

DO HAVE OBESE PARENTS OBESE CHILDREN?

Viera PETERKOVÁ, Ivona PAVELEKOVÁ

Abstract: *In the present study we analyze the results of 3831 questionnaires filled in by 1277 children and their parents. The questionnaire was distributed in preschools, as well as primary and secondary schools. The questionnaire was the same for all age groups (in kindergarten children's parents filled out questionnaires), contains 39 items. Questionnaire were also included data on height and weight of the respondents, from which we calculated BMI for each of them. Using the correlation between parents BMI and BMI of their children, we ascertained that there is a link between aberrations of normal BMI values among parents and their children.*

Key words: *obesity, BMI, parents, children*

Theoretical background

Obesity, otherwise known as the thickness is increasingly common disease among children, but also the adult population. Its incidence is increasing in every year, some authors indicate the presence of a pandemic (Jurkovičová, 2005). Obesity is not a problem only in terms of physical appearance, but extends to all areas of life personalities - bio-psycho-social field. Obesity means the excess fat in the body (Kaplan; Salis; Patterson, 1996), Beno (2008) defined metabolic disorder characterized by excessive body weight and developed a positive balance of energy, while increasing the amount of stock an extremely fat under the skin (subcutaneously) and intraabdominal (intra-abdominal). Sometimes, as a consequence of obesity is characterized by excessive quantitative formulas manifested increased body fat content (Plank et al., 2007). According to Horta et al. (2000) obesity is a condition where excess weight exceeds by at least 20 % of ideal weight. Science dealing with obesity is called obesitology.

Factors causing obesity divides Plank et al. (2007) into two groups make up their genetic predisposition and environmental factors. Other distribution defines the Fort (2004), which divides them into three basic groups and related subgroups. These are reasons unrelated to health, ranks among them lack of exercise and a sedentary lifestyle, improper eating habits and overeating, socio-economic conditions of life and pressure. The suggestible health reasons to incorporate a reduced basal metabolic rate, excess

cortisol, insufficient production of growth hormone disorders of the brain, the administration of psychotropic medications, early use of contraception. The last group consists of unsuggestible health reasons, ie genetic disposition.

Prevention of obesity can be divided into general, which is aimed at all individuals, selective, chosen by at-risk individuals and induced, which is focused on obese individuals (Majerčák, 2005).

In Slovakia, the Government Resolution No. 10 dated 9.1.2008 prevention program adopted National obesity, which aims to prevent overweight and obesity in children, stop the rise in the numbers of overweight and obese and reduce the numbers of overweight and obesity. Tool to achieve these objectives should be concentrating on changing nutrition and also to increase physical activity of the Slovak population. This is related to a reduction in the number of children and adults who do not perform physical activity, increasing the number of children and adults who deal daily movement of at least 30 minutes, and to create conditions to facilitate the development of physical activities (National Programme for the prevention of obesity).

Research Hypotheses

In our research, we aimed to determine the prevalence of obesity among parents and their children, we mutually compare the prevalence of obesity in mothers and their sons and daughters and obesity in fathers and their daughters and sons. We hypothesized that if the parents will show higher BMI, and their children will have higher BMI values, regardless of gender of children.

Research sample

The research sample consisted of 1277 children and their parents, a total of 3831 questionnaires was distributed to children from kindergarten, elementary school and their parents. Age of respondents ranged from 2 to 20 years. In the sample was represented by the 38 % boys and 62 % girls.

Research methods

Research was conducted using questionnaires that we distributed to the children and their parents, with their exact identification of the child and his parents. Respondents in the questionnaire indicated their age, height and weight, which was used to calculate BMI (body mass index). BMI is calculated by dividing weight in kilograms to the square of height in meters.

$$BMI = \frac{\textit{weight (kg)}}{\textit{height}^2 (m)}$$

According to the calculation are given on the age group of respondents and their parents determine whether they are underweight, normal weight, overweight or obese.

For determining the BMI categories we used national standard of BMI (Novaková, Hamade, 2006).

Obtained data were subjected to statistical analysis, where we found the mutual correlation between values of BMI in children and their parents.

Results and their interpretation

Based on the height and weight of respondents have each child and his parents calculated the value of BMI. Finding BMI categories was conducted taking into account the age of respondents by comparing its value with the national standards for BMI. On this basis, we noted that in our sample, the incidence of obesity for children was 7 %, for their mothers 3.97 % and the highest incidence was recorded at the fathers sample 9.27 %.

Figure 1 shows the percentage of all categories of BMI, irrespective of sex of children. Gratifying finding was that percentage of obesity in children sample is only 3.97 %, but we suspend on excessive incidence of underweight among children 20.24 %.

