Obesity and overweight among children cycle low school

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ABSTRACT

The study as part of the child obesity assessment system in Albania aims to: analyze, interpret and disseminate descriptive information on the monitoring of excess body weight in children, already identified as a serious public health problem at European level. The methodology used consists of children aged 8-9 years. Measurements included the period from the beginning of January until the last week of June 2018. It was conducted a transversal study type (cross-sectional) which included primary sampling units in 26 public schools and 1428 pupils. All data were thrown into SPSS version 22.0. The correlation coefficients of Pearson and Spearman were used to estimate the linear variables of numeric variables, where p≤0.05 values were statistically considered. Prevalence of obesity was significantly higher in males as compared with females. The prevalence rate of obesity by sex was 8.8 - 10.1% boys and 4.3 - 5.9% girls. School for its own function and competencies needs to turn into an ideal place for concrete actions in promoting physical activity and healthy nutrition, necessary for the psycho-physical welfare of children.

Key words: Prevalence, obesity, overweight, healthy food, school, physical activity.

INTRODUCTION

Childhood obesity is one of the greatest public health challenges of the 21st century (World Health Organization, 2012). Obesity has a multifactorial nature and is characterized by an excessive accumulation of fatty tissue, an increase in body weight and therefore the health risk (World Health Organization, 2000; Branca et al., 2007).

Among the main risky behaviors that contribute to overweight and obesity are: Excessive consumption of foods, especially those with high energy density (Agostini et al., 2011; Prentice et al., 2003), the habit of not eating breakfast (Ludwig et al., 2001; Nicklas et al., 1998; Samson et al., 1995; Szajewska et al., 2010; Giovannini et al., 2008), insufficient consumption (World Health Organization, 2008), low physical activity (World Health Organization, 2006; World Health Organization, 2010), and excessive sedentary behavior among which the use of television and computer (Vandelanotte et al., 2009; Raynor et al., 2012; Pearson et al., 2011), and a phenomenon encountered especially at younger ages of the population (Dietz et al., 1985; Fotheringham et al., 2000; Hancox et al., 2004; Erik et al., 2008).

Obesity growth factors recorded in recent years, have been multiplied. On the one hand, habits and risk factors modifiable are attributable to individual behavior (Johnson-Taylor et al., 2006) that are still associated with the complex collective dynamics, including society, family and institutions, even religious social organizations and mass media (Lang et al., 2007).

Obesity can harm any child’s body system: the heart, the muscles, the bones, the kidneys and the digestive tract, just as the hormones that control the blood sugar and puberty. It is also associated with a serious social and emotional cost (Ebbeling et al., 2002).

Moreover, young people who are overweight or obese are more likely to be overweight or obese in adulthood (Singh et al., 2008), increasing their risk of illness or disability.
during life. Digits show that at the global level, in 2012, about 43 million pre-school children (under 5 years of age) were overweight or obese, being characterized by an increase of this digit of 60% as compared with the figures before 1990 (De Onis et al., 2012).

The problem occurs in rich and in poor countries. Out of 43 million overweight or obese pre-school children, 35 million live in developing countries. In 2020, if this epidemic continues to decline, 9% of all pre-school children will be overweight or obese, that is, about 60 million children (De Onis et al., 2012).

The level of obesity is higher in adults in relation to children. But in relative terms in countries such as the US, Brazil, China or other countries, it has been observed that the problem progresses faster in children than adults (Popkin et al., 2006).

Of course, some regions, such as Southeast Asia and Sub-Saharan Africa, are still fighting against the famine of children (United Nations, 2012). But globalization has made the world richer, welfare and weight are related to one another.

Given that poor countries level of revenue is still growing, traditional diets are changing towards western. These factors also make the level of obesity grows (Popkin et al., 2012). The outcome of the so-called transition nutrition is that countries with low income or middle often face a double burden of disease: infectious diseases associated with malnutrition, especially in childhood and chronic diseases, always growing, related to obesity and western style of living.

**The global trend of obesity in children**

In the last three decades, the level of obesity in the US has tripled, and today the country has one of the highest levels in the world of overweight and obesity: one in six children is obese and one in three children is overweight or obese (Ogden et al., 2012). Since 2008, this level has remained unchanged, some groups have continued to see growth, while some have higher levels than others. In the 1970, 5% of children 2-18 years old were obese (according to today's CDC obesity definition), in 2008, about 17% of children were obese, a percentage which remained unchanged even in 2012 (Ogden et al., 2012; Centers Disease Control Prevention USA, 2012).

