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Problem nadmiaru masy ciała wśród dzieci i młodzieży wiejskiej województwa podkarpackiego

Streszczenie

Wprowadzenie. W ostatnich dwóch dziesięcioleciach na całym świecie obserwuje się stały wzrost występowania nadwagi i otyłości w populacji wieku rozwojowego. Jest to najczęściej otyłość alimentacyjna spowodowana zwiększonym spożyciem pokarmów oraz mniejszą aktywnością fizyczną. Otyłość jest stanem patologicznego zwiększenia ilości tkanki tłuszczowej.

Cel. Celem pracy była ocena częstości nadmiaru masy ciała w postaci nadwagi lub otyłości wśród młodzieży i dzieci mieszkających w środowisku wiejskim.

Materiał i metody. Badaniami objęto grupę dzieci 7-letnich i młodzież 14-letnią. Łącznie przebadano 113 osób, 49 dziewcząt i 56 chłopców. Mierzono wysokość i masę ciała oraz wyliczono wskaźnik masy ciała - Body Mass Index (BMI) – wskaźnik Queteleta. Następnie dokonano rozkładu wskaźnika masy ciała (BMI) na siatkach centlowych wg płci i wieku opracowanych przez Palczewską i Niedźwiecką. Uzyskane wyniki badań przedstawiono za pomocą liczności i odsetka. Dla niepowiązanych cech jakościowych do wykrycia istnienia różnic między porównywanymi grupami użyto testu jednorodności χ^2 z poprawką Yatesa. Przyjęto 5% błąd wnioskowania i związany z nim poziom istotności $p<0,05$ wskazujący na istnienie istotnych statystycznie różnic.

Wyniki. Nadwagę lub otyłość stwierdzono w 7 przypadkach (13,1%) u dzieci siedmioletnich. U młodzieży 14-letniej nadmiar masy ciała dotyczył tylko jednej dziewczynki (1,9%), natomiast nie dotyczył żadnego chłopca.

Wnioski. W badanej grupie nie stwierdzono powszechnego występowania nadwagi lub otyłości.

Słowa kluczowe: otyłość, dzieci, młodzież, wieś.

The problem of excess of body mass among children and adolescents from rural community of the Podkarpacie region

Abstract

Introduction. During the last two decades the number of children and adolescents afflicted with overweight or obesity increases permanently all over the world. Mostly, it is an alimentary obesity caused by increased consumption of food and lack of physical activity. Obesity is a state of pathological increase of fatty tissue in a human organism.

Aim. The aim of the study was to assess the frequency of overweight and obesity among children and adolescents living in rural communities.

Material and methods. The study encompassed children aged seven and adolescents aged fourteen. Together 113 persons (49 girls and 56 boys) have been examined. Height and weight were measured and the Body Mass Index (BMI) – Quetelet's Index – was calculated. Next, the BMI was converted into a centile scale by age and sex. That scale had been elaborated by Palczewska and Niedzwiecka in order to assess somatic development of the Warsaw children. The results of the research were presented in the form of amount and percentage. For qualitative features disjointed for detecting the existence of differences among the compared groups, homogeneity χ^2 with Yates' correction test was used. Five percent of the inference error was assumed and related to it the significance level of $p<0.05$ indicating the existence of statistically significant differences.

Results. The study revealed that in 7 cases (13.1%) seven-year-old children were afflicted with overweight or obesity. The excess of body mass in adolescents aged 14 concerned one girl (1.9%) only, whereas it did not concern boys.

Conclusions. The study did not show a common prevalence of overweight and obesity in the examined population.

Key words: obesity, children, adolescents, rural community.

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In the last two decades obesity became one of important problems of public health. The number of children and adults afflicted with obesity increases permanently in most of the countries with good or improving economy. In the USA obesity afflicts about 25% of children, in Europe near 6-15%, in Poland 2.5-12% of children [1-3].

Obesity is a consequence of long-lasting disorders of balance between supplying the energy and its expending that is pathologically expressed by increase in the quantity of fatty tissue in human organism in relation to mean mass content. Obesity in childhood predisposes obesity in adolescence and adulthood that leads to health disorders and high mortality. It is one of the risk factors for many civilization diseases: sclerosis, heart attack, non-insulin-dependent diabetes mellitus (NIMD), stroke or even prostate cancer [2-5].

The most frequent sort of obesity in childhood and adolescence is a simple (alimentary) obesity, which states about 98% of all diagnosed cases of obesity. It is defined as a spontaneous, single symptomatic or original obesity as well. Simple obesity is a result of supplying excessive quantity of calories in relation to their expending.

Secondary obesity is detected in children and adolescents with: excessive body mass, damage of the central nervous system (CNS), congenital malformation or endocrine defects. Low individual height often accompanies these states. This sort of obesity concerns only 5% of the cases [3, 4].

According to appropriate for a given population (age and sex factors) centile scales, excessive body mass within the range 10-25% is qualified as overweight, whereas excessive body mass over 25% is qualified as obesity [3]. The most frequent method, which determines a degree of obesity, is an anthropometric method. Children's height and weight are the data, which are used to calculate the Body Mass Index (BMI): actual body mass (kg) / height (m^2) [3, 4].

