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RESEARCH ARTICLE

OVERWEIGHT PREVALENCE AMONG ELEMENTARY SCHOOLS PUPILS IN THE CITY OF IASI, ROMANIA.

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Abstract

This study represents the result of a research on a population aged between 11 and 15 years, respectively pupils attending elementary schools in the city of Iasi (8911). The research aimed at emphasising cases of overweight to afore mentioned ages. This study has used somatoscopy as an assessment tool and whenever the diagnosis was unlikely, the body fat index was calculated. Statistic analysis of findings revealed that the average percentage specific to 5th-7th grades was 7.59% overweight pupils, with variations between 7.3% and 8.4% among classes, where 45% are girls and 55% are boys.

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Introduction:-

Motor activities intended to training and education and specific to sports and physical education lessons on a school level has faced new challenges lately. Therefore statistics on health condition especially when related to younger population emphasises alarming increases of the mortality rate, sedentary life style and obesity, which constitute more than ever as factors to determine emergence of physical and psychical disorders. (Cârstea, 2000). At the same time, perspective of a precarious health condition and decrease of the motor ability endanger sustainable economic development and national security (O'Dea, & Caputi, 2001).

According to some studies (Croll, Neumark-Sztainer & Story, 2001; Story, Neumark-Sztainer, & French, 2002), the number of overweight people within the European Union is of 14 million out of which over 3 million are children. Causes of this alarming figure are inappropriate diet and lack of physical activity. In November 2007, the European Parliament directed its eyes to the report on physical education (White Charter of the European Sports, 2007). This report emphasises a series of major issues: too little time dedicated to sports and diminished average time rate dedicated to sports to 109 minute per week in primary schools and 117 minute to secondary schools. Both figures have decreased unreservedly since 2002.

Other deficiencies having been noticed: athletic options of pupils in schools are not interesting enough to motivate them, sport activities have a high level of competitiveness and not all pupils are able to cope with it or they are amateurs and lack of coordination between sports inside and outside schools. The report suggests the timetable should include at least three hours of physical activities every week and it should contain a connection between physical activities inside and outside schools. At the same time, a purpose is directed to include ethnic minorities and disabled children as well and to introduce physical education as a mandatory subject in primary and secondary school. Therefore physical education should be mandatory in educational programmes and children have at least three hours of sports every week. Furthermore the report requests all Member States to provide for compulsory

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physical education and sports in primary and secondary schools, while they should assure a higher integration level between sports and regular courses in higher education system. The Parliament urges the Member States to go on with their campaigns to inform school-aged children and their parents on the connections between healthy life style, physical exercise and food. Moreover, the deputies claim that they should agree on those principles according to which the timetable should include at least three hours of physical education every week while schools should make efforts to overpass this threshold in compliance with their possibilities. They recommend that structural funds should be used to establish and develop school sport units within disadvantaged regions and invite the Commission, the Council and the State Members to consider the principle of subsidiarity and establish a law framework to help the increase of investment and material aids for athletic activities intended to young people. Given the context of this report which emphasises that physical education is the only subject within the curriculum to aim at training children to have a healthy lifestyle and to transmit important social values (self-discipline, solidarity, team spirit, tolerance and fair play), it is obvious that these recommendations should be put into practice.

Although obesity has complex multifactorial causes, most researchers agree that lack of physical activity and dietary habits, including inadequate consumption of fruits and vegetables, are two behaviors that contribute to the development of overweight. (Al-Hazza et al, 2011; Swinbun et al., 2004; Ebbeling et al., 2002; Epstein et al., 2001).

Evolution of the consumption society and increase of the purchasing power corroborated with the lack of attention of authorities in terms of motor activities would result in increased overweight people starting from the very childhood (Vintilă, 2012).

The World Health Organisation describes obesity as a more and more increasing disorder while it takes the aspect of a global epidemic and it represents an important public health issue. Obesity, a chronic nutritional disorder, is increasing in both industrialised and developing countries. "Obesity is a complex and multifactor disease involving a weight gain in body fat. The last decades it has become one of the most frequent nutritional disease in the world and, according to the WHO's report of 2011, it has become pandemic and considered to be the disease of the 21th century" (Flynn, McNeil, Maloff, 2006).