In Canada, it has also been noticed an increase in obesity among children, since the 70s, in general, obesity has doubled and even tripled in some groups (Public Health Agency Canada, 2011). But the level of obesity is slightly lower than in the US. In 2007-2008, about 9% of Canadian children aged 6-17 years old were obese, based on IOTF's limit values.

Although data on Latin America and the Caribbean are scarce, it is clear that overweight and childhood obesity has become a major problem, as there are generally more overweight than underweight in the region. In digits, 7% of children under the age of five in 2012 were overweight or obese, as compared with a significant fall in underweight from 7% in 1990 to 3% in 2012 (De Onis et al., 2012; United Nations, 2012), referred to WHO's growth standards.

Hunger, backwardness and underweight in growth, were more common in African children, especially at present, where 20-25% of preschool children in Sub-Saharan Africa are underweight (United Nations, 2012). However, the level of obesity is also increasing. Thus, the number of overweight and obese pre-school children over the past two decades has doubled from 4% in 1990 to 8.5% in 2012, a particularly significant digit for North Africa, where one in six children is overweight or obese (De Onis et al., 2012).

Although hunger in children is the most tangible nutrition issue for most of Asia (such as South Asia, where one in three children is underweight), the region is also facing a dramatic increase in obesity in children. Thus, throughout Asia (excluding Japan) about 5% of pre-school children in 2012 were estimated to be overweight or obese with a 53% increase in prevalence before 1990 (De Onis et al., 2012). In other words, about 17.7 million Asian children are overweight or obese.

Regarding Europe, surprisingly, it appears to be uncompleted data regarding trends in obesity, especially in Eastern Europe. Until recently, these data were not collected consistently across the continent, making it difficult to compare data between states. However, from the analysis of available data it is observed that in the last two decades, the level of obesity among children has increased in many countries (Lien et al., 2010; Cattaneo et al., 2010). Finally, between some group of ages in some countries, this level seems to have reached a plateau.

The overweight and obesity of 4-year-old children, measured in 27 European countries, showed differences between them, with the highest prevalence encountered in Spain (32%) and the lowest in Romania with 12% (Cattaneo et al., 2010). Cyprus, Greece, Spain and England appear to have the highest level of obesity among children aged 10-18 years of the 30 studied countries (Lien et al., 2010). But again the data were limited and qualitatively different.

With regard to children aged 6-9.9 years old, the World Health Organization’s Initiative for Assessment of obesity at childhood has recently started to follow levels of obesity in children in about 15 countries, using child raising standards WHO. The first analysis, based on the 2007-2008 data of 13 countries, revealed that 24% of children aged 6-9 are overweight, encountering an interval of 19 to 49% among boys and 18 to 43% among girls, and an obesity interval of 6 to 26.6% among boys and from 5 to 17% (World Health Organization, 2010) among girls. The high prevalence of overweight was observed in Italy, Portugal and Slovenia (based on references of increasing children's WHO, 2007) (World Health Organization, 2012).
The overweight and obesity situation in Albania

In Albania, overweight and obesity are a major risk factor for health, especially for non-transmissible diseases. This risk factor operates since childhood. Data from a study conducted by IPH (Nino, 2009) showed that 15.2% of children aged 9-10 are overweight, of whom 3.8% are obese. Data from the IPH, 2008-2009, revealed that about 22% of children under the age of five are overweight or obese, while among adults of over 15-49 years old, 53% of males were overweight (which 9% obese) and 39% of women of the same age group were overweight (of which 10% were obese) (Institute of Public Health Albania, 2010).

It is never too early to begin obesity prevention. The above data show that even in younger children, the level of obesity is increasing across the globe. It is also clear that for any overweight individual, it is very difficult to lose weight, regardless of age. Preventing obesity in the early years of life (even before birth through healthy habits during pregnancy) confirms a healthy life. And this is the most promising way to overthrow this global epidemic (World Health Organization, 2010).

