF) [4, 5, 6].

WHO growth reference for school-aged children and adolescents for ages 5–19 defines obesity and overweight as BMI > 2 standard deviations (SD), and BMI > 1 SD above the WHO growth standard median, respectively. Underweight is defined as BMI < 2 SD below the WHO growth standard median.

In the CDC Growth Charts for children and adolescents age 2–19, BMI is assessed by age and sex-specific percentiles: underweight – < 5th percentile; normal weight – 5th percentile to < 85th percentile; overweight – 85th percentile to < 95th percentile, and obesity ≥ 95th percentile.

IOTF provides BMI cut points by age and sex for thinness, overweight, and obesity for children and adolescents age 2–18. The cut points correspond to an adult BMI of 16.5 (thinness grade 1); BMI 17 (thinness grade 2); BMI 18.5 (thinness grade 3); BMI 25 (overweight), or BMI 30 (obesity). We used cut points for thinness grade 2 to define children's underweight because they are closest to the WHO standard for underweight.

In a statistical analysis of categorical variables we used the χ^2 test. To test whether there was a statistically significant difference in numerical variables between two groups of children we used Student's t-test, whereas in cases of three or more groups we used the ANOVA test. In a logistic regression, univariate and multiple, childhood overweight/obesity was a dependent variable, while relevant socio-demographic and personal variables were independent variables

RESULTS

The investigated children were homogeneously distributed by gender and grade (Table 1).

Depending on the applied criteria, overweight/obesity was found in every fourth (IOTF) or even every third child (WHO). Obesity was from 1.7 times (IOTF) to 2.5 times (WHO) more frequent among boys compared to girls. IOTF criteria were more restrictive concerning childhood obesity showing a two times lower obesity prevalence (6%) compared to WHO criteria (12.2%) (Table 2).

Out of 23 investigated factors, the following nine showed significant influence on the onset of childhood overweight/obesity in a univariate regression analysis: gender, age, number of children in the family, order of birth, maternal obesity, paternal obesity, macrosomia at birth, and daily watching TV (Table 3).

In a multiple regression there were six contributing factors to childhood obesity that remained significant: boys had one third higher chance for obesity than girls, there was 12% lower chance for obesity per each year of age; every next child in a family had one third lower chance to become obese compared to the previous one; obese parents raised the chance of their child becoming obese by 100%; each day of the week with at least one hour of physical activity lowered the chance of a child being obese by 10% (Table 4).

Table 1. Distribution of investigated children by school grade and gender

Grade	Gender		Total
	Male	Female	
First	97	86	183
Third	92	89	181
Fourth	115	106	221
Fifth	88	100	188
Sixth	89	108	197
Seventh	84	80	164
Total	565	568	1,134

Pearson's $\chi^2 = 4.90$, $p = 0.557$

Table 2. Nutritional status of children aged 7–12 years from Podgorica, Montenegro, according to the criteria of the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), and International Obesity Task Force (IOTF) (n[%])

Nutritional status	WHO			CDC			IOTF		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Underweight	5 (0.9)	15 (2.6)	20 (1.8)	8 (1.4)	22 (3.9)	30 (2.6)	6 (1.1)	15 (2.6)	21 (1.9)
Normal	349 (61.6)	413 (72.7)	762 (67.2)	363 (64.1)	413 (72.7)	776 (68.4)	384 (67.8)	427 (74.1)	805 (71)
Overweight	113 (20)	101 (17.8)	214 (18.9)	114 (20.2)	98 (17.3)	212 (18.7)	133 (23.5)	107 (18.8)	240 (21.1)
Obesity	99 (17.5)	39 (6.9)	138 (12.1)	81 (14.3)	35 (6.1)	116 (10.3)	43 (7.6)	25 (4.5)	68 (6)
Total	566 (100)	568 (100)	1,134 (100)	566 (100)	568 (100)	1,134 (100)	566 (100)	568 (100)	1,134 (100)

Table 3. Univariate logistic regression with child overweight/or obesity (IOTF) as a dependent variable and some relevant factors for childhood obesity as independent variables (n = 1,113)