If in other countries over the past 30 years, childhood obesity rates have doubled among children and have increased fourfold on teenagers in Romania this phenomenon took place at a accelerated rate, respectively in 20 years. (CDC, 2017; Ogden CL et al., 2012; National Center for Health Statistics, 2012).

Material and Methods:-

Goals of Research

1. To identify cases of overweight among all schools in the city of Iasi.
2. To establish a report on levels of classes and genre.
3. To identify cases of overweight both in medical records and medical exemption from physical education classes.

Methodology

The year 2017 began with an information flow among all mass media (print media, audio and video) on the situation of overweight in our country "with its over 4 million obese adults and 50% of overweight population..." (romanalibera.ro); Romania has moved up to the third place among European overweight. In 2003, European statistics used to place us on the 23 place in terms of overweight people. As far as children obesity is concerned, the figures are alarming: 40% of children are obese. Specialists claim that these figures reveal that our population does not have a culture for sports" (semneletimpului.ro). The "Ponderas", the only hospital specialised in state-of-the-art metabolic surgery in Romania has made a study on obesity among Romanians starting from the data provided by the World Health Organisation (WHO). In 2008, the WHO would estimate that 51% of the Romanians were overweight and obese. Local statistics would confirm the large distribution of obesity among over the half of the Romanian population (ponderas.ro/study).

At the same time, the IASO (International Association for the Study of Obesity) presented in London, in 2009 (euro.who.int) a report on the first study made by the HBSC (International Organisation dealing with Health Behaviour in School-aged Children) in Romania between 2005 and 2006 on children aged between 11 and 15. The study attested that overweight prevalence was 14.7% among boys and 8.7% among girls.

While relying on this mass media context and considering the possibility to involve an important group of Master students within the course on “Research Elements applied to Motor Skills, we thought that we would be able to accomplish a study on a population aged between 11 and 15.

The respondents of our study have been the 8911 pupils within elementary education in the 35 comprehensive schools with classes for elementary education in the city of Iasi. The elementary schools have been selected among the lists having been provided by the General School Inspectorate of the city of Iasi. It should be mentioned though that among the 35 schools there are three schools for children with special needs, a vocational school for sports (Secondary School for Sports which it also provides for elementary education) and some (eight) classes for integrated sport education. This is worth being mentioned since overweight is extremely rare (only one case) among sport education while in schools for children with special needs there have been multiple situations, much over the average rate given the disorders associated to those children.

This research was transverse type and was funded by the Life Quality Management Foundation in partnership with the University "Alexandru Ioan Cuza", both in Iasi.

Access to schools has been facilitated by the cooperation protocol with the School Inspectorate of the city of Iasi (no. 70059.14.05.2017) which stipulated the assessment methods to be used with children. Thus the somatic assessment of pupils has been made within physical education classes with direct participation of the specialised teacher who provided for information on the pupils’ anthropometry, motor skills and condition (either the concerned pupils have or have not exempted from efforts). At the same time, we initially intended to identify the social standing of the pupils, more specific to find out whether their parents are currently working inside or outside the country, since there are studies which claim that this affects the evolution (including somatic development) of the child (Ebbeling et al, 2004). But, since during the pilot study, pupils having been identified to be overweight used to show some restraint or even to be non-responsive therefore this item has been dropped off.

Hypothesis

Our observation of pupils during physical education classes in elementary schools within the teaching traineeship makes us believe that published information (scientific articles, written articles and statements) on the situation of the overweight pupils in elementary schools are not real. So, we presume that percentage rates of overweight among pupils in elementary schools are lower.

Assessment has been made by somatoscopy which represents a clinical method of assessment of physical development and it means visual examination of respondents with a view to give a global judgement and to make a segmentation of harmony of development (normal and segmentary alignment), to compare respondents and reveal physical impairments.