The most disturbing aspect of obesity in children is that these children remain obese in adulthood, developing more serious pathologies that tend to lead to a reduction in quality and longevity. In fact, habits acquired in childhood, related to diet and physical activity do not change easily during life. Therefore, preventing and curbing obesity growth at childhood is today a challenge to public health, as it is very difficult to treat obesity installed, it is very high probability of being an adolescent or obese adult, and it is difficult to correct habits of wrong nutrition in adults, acquired during childhood (Nino, 2009).

School environments

The school plays a key role in the fight against obesity in children and youth by encouraging, through implementing specific policies and promoting healthy eating habits and physical activity, conscious choices for healthy behaviors among young people (Centers Disease Control Prevention, USA, 2011).

Political and educational measures within school environments represent a good opportunity to influence positively youth health (Dixey et al., 1999; http://www.who.int/school_youth_health).

Today, there is a lot of scientific evidence on the effectiveness of school interventions, especially long term in preventing overweight in children (Gonzalez-Suarez et al., 2009; Khabalalia et al., 2012; Foster et al., 2008; Fung et al., 2012).

In the United States, since 2007, various institutions are implementing programs to prevent obesity that had to do with teacher involvement and physical activity, as well as the progressive implementation of policies aimed at increasing reduction of this phenomenon (Beam et al., E64,E65 2012).

In Europe, the project HNPAS (Healthy Nutrition and Physical Activity at the School), connected to the European School Health (Boonen et al., 2009), supports European countries in promoting healthy nutrition and physical activity, through comprehensive educational programs, consistent and based on school curricula. Thus, the school represents the ideal place to promote healthy children’s, not only through programs of nutritional education and physical activity, but also through initiatives to promote a healthy lifestyle for families of these pupils.

Purpose of study

This study, as part of the child obesity assessment system in Albania, aims at collecting, analyzing, interpreting and distribution descriptive information for monitoring of overweight children, already identified as a serious public health problem at the European level. This information would help to understand epidemic progress and to plan and undertake actions to prevent it.

METHODOLOGY

In the present study, the selected sample included children attending elementary school classes, within the age group of 8-9 years. Classroom measurements include the period from the beginning of January to the last week of June 2018.

The population under study consists of children who attend classes respectively to II and III school 9-year system. Choosing this age-group is due to the high risk of obesity (Lang et al., 2007; Ebbeling et al., 2002; Singh et al., 2008), with the still low impact of growing puberty and the ability of children of this age to answer simple questions (De Onis et al., 2012).

Sampling method

The sampling method used is two-stage groups, in accordance with the methodology described in the international literature for studies of this type. Detailed description of the sampling technique is presented below:

a) Sampling scheme

Sampling the groups in two stages.

- In the first phase, it was obtained a random sample, simple, transversal type (cross-sectional) with probability function of the size of 26. Thus, the primary sampling units were public elementary schools.
- In the second phase, each school sampled in the first stage was undertaken by a stratification of classes (second class and third class) as children of the age group targeted for this study (age group 8-9 years old) belong to both of these.
b) Number of schools included in the sample: 26 schools.

c) Number of classes included in the sample: 26 * 2 = 52 classes (two classes for each school).

d) The sample size calculation was based on the following assumptions:

- Level of participation in the study: 90% (this is in fact a conservative assumption that tends to maximize the size of the sample); based on a participation rate of 90%, the required number of pupils should be ≈1500 (instead of the number of ≈1350 for a simple random sample).
- Number of pupils per class: tends to maximize the size of the sample of classes included in the study since the average number of pupils per class is = 30 ± 2.

As for each selected school, two classes were included (a second class and a third class), the necessary number of schools, classes and pupils were calculated as follows:

NS 26 x 2 NC = 52 AC x 30 PC = 1500 AP

The method of inclusion and the management of children who were absent or who refused

The study included all children present on the day of anthropometric measurements. There was predicted no return to the classroom for children who were absent on the day of measurement. It was envisaged that children whose parents would not allow participation in the measurement would not be included. However, there was no rejection by the parents regarding the participation of their children in this study, so also by the children during the anthropometric measurement process. Pupils with physical defects were measured, but their results were not included in the database to be analyzed. No request was rejected by the school staff on conducting anthropometric measurements of children.