Independent variable	OR	95% CI	p
Gender (male = 1; female = 2)	0.68	0.52–0.88	0.004
Age (per year)	0.87	0.81–0.95	0.001
Maternal education	1.06	0.92–1.22	0.438
Paternal education	0.92	0.79–1.07	0.258
Maternal employment (Yes = 1; No = 0)	0.97	0.74–1.26	0.803
Paternal employment (Yes = 1; No = 0)	0.97	0.72–1.30	0.823
Living with both parents (Yes = 1; No = 0)	0.68	0.45–1.03	0.071
Number of children in the family (per child)	0.73	0.63–0.84	< 0.001
Order of birth	0.65	0.54–0.77	< 0.001
Family income	0.93	0.71–1.22	0.592
Apartment area per tenant (m^2)	1.00	0.99–1.01	0.830
Rooms per tenant	0.96	0.75–1.23	0.731
Maternal smoking (Yes = 1; No = 0)	1.25	0.94–1.65	0.124
Paternal smoking (Yes = 1; No = 0)	0.90	0.68–1.18	0.436
Maternal overweight/obesity (Yes = 1; No = 0)	2.01	1.50–2.70	< 0.001
Paternal overweight/obesity (Yes = 1; No = 0)	2.03	1.41–2.91	< 0.001
Macrosomia at birth (≥ 4,000 g = 1; < 4,000 g = 0)	1.63	1.17–2.28	0.004
Preterm birth (before the 36th gestational week = 1; on the 36th gestational week and after = 0)	1.17	0.77–1.79	0.468
Child breastfed (Yes = 1; No = 0)	0.99	0.71–1.39	0.960
Daily watching TV (per hour)	1.13	1.01–1.26	0.031
Daily playing on computer (per hour)	1.06	0.89–1.28	0.509
Physical activity at least one hour out of school (days per week)	0.91	0.85–0.98	0.011
Duration of night sleep (per hour)	0.94	0.84–1.05	0.253

OR – odds ratio; CI – confidence interval

Table 4. Multivariate logistic regression with child overweight/or obesity (IOTF) as a dependent variable and some relevant factors for childhood obesity as independent variables (n = 1,113)

Independent variable	OR	95% CI	p
Gender (male = 1; female = 2)	0.64	0.47–0.88	0.007
Age (per year)	0.88	0.80–0.96	0.007
Number of children in the family (per child)	0.83	0.68–1.02	0.072
Order of birth	0.70	0.55–0.90	0.005
Maternal overweight/obesity (Yes = 1; No = 0)	2.18	1.55–3.07	< 0.001
Paternal overweight/obesity (Yes = 1; No = 0)	2.18	1.45–3.27	< 0.001
Macrosomia at birth (≥ 4,000 g = 1; < 4,000 g = 0)	1.41	0.95–2.10	0.092
Daily watching of TV (per hour)	1.15	1.00–1.33	0.056
Physical activity at least one hour out of school (per day in a week)	0.91	0.84–0.99	0.029

There were no significant differences in dietary habits either between obese and normal-weight children or between boys and girls.

Among boys we found a 15 minute longer average daily period playing on a computer compared to girls (1.3 ± 0.8 h vs. 1.1 ± 0.7 h; t = 4.1; p = 0.001; Student's t-test).

DISCUSSION

According to the latest IOTF criteria, the proportion of overweight schoolchildren in Podgorica is 21.2%, while 6% of children are obese. Obesity is two times more frequent among boys compared to girls. Compared to EU countries, the prevalence of obesity among urban Montenegrin children is similar to that in Luxembourg, Ireland and Israel (22%). Regarding OECD data from 2014, the highest prevalence of OWOb was recorded in Greece (44% of boys and 38% of girls) followed by Italy (36% vs. 34%), New Zealand (34% vs. 34%), USA (30% vs. 30%), while the lowest prevalence was recorded in Indonesia (11% vs. 8%). Differences between prevalence of OWOb in favor of boys were found in China (24% vs. 16%), Hungary (28% vs. 23%), Poland (17% vs. 11%), whereas differences in favor of girls are present in South Africa (29% vs. 11%) and UK (26% vs. 22%) [7].

