



Carta al Director

WAIST-TO-HEIGHT RATIO AND BODY MASS INDEX AS INDICATORS OF OBESITY IN CHILDREN FROM MONTENEGRO

Dear Editor-in-Chief,

During the recent decade there has been a noticeable increase in obesity among children and adolescents. The number of obese individuals aged five to 19 years has increased ten times globally – from 11 million in 1975 to 124 million in 2016. Researchers have determined that there were an additional 213 million respondents who were overweight in 2016, but they were below the obesity threshold (1). Obesity during childhood and adolescence, especially in the abdominal area, might be associated with adverse health issues later in adulthood, such as elevated serum triglycerides and low-density lipoprotein cholesterol (LDL-C), and a reduction in high-density lipoprotein cholesterol (HDL-C) (2). Body mass index (BMI) is commonly used to identify overweight and obesity in children, adolescents, and adults (3). Despite its standardized use, BMI tends to be a less precise indicator for determining obesity among children because it does not provide indications about adipose tissue distribution (4). Also, some authors argue that BMI cannot be applied to the population of the western Balkans due to a specific body composition that can stimulate a disproportionate BMI to increase at the expense of muscle and bone components. Therefore, it requires creating special standards for overweight and obesity prevention for the population in this region (5). On the other hand, Browning et al. (6) believe that the waist-to-height ratio (WtHR) is a better predictor of diabetes and cardiovascular disease (CVD) than BMI because it is a simple and accurate index that does not depend on age, and which has been highly applicable in the screening of overweight and obesity in children and adolescents (7). Therefore, the aim of this study was to determine the percentage of central obesity among younger school-aged children from the northern region in Montenegro, based on the waist-to-height ratio (WtHR), and then compare those results with body mass index (BMI) values. This study was conducted in a sample of 400 respondents, children aged 9 and 10 years (180 boys and 220 girls). Body height, body weight, and waist circumference were measured to assess anthropometric

characteristics, while central obesity (WtHR > 0.5) and BMI were calculated by the standard formula (6,8). Testing was conducted in March 2021. According to the results of this study, the central obesity rate among boys from the northern region of Montenegro, based on the WtHR index, is 10.4 %, while it is slightly lower among girls – 7.6 %. However, according to the BMI, obesity among boys is far higher – 19.4 %, and among girls it is 7.8 %. In terms of girls, obesity does not represent a high percentage, and both indices show similar results. On the other hand, BMI shows an extremely high obesity percentage among boys compared to the WtHR index, which shows significantly lower percentage values. As a result, the assumption that BMI criteria should be adjusted for different regions and races, including the Montenegrin population, is justified, as previous research has established that the population of the western Balkans has a specific body composition (5). The results display a difference in central obesity between sexes, which could be explained by a mechanism detected in the second half of the 20th century (9), which shows that boys are under a stronger environmental influence than girls in both skeletal maturation rate and linear growth.

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