Means and materials of the evaluation system

The materials necessary for the collection of data in accordance with the protocol were included as follows:

- Examiner form for the child
- Examiner form to return from school
- The child’s form consisted of questions related to demographic data, and physical status at the moment of anthropometric measurements, as the child has accepted to be bound by these measurements. Collected information related to the child’s nutritional status are their nutritional habits (the child is asked about the morning meal consumption) and some characteristics of the school environment. It was supplemented by the teachers of the selected classes in the study, and it was about the school environments.
- The school form ensuring the collection of information on certain characteristics of the school environment may have favorable influence on child’s health. In questions formulated for school directors, particular attention was paid to information on the physical activity of children involved in the curriculum, the facilities or gyms used by children, ending with a reduced information regarding the safety of streets around the school, for their attendance with bicycles or walking by children.

Anthropometric measurements of children were performed through scales and gradients. The weighing was performed by means of weighing scales with a precision of ± 100 g and measuring capacities of 200 kg, as well as portable with a precision of ± 1 mm and a measuring range of 20-205 cm.

Creating a database and analyzing data

All data were thrown into SPSS (Statistical Package for Social Sciences), version 22.0.

Data analysis consisted in the description of the variables (averages and standard deviations for numeric variables) and in the application of statistical tests to compare the prevalence of underweight, overweight and obesity in children. Specifically, the statistical tests used in the current analysis consisted of the following procedures:

- Hi-square test and Fisher’s exact test to compare the prevalence of overweight and obesity in children by gender, or district involved in the study.
- Binary logistic regression was used to evaluate the ratio of chances of overweight and obesity to children.
- The correlation coefficients Pearson and Spearman were used to evaluate the linear links of numeric variables.
- For all statistical procedures applied were considered as statistically significant values of p≤0.05.

Definitions used

To determine the state of overweight and obesity in this study, BMI (Body Mass Index Body Mass) was used. To determine underweight, normal, overweight and obese children were selected to use limit values set by the WHO (World Health Organization) and IOTF (International Obesity Task Force). Meanwhile limit values of BMI for overweight and obesity, as defined by Cole et al. (2000) are universally accepted by the entire scientific community for use in epidemiological studies, and recommended for international comparison of the prevalence of overweight and obesity (Table 1).

Morning classification

Breakfast child was considered qualitatively appropriate if
Table 1: Limit values that were used to determine overweight and obesity in children based on age and gender (Cole et al., 2000).

<table>
<thead>
<tr>
<th>Age/years</th>
<th>Underweight</th>
<th>Overweight BMI equivalent to 25 adults</th>
<th>Obese BMI equivalent to 30 adults</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>7</td>
<td>13.08</td>
<td>17.92</td>
<td>20.63</td>
</tr>
<tr>
<td></td>
<td>12.91</td>
<td>17.75</td>
<td>20.51</td>
</tr>
<tr>
<td>7.5</td>
<td>13.09</td>
<td>18.16</td>
<td>21.09</td>
</tr>
<tr>
<td></td>
<td>12.95</td>
<td>18.03</td>
<td>21.01</td>
</tr>
<tr>
<td>8</td>
<td>13.11</td>
<td>18.44</td>
<td>21.60</td>
</tr>
<tr>
<td></td>
<td>13.00</td>
<td>18.35</td>
<td>21.57</td>
</tr>
<tr>
<td>8.5</td>
<td>13.17</td>
<td>18.76</td>
<td>22.17</td>
</tr>
<tr>
<td></td>
<td>13.08</td>
<td>18.69</td>
<td>22.18</td>
</tr>
<tr>
<td>9</td>
<td>13.24</td>
<td>19.10</td>
<td>22.77</td>
</tr>
<tr>
<td></td>
<td>13.18</td>
<td>19.07</td>
<td>22.81</td>
</tr>
<tr>
<td>9.5</td>
<td>13.34</td>
<td>19.46</td>
<td>23.39</td>
</tr>
<tr>
<td></td>
<td>13.29</td>
<td>19.45</td>
<td>23.46</td>
</tr>
<tr>
<td>10</td>
<td>13.45</td>
<td>19.84</td>
<td>24.00</td>
</tr>
<tr>
<td></td>
<td>13.43</td>
<td>19.86</td>
<td>24.11</td>
</tr>
<tr>
<td>10.5</td>
<td>13.58</td>
<td>20.20</td>
<td>24.57</td>
</tr>
<tr>
<td></td>
<td>13.59</td>
<td>20.29</td>
<td>24.77</td>
</tr>
</tbody>
</table>

Table 2: Distribution of the schools included in the survey by districts.