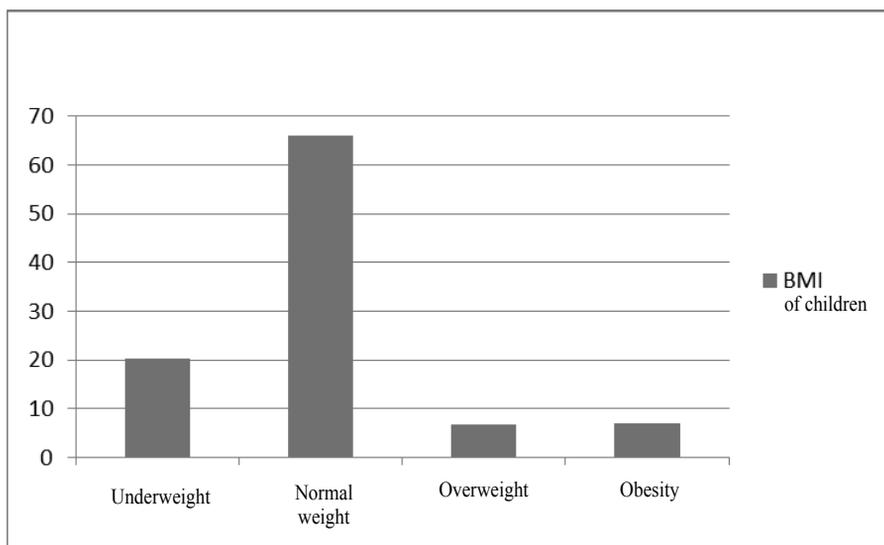


Figure 1 Percentage of categories of BMI in children

Based on the above, we decided to assess the children's BMI categories according to their sex. Detailed results are presented in Figure 2. We found that the percentage of girls with obesity is 4.69 %, but up 23.15 % of girls are underweight. The boys suffer from obesity in percentage 9.98 % and 16,48 % are underweight.

BMI assessment of preschool children deal with Dubois et al. (2007) in Canada. Their research sample consisted of 1,498 preschool children (4.5 years). Research that was conducted by questionnaire to ascertain the weight, height, sex, children and parents, while watching the education of parents, family income, dietary habits and other information. The values were then calculated BMI for children and parents. The results showed that the majority of children, who are choosy of food are less overweight than

the children who like to overeat. Contrast, children with poorer eating habits suffer more overweight and obesity compared with children who never had the tendency to overeat. The survey showed a statistically significant relationship between eating habits of children under school age and BMI.

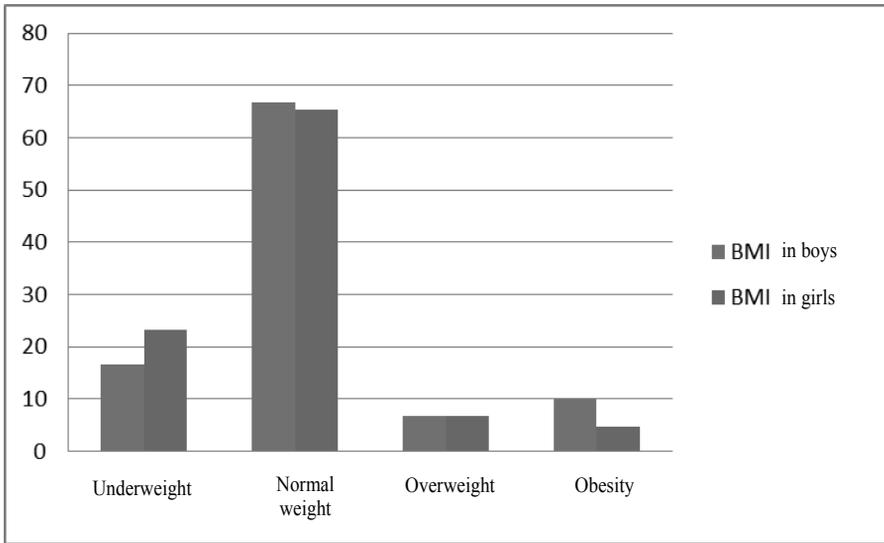


Figure 2 Percentage of categories of BMI in boys and girls

Determinations of the prevalence of overweight and obesity among Australian children on a sample of 2184 respondents (47.9 % boys and 52.1 % girls) aged 2-12 years have set Sanigorski et al. (2007). The research results, unlike our study showed that obesity is significantly higher in girls than in boys. Similar research on a sample of 6448 Greek students (50.4 % boys and 49.6 % girls) aged 6-17 years conducted Georgiadis and Nassim (2007). Celkovo found 17.3 % of respondents are overweight (16.9 % boys, 17.6 % girls) and obesity rate was 3.6 % (3.8 % boys, 3.3 % girls), that is significantly different than in our sample.