If a child's BMI is over 97 centiles, obesity is stated. The values within 90-97 centiles mean overweight. BMI values contained within the range of 25-27 centiles mean the right mass of the body in relation to the height [2, 3, 6]. Simple obesity, which is a result of environmental factors (excessive nutrition, lack of physical activity), afflicts girls, urban pupils and adolescents after puberty mainly [3, 4]. The study was conducted in order to assess the frequency of obesity among children and adolescents from rural areas of the Podkarpacie region.

OBJECTIVE

The objective of the study was to assess the frequency of obesity among seven-year-old children and fourteen-year-old adolescents from rural communities.

MATERIAL AND METHODS

The study was conducted from 5th - 30th September 2001. It encompassed 53 children aged 7 and 52 children aged 14. Together there were 113 examined persons. In the group of seven-year-old children there were 24 girls and 29 boys; among fourteen-year-old adolescents there were 25 girls and 27 boys. Children and adolescents afflicted with chronic diseases, which cause developmental disorders, or children who require taking medicines continuously, were exclude from the study.

The population involved in the study lived in the area of the Dydnia gmina (principal unit). It is situated in the Podkarpacie region, in the area of Dynowskie Plateau, in the valley of the San River. It is an agricultural area and many inhabitants are farmers. In comparison with other areas of the district, the population of the Dydnia gmina lives in good economic conditions.

Weight and height were measured and BMI calculated in all the people involved in the study. The measurements were performed using a balance beam scale and a manual height board. Children and adolescents were weighed barefoot in sportswear. The height was measured to an accuracy of 0.5 cm and height – to an accuracy of 0.5 kg. Next, according to the centile scales elaborated for Warsaw children and adolescents, for every studied person the centile position of measured values was appointed [7].

The material which had been gathered was assessed by narrow norm principle (25-75 c) and wide norm principle (10-80 c). Persons with BMI over 97 centiles are obese people, whereas persons with BMI within 90-97 centiles are overweight [3].

The results of the research are presented in the form of amount and percentage and for qualitative features disjointed for detecting existence of differences among compared groups homogeneity χ^2 with Yates correction test was used.

THE REVIEW OF THE RESULTS OF THE STUDY

Weight of seven-year-old boys and girls

The analysis of the study revealed regular body mass in 86.8% of persons included in the research. Only two boys, which makes 3.7% of all examined persons, were afflicted with obesity whereas this phenomenon did not concern girls. Overweight concerned 1 boy, which makes 1.8% of all examined boys, and 4 girls, which makes 16.6% of all examined girls. The differences were not statistically significant (Chi2=1.57; p=0.46). The layout of BMI is presented in Table 1.

The problem of obesity occurring in children that attend elementary schools in the Podkarpacie region is confirmed by Nowak's studies, too. These studies show that in the group of six-year-old examined children – 11.5 % were afflicted with obesity whereas among ten-year-old children – 7.8% [8].

Weight of fourteen-year-old boys and girls

Anthropometric measurements located on BMI centile scales showed that obesity does not occur in the group of fourteen-year-old adolescents. Overweight was stated in one girl only, which makes 1.9% of the whole examined population. 98.1% of the examined boys and girls had regular body mass (Table 2).

TABLE 1.The BMI index in boys and girls aged seven.

Centile position	Girls n = 24		Boys n = 29		Together n = 53	
	n	%	n	%	n	%
Between 90 – 97 centiles	4	16.6	1	1.8	5	9.4
Above 97 centiles	0	0	2	3.7	2	3.7
Normal centiles	20	83.3	26	86.7	46	86.8

TABLE 2.The BMI index in boys and girls aged fourteen.

Centile position	Girls n = 25		Boys n = 27		Together n = 52	
	n	%	n	%	n	%
Between 90 – 97 centiles	1	4.0	0	0	1	1.9
Above 97 centiles	0	0	0	0	0	0
Normal centiles	24	96	27	100	51	98.1

Others who studied this problem found obesity among rural adolescents from the Podkarpacie region; they recognized mother's obesity as a significant risk factor of obesity in girls [9,10].

Fashion trends and some pressure created and exerted by the medi a cause the purposeful restriction on calorie intake that leads to the body mass deficiency, sometimes even critical [9,10].

The two states: obesity and the body mass deficiency require attention and forming the Body Mass Index among girls at puberty, in order to ntice the problem early and take preventive action.

SUMMARY

The frequency of obesity – a civilisation disease – has been increasing in recent years. There is no doubt that this problem concerns adolescents. During the last 15 years the frequency of obesity in children and adolescents has increased in most countries round the world twice or thrice. Obesity afflicts urban children more often than children from rural communities, which is possibly connected with a lifestyle [2-4]. The studies carried out in primary schools of the Podkarpacie region revealed that 10.0% of rural boys and 10.9% of urban boys were afflicted with obesity; there were 10.3% obese girls from rural communities and 9.9% obese urban girls. So, the occurrence of obesity depends not only on a place of residence, but on sex as well [1, 9, 10]

CONCLUSIONS

1. The problem of excess of body mass occurs in 13.1% of the examined seven-year-old children; overweight in 1.8% of the boys and in 16.6% of the girls; the differences were not statistically significant.
2. In the group of fourteen-year-old adolescents overweight was observed in 1.9% of all the examined persons.
3. In the examined group of seven-year-old children and fourteen-year-old adolescents widespread overweight or obesity were not observed.

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