We revealed parental BMI as the most important independent contributing factor to childhood obesity. Children who have at least one obese parent, are two times more likely to be obese than children whose both parents' weight is normal. This has been partly explained by genetic influences, but mostly by the fact that children often share food habits and sedentary lifestyle with their parents [8]. A strong correlation between children's and parental BMI was also found in a Greek study and in a Swedish study [9, 10]. It is still not clear whether maternal or paternal BMI

has stronger impact on Cob, as results of studies conducted to date are equivocal [11].

We show a negative correlation between the number of children in a family and COb. Chen and Escarce [12] have also found that in the eighth grade children with no siblings had higher BMI and higher probability of being obese than their counterparts with two or more siblings. It may be assumed that an inexperienced mother is prone to overfeeding her child. However, research on the effect of family structure on COb still remains unclear [12]. Haugaard et al. [13] revealed the association between being an only or last-born child with obesity in adolescence while other authors have no findings to support an association between birth order and BMI [14].

We found a positive correlation between macrosomia at birth and COb. There is a strong scientific agreement that body mass at birth significantly influences obesity in later childhood [15]. It has been suggested that adolescent obesity rate raises from 2.6% to 5.6% for birth weights 4,000–4,500 g and ≥ 4,500 g, respectively, and therefore a refined definition of macrosomia with 4,500 g as the cutoff point could be considered [16].

We show that longer daily television watching explains more frequent obesity among boys compared to girls. Braithwaite et al. [17] examining 207,672 adolescents from 37 countries found that children who spent longer time watching TV had a significantly increased BMI. In another study it was showed that children who watched TV for more than four hours daily had significantly higher odds of being obese [18]. However, there are also negative findings on this subject [19].

We found that at least one hour of regular daily physical activity lowers the chance of COb by 10%, and that is concordant with the recommendations that children over five years of age should engage in at least one hour of moderate to vigorous intensity physical activity every day [20].

Among the investigated urban children the link between parental education level and COb is not established. This finding is in accordance with the results of a study of Gorog et al. [21]. However, a study in Saudi Arabia showed that obese children frequently have more educated mothers in comparison with normal weight children. The explanation for this finding is that highly educated, working mothers spend less time with their children, which may lead to irregular eating habits, frequent skipping of meals etc. [8]. However, a Norwegian study showed that higher risk of OWOb exists among children whose parents have a lower level of education [22]. It may be assumed that lower parental education would also mean less knowledge on healthy nutrition of their children.

We found no association between the parental socioeconomic status and COb. In developed countries such as USA or UK, obesity is associated with low socioeconomic status and lower parental education, which is explained by numerous factors, such as inadequate health insurance, the cost of food, access to fitness clubs etc. In contrast, obesity in developing countries (Brazil, China, India, Saudi Arabia) is associated with a better standard of living and it is seen more often in urban areas (Jordan, Iran, Egypt) [23]. Knai et al. [24] conducted a study in 22 European countries and showed that modest personal income is associated with a higher prevalence of obesity among children but also among adults, and also that obesity particularly affects certain ethnic groups.

We show no significant correlation between parental cigarette smoking and COb. Previous studies showed that increased serum concentration of nicotine leads to an alteration of hypothalamic regulatory centers of energy production and consumption in mother, which could hypothetically affect the newborn's weight [25].

A strong association between cigarette smoking during pregnancy and OWOb was described by Kleiser et al. [26]. Data brought by Canadian cohort study on the impact of tobacco smoke on a child's BMI showed that prenatal exposure of a child to tobacco smoke is associated with moderately lower BMI later during childhood, and that postnatal exposure to tobacco smoke was associated with a moderately increased BMI [27]. However, given the multifactorial nature of obesity, isolated biological effects of tobacco smoke on BMI remain unclear.

We found no significant correlation between the preterm birth and COb. This finding is opposite to the results of Vasylyeva et al. [28], who found a positive correlation between the preterm birth and increased weight later in childhood.

Our study does not prove a significant link between breastfeeding and childhood obesity. According to some studies, breastfeeding reduces the risk of a child becoming obese [29]. However, an analysis of common myths about obesity points out a clear publication bias concerning breastfeeding and COb [30].