Figure 3 shows the BMI of parents of our respondents, and separately evaluate the BMI of mothers and fathers. The graph shows that the prevalence of obesity is higher in fathers (9.27 %) than in mothers (3.97 %). Stunning is an excessive incidence of malnutrition in mothers, which is more than 9 % and very high incidence of overweight among fathers (48 %).

A similar study to assess BMI and its possible effect on realized Peixoto et al. (2007) in Brazil. This research was focused on the prevalence of overweight and obesity in relation to socio-demographic conditions, lifestyle, physical activity, dietary habits, preferences and BMI. Was conducted by questionnaire in 2001 on a sample of 1252 people aged 20 to 64 years. The goal was to identify in a sample rate of overweight and obesity in men and women. The questionnaire was focused on variables such as age, sex, education, number of children, family income, diet, relationship to smoking and alcohol on physical activity, watching TV, food consumption or food which respondents prefer.

The results were calculated BMI of women and men. Of the 1252 subjects studied were 35 % men and 65 % women. These two groups showed no significant differences in these variables. Excessive weight was observed in 42 % of men (31.2 % were overweight and 10.7 % suffered from obesity). Almost the same percentage was calculated for women. Overweight women were suffering from 43 % (29.2 % were overweight and 13.8 % women were found obesity). Average BMI was 24.6 for men and women, the majority of BMI values was around 24.8.

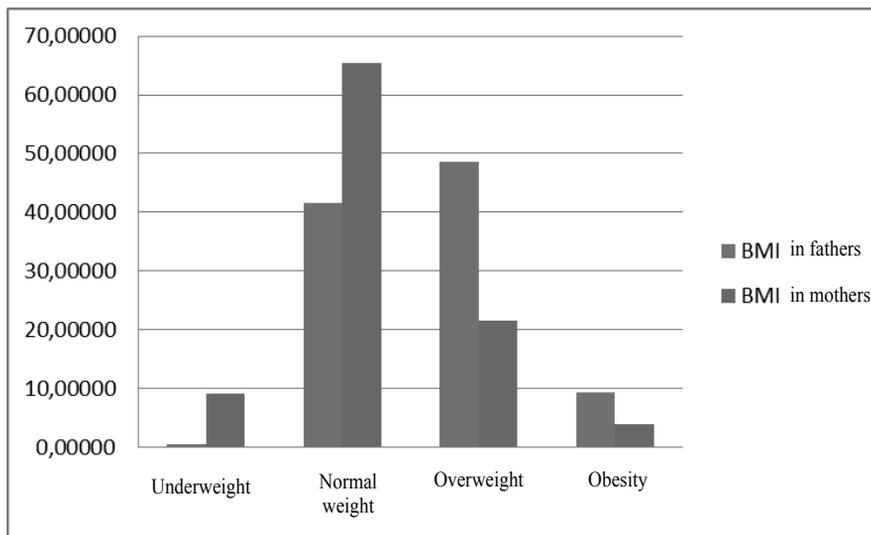


Figure 3 Percentage of BMI in mothers and fathers of children

After obtaining the values of BMI of children and their parents was conducted correlation BMI of children and mothers and fathers and children’s BMI, with respect to gender children.

Figure 4 shows the correlation BMI sons and daughters with their mothers, sons are indicated as 1 and daughters are indicated as 2. From the graph, as well as the values of correlation indicates that maternal BMI is positively correlated with BMI sons ($p = 0.0110$), as well as the daughters of BMI ($p = 0.0186$). Thus, if mothers are overweight, respectively obese and children show the same disorder of BMI.

Figure 5 shows the mutual correlation between BMI and fathers to their children. The data in the chart, as well as the values of statistical significance that the prevalence of overweight and obesity in fathers positively highly significantly correlated with overweight and obesity in boys ($p = 0.0003$), but does not affect the incidence of these variations in BMI daughters ($p = 0.1752$). Curve in the graph suggests the opposite trend, but without statistical significance.

On this basis, we note that the model for sons in eating habits and preferences are fathers. Mother’s diet affect families and those involved in shaping the eating habits of both sexes of their children, which affects their BMI values.