<table>
<thead>
<tr>
<th>Districts</th>
<th>Frequency in number</th>
<th>Frequency in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berat</td>
<td>3</td>
<td>11.63</td>
</tr>
<tr>
<td>Elbasan</td>
<td>3</td>
<td>11.63</td>
</tr>
<tr>
<td>Tirana</td>
<td>10</td>
<td>38.46</td>
</tr>
<tr>
<td>Vlora</td>
<td>4</td>
<td>15.38</td>
</tr>
<tr>
<td>Durrës</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

contained foods rich in protein and carbohydrates (simple or complex).

Foods were grouped into two categories:

1. Foods rich in milk and its derivatives.
2. Foods rich in carbohydrates such as bread, cereals, etc.

Breakfast was considered consumed when the child reported receiving at least one food from each category.

RESULTS

The study included 26 selected schools from five prefectures: Tirana, Durrës, Elbasan, Vlora, and Berat (Table 2).

The number of children examined was 1428, with an average age of 8.42 years and a gender distribution, respectively 51.5% males and 48.5% females (Table 3).

Of the examined children, 46.5% of them had eaten in the morning on the day of anthropometric measurements. Data showed a significant change in morning consumption among children of both sexes, with a tendency to slightly higher consumption rates for women (30.1%) than men (27.7%). Figure 1 shows the distribution of body mass of children (BMI) according to Cole et al. (2000)

If we follow the trend of breakfast consumption among children, according to their nutritional status, we will notice that with increasing BMI’s also increased the percentage of children who do not consume breakfast (Table 4).

For the BMI figures of children by age group and sex, it was observed the tendency of boys to be more overweight or obese than girls of the same age group. Figure 2 shows the nutritional status of children based on BMI by age group for different genres defined by WHO.

The number of children who did not consume breakfast was higher among obese children as compared with other children (29.7%), but without any significant correlation between this difference with p = 0.003 (Table 5).

If we compare the nutritional situation of children of 8-9 years, according to estimates from two references used: IOTF and the WHO, we will note that since the limit values set by the WHO are lower as the terms overweight and obesity, then the prevalence of overweight and obese children will be higher when their BMI is assessed with WHO norms (Figure 3).

School environments

Part of the study questionnaire was also completed by the school directors with the aim of evaluating some of the characteristics of the classroom in the study, such as: sports facilities and physical education lessons that were developed by pupils at school, programs or initiatives to promote one way healthy lifestyles (physical activity and / or healthy nutrition) for pupils of each class involved in the project, external or internal environments where children...
Table 3: Distribution of children 8-9 years by sex.

<table>
<thead>
<tr>
<th>Children</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>735</td>
<td>51.5</td>
</tr>
<tr>
<td>Girls</td>
<td>693</td>
<td>48.5</td>
</tr>
<tr>
<td>Total</td>
<td>1428</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 1: Distribution of BMI’s children 8-9 years on the basis of gender by Cole et al. (2000) (Overweight includes obesity).

Table 4: Distribution of children according to BMI’s and morning consumer Cole et al. (2000)

<table>
<thead>
<tr>
<th>Morning consumer by children</th>
<th>BMI Cole et al*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>Weak</td>
</tr>
<tr>
<td>Yes</td>
<td>Number</td>
<td>397</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>62.2%</td>
</tr>
<tr>
<td>No</td>
<td>Number</td>
<td>241</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>37.8%</td>
</tr>
<tr>
<td>Total</td>
<td>Number</td>
<td>638</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>44.7%</td>
</tr>
</tbody>
</table>

Figure 2: Distribution of BMI in children 8-9 years on the basis of gender according to WHO (Overweight includes obesity).

can usually play during breaks between lessons, access by pupils to food, drinks on school environment, road safety for school and home for pupils to walk or ride bicycles.