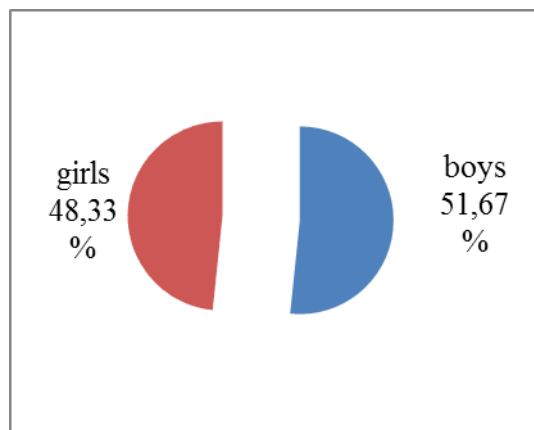
Somatoscopy could be subjective when it does not use any tools at all or objective when it uses tools. From the point of view of physical development somatoscopy divides subjects into: underweight, normal weight and overweight. Ranking has been made visually while estimating the harmony in proportionality and whenever there was any doubt measurement (of waist and weight) has been made to calculate the body mass index ($BMI = \text{weight}/\text{height}^2$). The rising curves and rising tables as well as the body development have been used especially in paediatrics with a view to evaluate whether concerned antropometric indices (weight, height, body mass index, etc.) for a certain child/teenager match or do not match the statistic and epidemiologic normal condition.

It should be stated from the very beginning that, in Romania, formal curves of body mass rising based on the study of the Romanian population are not available, and therefore, in practice, we work with rising curves used by other countries (France, USA and Germany) while presuming that the Romanian population is similar to the countries whose population has been the basis for afore mentioned tables (similarities and differences among populations are related to epistemology). Moreover, most of the rising graphs have been made in periods with different frequencies of the weight as compared to the present. These notions are useful for proper interpretation of information since, at least technically, “errors” could be possibly found and given by the use of those graphs having been obtained from statistics and having stated the notion of “normal” (who.info/growthref).

Results and Discussion:-

Centralisation of findings from the 35 schools have resulted in a total amount of 8911 pupils out of which 4605, that is 51.67% boys, and respectively 4306 girls, that is 48.33% girls (Figure 1). At a first sight we thought that an error has been occurred since several statements in specialised literature used to claim that the number of females is higher than the number of male (Drăgulin Saitoc, 1990). Analysis of the statistical data from the 2011 survey (iasi.insse.ro) confirms it and reveals that this gap has been maintained in the favour of males until the age of 35 while it reverses afterwards.

Fig 1:-Ratio of boys / girls



After findings of our study have been processed, a number of 677 (7.59%) overweight cases have been identified but a development of cases for each class has been made as well (Figure 2). Thus certain homogeneity of overweight cases among the 5th, 7th and 8th grades has been noticed. It was only among the 6th grade pupils that a larger number of overweight pupils has been found which was actually to be anticipated given that at this age changes specific to puberty occur. Puberty is the period when physical and sexual maturity comes about and it features rapid growth in height and weight and emergence of primary sexual characteristics, and these changes are associated to important change in hormonal activity. At the same time a disproportionate growth among segments or even systems occur so the skeletal system grows faster than the muscular system. All these result in decrease of the motor potential and ability to make higher effort which would come about decreased wish to do physical activity.