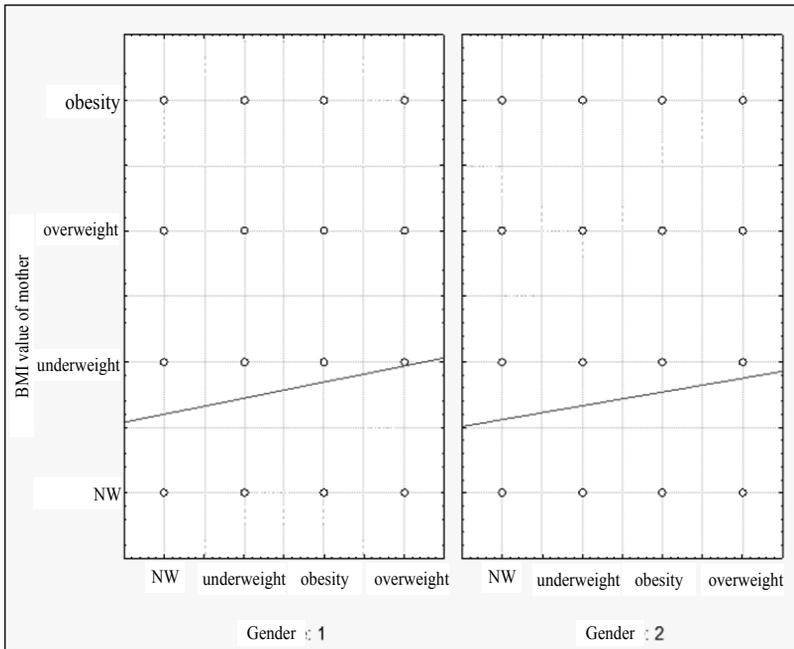


Figure 4 The association between BMI of mothers and their children

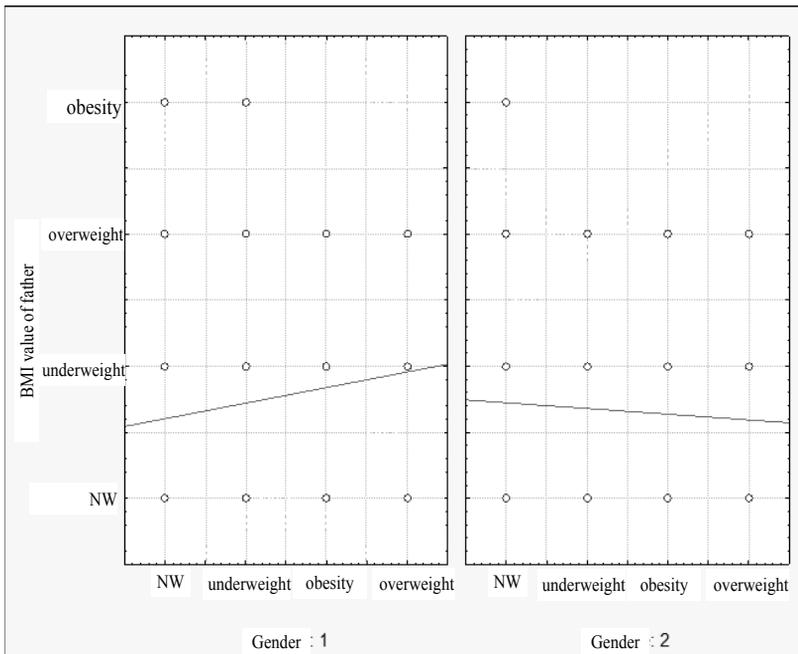


Figure 5 The association between BMI and fathers to their children

Conclusion

In our study we focused on detection of deviations from normal values of BMI in children and their parents. Questionnaire method, we obtained data on weight, height and age of children and their parents, from which we calculate their BMI and determine their category according to national standards for BMI.

The results show that the BMI categories of children is positively correlated with BMI categories of their mothers, as u guys and girls. In considering the mutual interrelation BMI fathers and their children, we found that fathers' BMI positively correlated with BMI their children, but BMI did not correlate with their daughters. Daughters use to take example from their mothers.

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MAJÚ OBÉZNI RODIČIA OBÉZNE DETI?

Abstrakt: V predkladanej štúdií analyzujeme výsledky 3831 dotazníkov, ktoré vyplňalo 1277 detí a ich rodičov. Dotazník bol distribuovaný v zariadeniach predškolského vzdelávania, ako aj na základné a stredné školy. Dotazník bol rovnaký pre všetky vekové skupiny (v materských školách vyplňali dotazníky detí rodičia), obsahoval 39 položiek. Súčasťou dotazníka boli aj údaje o výške a hmotnosti respondenta, z ktorých sme vypočítali každému z nich BMI. Vzájomnou koreláciou BMI rodičov a ich detí sme zisťovali, či existuje súvislosť medzi odchýlkami normálnych hodnôt BMI u rodičov a ich detí.

Kľúčové slová: obezita, BMI, rodičia, deti