CONCLUSION

We show that about every fourth urban child in Montenegro is OWOb, with obesity being twice as frequent among boys compared to girls. We also reveal the correlates of COb. The findings of our study will serve as a cornerstone of a preventive program against COb in Montenegrin urban areas.

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NOTE

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REFERENCES

1. World Health Organization. [homepage on the internet] [cited Jan 2014] Available at: http://www.who.int/mediacentre/news/releases/2012/world_health_statistics_20120516/en/
2. Schwartz MS, Windle LM, Bhatia J. Obesity in children. Medscape [cited 2014 Feb]. Available from: http://emedicine.medscape.com/article/985333-overview.
3. Martinovic M, Belojevic G, Evans GW, Lausevic D, Asanin B, Samardzic M, et al. Prevalence of and contributing factors for overweight and obesity among Montenegrin schoolchildren. Eur J Pub Health. 2015; 25(5):833–9.
4. World Health Organization. World Health Organization Child Growth Standards 2006. Available from: http://www.who.int//childgrowth/en/
5. Centers for Disease Control and Prevention (CDC). Overweight and obesity. Basics about childhood obesity. Available from: http://www.cdc.gov/obesity/childhood/basics.html; 2015.
6. International Obesity Task Force (IOTF). Available from: http://www.healthinfonet.ecu.edu.au/key-resources/organisations?oid=644; 2015.
7. OECD Directorate for Employment, Labour And Social Affairs. Childhood obesity. Available from: http://www.oecd.org/els/health-systems/Obesity-Update-2014.pdf.
8. Pérez Rodrigo C. Current mapping of obesity. Nutr Hosp. 2013; 28(5):21–3.
9. Birbilis M, Moschonis G, Mougios V, Manios Y; Healthy Growth Study group. Obesity in adolescence is associated with perinatal risk factors, parental BMI and sociodemographic characteristics. Eur J Clin Nutr. 2013; 67(1):115–21.
10. Svensson V, Jacobsson JA, Fredriksson R, Danielsson P, Sobko T, Schiöth HB, et al. Associations between severity of obesity in childhood and adolescence, obesity onset and parental BMI: a longitudinal cohort study. Int J Obes. 2011; 35(1):46–52.
11. Linabery AM, Nahhas RW, Johnson W, Choh AC, Towne B, Odegaard AO, et al. Stronger influence of maternal than paternal obesity on infant and early childhood body mass index: the Fels Longitudinal Study. Pediatr Obes. 2013; 8(3):159–69.
12. Chen AY, Escarce JJ. Family structure and childhood obesity. Matern Child Health J. 2014; 18(7):1772–7.
13. Haugaard LK, Ajslev TA, Zimmermann E, Angquist L, Sorensen TA. Being an only or last-born child increases later risk of obesity. PLoS One. 2013; 8(2):e56357.
14. Howe D, Hallal PC, Matijasevich A, Wells JC, Santos IS, Barros AJ, et al. The association of birth order with later body mass index and blood pressure: a comparison between prospective cohort studies from the United Kingdom and Brazil. Int J Obes. 2014; 38(7):973–9.
15. Bammann K, Peplies J, De Henauw S, Hunsberger M, Molnar D, Moreno LA, et al. Early life course risk factors for childhood obesity: the IDEFICS case-control study. PloS One. 2014; 9(2):e86914.
16. Wang Y, Gao E, Wu J, Zhou J, Yang Q, Walker MC, et al. Fetal macrosomia and adolescence obesity: results from a longitudinal cohort study. Int J Obes. 2009; 33(8):923–8.
17. Braithwaite I, Stewart AW, Hancox RJ, Beasley R, Murphy R, Mitchell EA. The worldwide association between television viewing and obesity in children and adolescents: cross sectional study. Plos One. 2013; 8(9):e74263.
18. Borghese MM, Tremblay MS, Leduc G, Boyer C, Bélanger P, LeBlanc AG, et al. Television viewing and food intake during television viewing in normal-weight, overweight and obese 9- to 11-year-old Canadian children: a cross-sectional analysis. J Nutr Sci. 2015; 4:e8.
19. Zimmerman FJ, Bell JF. Associations of television content type and obesity in children. Am J Public Health. 2010; 100(2):334–40.
20. Department of Health UK. Start Active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers; 2011.
21. Gorog K, Pattenden S, Antova T, Niciu E, Rudnai P, Scholtens S, et al. Maternal smoking during pregnancy and childhood obesity: results from the CESAR Study. Matern Child Health J. 2011; 15(7):985–92.
22. Júlíusson PB, Eide GE, Roelants M, Waaler PE, Hauspie R, Bjerknes R, et al. Overweight and obesity in Norwegian children: prevalence and socio-demographic risk factors. Acta Paediatr. 2010; 99(6):900–5.
23. Al Alwan I, Al Fattani A, Longford N. The effect of parental socioeconomic class on children's body mass indices. J Clin Res Pediatr Endocrinol. 2013; 5(2):110–5.
24. Knai C, Lobstein T, Darmon N, Rutter H, McKee M. Socioeconomic patterning of childhood overweight status in Europe. Int J Environ Res Public Health. 2012; 9(4):1472–89.
25. Wang L, Mamudu HM, Wu T. The impact of maternal prenatal smoking on the development of childhood overweight in school-aged children. Pediatr Obes. 2013; 8(3):178–88.
26. Kleiser C, Schaffratth Rosario A, Mensink GB, Prinz-Langenohl R, Kurth BM. Potential determinants of obesity among children and adolescents in Germany: results from the cross-sectional KiGGS Study. BMC Public Health. 2009; 9:46.
27. Yang S, Decker A, Kramer MS. Exposure to parental smoking and child growth and development: a cohort study. BMC Pediatr. 2013; 13:104.
28. Vasylyeva TL, Barche A, Chennasamudram SP, Sheehan C, Singh R, Okogbo ME. Obesity in prematurely born children and adolescents: follow up in pediatric clinic. Nutr J. 2013; 12(1):150.
29. Shi Y, De Groh M, Morrison H. Perinatal and early childhood factors for overweight and obesity in young Canadian children. Can J Public Health. 2013; 104(1):e69–74.
30. Casazza K, Fontaine KR, Astrup A, Birch LL, Brown AW, Bohan Brown MM. Myths, presumptions, and facts about obesity. N Engl J Med. 2013; 368(5):446–54.