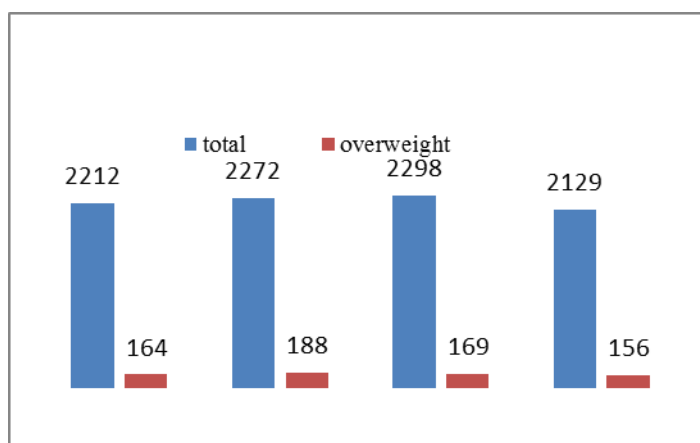


Fig.2:- Ranking among classes

More clear evidence could be seen in Figure 3 from where we can draw the conclusion that the percentage of overweight pupils among the 6th grade has influenced the average rate among the whole of the population of pupils. Consequently, if the percentage rate ranges between 7.3% and 7.4% among the 5th, 7th and 8th grades, it is 8.2% among the 6th grade.

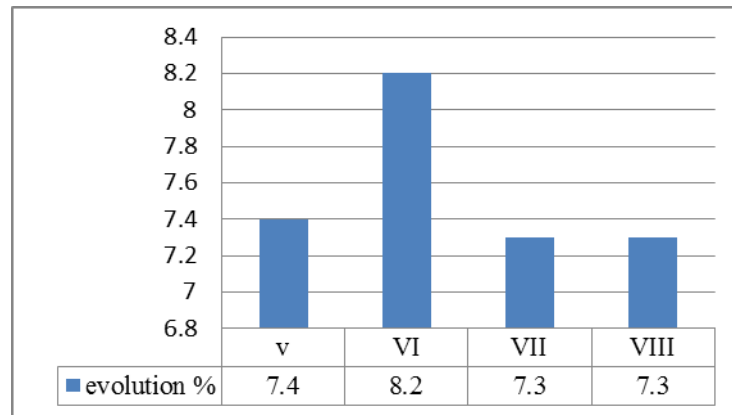


Fig 3:- Evolution of the percentage rate by classes

However, on the level of the 6th grade, the higher percentage rate of overweight pupils is given by both larger number of boys and girls proportionally.

The study aimed at identifying the relationship between the overweight rate in boys and girls. If at a first glance we would tend to believe that the number of overweight girls higher, the findings revealed that the number of overweight boys is higher than the number of overweight girls (Figure 4). Even if the number of boys (377) is generally higher than the number of girls (300), the overweight ration is clearly in favour of girls. Expressed in percentage, the boys represent 8.18% and the girls 6.96%. This is due to the fact that girls are more attentive to the quality of food they eat and they are more concerned with the way they look.

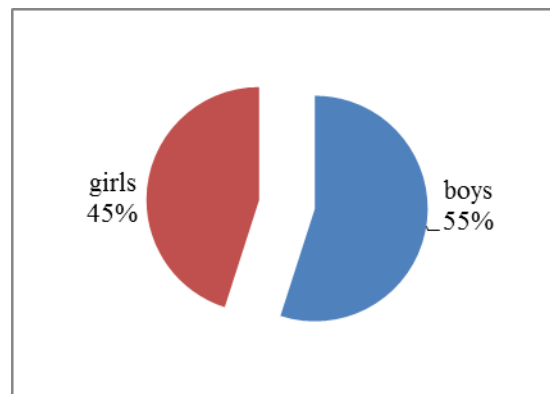


Fig 4:-Ratio of overweight (girls / boys)

If we are to compare our findings to those of similar studies in other countries or other periods and locations we could state that our percentage rate is rather low. From our point of view what we find it alarming is that over half of overweight children have not been registered with any doctor and no corresponding nutritional measures have been taken yet (Figure 5). This demonstrates little care and concern of the family with the child (pupil) since no elementary measure has been taken (specialised medical appointment, systematic practice of physical activity, proper food, etc.) and awareness policy within schools.