The question whether the school has indoor or outdoor environments where children can play during lesson breaks, 21 schools (80.8%) responded positively, 5 schools did not have such facilities. In other words, one in five schools did not possess a suitable environment where children could play during the break.

The physical activity exercised by the pupils was another aspect of the study. The curriculum approved by the Ministry of Education provides classes for primary education under the compulsory curriculum for each class, and also development of physical education 3 h 45 min
Table 5: Distribution of children according to BMI and breakfast consumption -WHO.

<table>
<thead>
<tr>
<th>Morning consumer by children</th>
<th>BMI_WHO</th>
<th>*p=0.003</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td>Weak</td>
<td>Overweight</td>
</tr>
<tr>
<td>Yes</td>
<td>Number</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Number</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: Distribution of BMI to 8-9 year olds, according to Cole J et al. and WHO.

Figure 4: Distribution of schools that have implemented nutrition initiatives, in percentage.

each, with a total of 135 min per week. So the question: "In this school year, how many hours a week did your school offer physical education lessons for pupils of each class involved in the project?" All studied schools reported the development of 135 min per week, and only one the school also reported a program of special physical activity for overweight or obese children.

Part of extracurricular activities is also for nutrition education of children in schools. Particular attention especially to children of this age is justified by the fact that it is easier to change nutritional habits at an early age than adults, as well as the influence of children on parents and their family about nutrition. Therefore collecting information about participating class initiatives to promote a healthy lifestyle (physical activity and / or healthy nutrition) for pupils of each class involved in the project was considered important. In some schools, it was reported that they had a positive initiative, respectively 63.5% versus 36.5% who had not had such an initiative (Figure 4).

Children also had access to school environments for a variety of meals and drinks, but their nutritional quality remains to be discussed. Thus, there was a total lack of access (100%) for fresh fruit, fresh vegetables, fruitless juices or milk and yogurt (Table 6). While the articles referred to were caramel, sweets, potato chips, sugary drinks, etc. In addition to the following list, other foods were reported, with the most frequent pie (50%), sandwich (24%), hamburger (20%) and pizza (11%). Only one school resulted out to automate the sale of food or drinks, while the local sale of food or drinks had 19 (78.8%) schools. School personnel were also asked for a
Table 6: Distribution of food / drinks access for pupils in their school environments.

<table>
<thead>
<tr>
<th>List of foods / drinks</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh fruits</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>100% fruit juice without sugar</td>
<td>1</td>
<td>3.9</td>
<td>25</td>
<td>96.1</td>
</tr>
<tr>
<td>Fruit juice with sugar content</td>
<td>20</td>
<td>76.9</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Cold drinks without sugar</td>
<td>9</td>
<td>34.6</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Cold drinks with sugar</td>
<td>18</td>
<td>69.2</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>Hot drinks without sugar</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Hot drinks with sugar</td>
<td>2</td>
<td>7.7</td>
<td>24</td>
<td>92.3</td>
</tr>
<tr>
<td>Dietary drinks</td>
<td>4</td>
<td>15.4</td>
<td>22</td>
<td>84.6</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>73</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>Vegetable</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>1</td>
<td>3.9</td>
<td>25</td>
<td>96.1</td>
</tr>
<tr>
<td>Milk</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Processed milk</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Water</td>
<td>24</td>
<td>92.3</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>Caramel, Chocolates, Cake, Sweets</td>
<td>25</td>
<td>96.1</td>
<td>1</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Figure 5: Distribution of road safety in schools by rural/urban areas.

judgment on road safety for the school and return home to allow pupils to walk on foot or on a bicycle. Thus, 38.4% (10 schools) think that roads are safe as compared with 61.6% (16 schools) who think infrastructure is not suitable for children. The level of security positively valued to be higher in urban areas as compared with rural areas (Figure 5).

A great interest was also the presence of sports clubs in schools or sports environments available to children after lessons. Most of the schools did not meet their presence (42.4%). In 26.9% of schools, these clubs and environments were only for upper-cycle classes, while 30.7% of schools were for all children. In collecting all information about school environments, there was no significant difference between schools by districts or prefectures.

**DISCUSSION AND CONCLUSIONS**

This study was implemented based on a standard protocol of data collection for evaluation child obesity. The trends of childhood obesity of this age group are as follows:

1) From the analysis of this data by the values of Cole et al. (2000), there is a prevalence among children of 8-9 years old as 15.1% were overweight and 3.5% were obese.
2) From the analysis of these data according to the WHO limit values, 22.4% were overweight and 7.9% were obese.