Преваленца и чиниоци који доприносе настанку прекомерне телесне масе и гојазности код школске деце у Подгорици, Црна Гора

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САЖЕТАК

Увод/Циљ Дечја гојазност је актуелни народноздравствени проблем. Национална преваленција дечје гојазности у Црној Гори увећана је за трећину у последњој деценији. Како је изразита већина црногорског становништва у градовима, од посебног народноздравственог интереса је истраживање гојазности и корелирајућих чиниоца код градске деце. Циљ рада је био да се истраже преваленција и доприносећи чиниоци за гојазност међу школском децом Подгорице.

Методе Узорак је обухватио 1.134 школска детета (49,8% дечака) узраста 7–12 година, из десет основних школа у Подгорици. Деци смо измерили телесну масу, телесну висину и обим струка, како бисмо израчунали индекс телесне масе и однос струка и висине. Инструмент истраживања био је оригинални упитник затвореног типа. Стање ухрањености је процењено на основу критеријума препоручених од стране Америчког центра за контролу и превенцију болести, Светске здравствене организације и Међународне радне групе за борбу против гојазности.

Резултати Међу испитиваном децом 21,2% је имало прекомерну телесну масу, док је 6% било гојазно. Гојазност је чешће била присутна међу дечацима (7,6%) у односу на девојчице (4,4%). У вишеструкој регресионој анализи дечја гојазност је била у позитивној вези са мушким полом, млађом животном доби, мањим бројем деце у породици, гојазношћу родитеља и ниским степеном физичке активности.

Закључак Свако пето градско дете у Црној Гори је са прекомерном тежином или је гојазно, са два пута чешћом учесталошћу гојазности код дечака у односу на девојчице. Програм против гојазности код градске деце биће усмерен на откривене доприносеће чиниоце.

Кључне речи: деца; прекомерна телесна маса; гојазност; индекс телесне масе