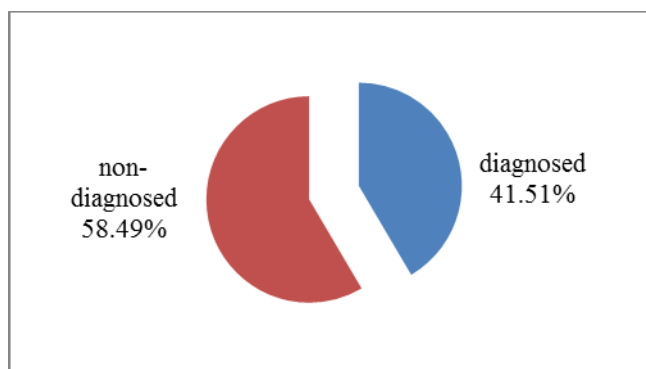


Fig 5:- Ratio of diagnosed / non-diagnosed

One of the reasons provided by parents, authorities and pupils to overweight cases is related to the shortage of physical exercise, respectively to the reduced number of physical education hours in the educational programme (2 hours a week). Having in view that it is such an apparent reason, we have searched, with the help of the sport teachers, the number of pupils having been exempted from effort, respectively from attending sport classes. Thus a percentage rate of 10.78% among overweight pupils has been found (Figure 6). A good part of the overweight people has been certainly exempted with subjective reasons meaning that this disorder has been emerged from other diseases which would not allow pupils to do physical exercise.

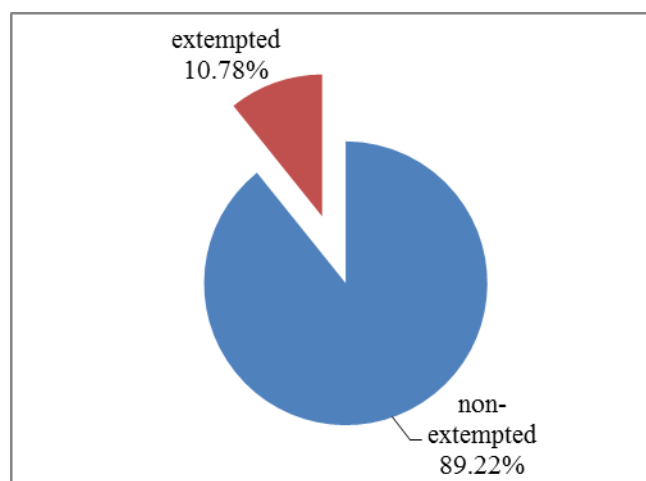


Fig 6:-Overweight exempted / non-exempted

Conclusions:-

As expected, the number of overweight is not that figure having been disseminated by the mass media (either print or audio/video media). The number of the overweight pupils ranks within the percentage rate of 7.59% which represents 1/4 as compared to Great Britain where there are 31% and only 1/3 as compared to the USA where there are 22% (Wang, Sobestean, 2006).

However information in print media has been launched by public (hospitals) and private institutions specialised in nutritional disorders.

Assignment of such a high percentage rate of overweight or obese people to Romania by the WHO and other European institutions based only on reports of some institutions which want to justify their activity or advertise their doings is erroneous.

Part of the findings presented by the print media made reference to adults, even to some adults over a certain age and social standing, which we cannot disagree with, but assignment of the 30% among children and especially to school-aged children is easily verifiable.

The outcomes of our study accurately express both the importance the authorities give to the discipline physical education by the number of hours dedicated to it every week (2 hours for the 5th, 6th and 7th grades and one hour for the 12 grade) and the precarious of specific facilities.

Most of the authorities would associate pupils' health condition to the role of sports and physical education within schools, to optimal specialised classes, but nevertheless we find it easy to emphasise the lack of consistency in applying sports and physical education laws and regulations in force and differences of points of view of the decision-making actors (ministries, agencies etc). This is the more serious in terms of motor activity, since it has been noticed an alarming decrease of the number of children and young people who practice sports under their different forms. Finality of these aspects relies on the perception of the formative role of sports and physical education and it deals with the reduction of the number of lessons of physical education in the core curriculum, for certain categories of pupils and of the time dedicated to sports.

Having in view present concerns of children aged between 11 and 15 (Bagley, Salmon, & Crowford, 2006) we believe that introduction of a formative discipline on nutrition and food in the curriculum is recommended.

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