The trend of overweight and obesity to gender and age, regardless of limit values used for the evaluation (Cole et al., 2000 and the WHO) presented the same. The prevalence of obesity was significantly higher in males as compared with females, among boys in relation to girls. The prevalence rate of obesity in children by sex (from 8.8 to 10.1% among boys, and from 4.3 to 5.9% among girls) is comparable with the intervals in European countries and with the same tendency to be higher among boys in relation to girls.

On average, in every four children, more than one child did not consume breakfast. There was no significant correlation between breakfast consumption and children’s nutritional status; however, it was noted that with the growth of BMI the number of children who did not consume breakfast was increased, the trend was more
pronounced in obese children.

With regard to healthy nutrition initiatives a growing trend (two to three schools report the implementation of these initiatives) was noted for the treatment of topics in extracurricular programs to promote a healthy lifestyle, such as increased physical activity and / or healthy nutrition.

These programs noted the increased access of children to unhealthy foods (potato chips, brought croissants, juices with added sugar, hamburger, sandwich, etc.) and the lack of healthy foods (fresh fruits, fruit juices without sugar, etc.) in / or around the school environment, presenting the risk of cultivating bad habits for healthy nutrition in children from an early age.

The total or partial lack of sports clubs in schools or sports environments available to children after lessons, in about three/fourths of schools indicates the low access of children to be physically active in their school environments; this gap is influenced even in the absence of sound relations and cooperative spirit between them.

This conclusion is reinforced by the implementation of only 135 min of compulsory weekly physical education program for each class, with no additional sports activities undertaken by teachers in the context of promoting the need for a daily physical activity for a healthy life since childhood.

In the judgment on the safety of roads to school and at home for pupils to walk or on the bicycle for the most part (61.6%), it was thought that the infrastructure was not suitable for children. The security rate was positively higher in urban areas relative to rural areas.

School, for its own function and competencies, can turn into an ideal place to undertake concrete actions to promote a healthy life, enabling achievement of a recommended level of daily physical activity and healthy nutrition, indispensable for the psycho-physical welfare of children.

The formation of alliances between the world of school and health should be seen as concrete and fruitful steps in the implementation of integrated and scientifically proven interventions for their efficiency (Boonen et al., 2009). Such experiences are offered today by many European Union member states, which could serve as a very good model for implementation, also adjusted for Albanian conditions. Thus, a mutual cooperation between school staff and parents regarding periodic assessment of the nutritional status of children by performing and analyzing anthropometric measurements may be one of the examples of joint collaborations in the fight against overweight, obesity and childhood risk behaviors.

**RECOMMENDATIONS**

Prevention is the best cost/benefit ratio for controlling obesity and obesity in pediatric age, as well as in the future of adulthood. Children are considered the priority population for prevention strategies because weight loss in adulthood is difficult and there is a greater number of important interventions for children than for adults. Prevention can be achieved through various interventions that target: environment, physical activity and diet.

In our country, it is necessary to conduct studies on the prevention of obesity, because obesity is a multifactorial disease for which preventive interventions should be placed on all causal factors. Based on these, the following key points are recommended:

- Strengthening the child nutrition assessment system through the provision of healthy nutrition and physical activity models;
- Increasing awareness and active involvement of parents to enable sustainable change in the fight against overweight and obesity;
- If schools are the main engine of educational interventions, the health promotion program cannot function if it does not enter a strategy that includes all components of society: teachers, pupils, families and institutions;
- Increased participation in sports, improving and increasing the time in physical education with visible benefits in organic development, but also in the social behavior of the child;
- Reducing the large volume of high calorie food, drinks and fast foods, through media and television;
- Promoting a healthy diet as the primary element for maintaining an optimal weight, in combination necessarily with increased energy expenditure, promoting physical activity and sports;

In conclusion, the impression that increasing ages are constantly changing becomes more and more acute. This fact highlights the need for a continuous dialogue with this age to understand the needs.

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**REFERENCES**


http://www.who.int/school_youth_health/media/en/physical_sch_environmnt.pdf


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