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CLÍNICA

Prevalence of childhood obesity & eating habits in primary education

Prevalencia de obesidad infantil y hábitos alimentarios en educación primaria

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Palabras clave: Obesidad Infantil; Hábitos alimentarios; Familia; Nutrición; Educación para la salud

ABSTRACT

Introduction: In developed countries child obesity alarmingly in recent years, becoming in a serious problem of public health. Obesity is a chronic illness with multifactorial origin that begining in childhood and adolescence, produced it by an inbalance between intake and energy expenditure. Its causes could be genetic,biological, behavioral or cultural factors. Treatment is difficult in this growth stage because any nutritional deficit can negatively impact in children´s comprehensive development.

Objectives: ClassifiedppilsBody Mass Index (BMI), observed relations between infant obesity and using school dining-room and checked that menu was appropriate in calories content and percentage of macronutrients.

Methodology: It has implemented an observational, descriptive and cross study about obesity in children six years. For data collection, it used a scale to measure weight and a tape measure to carve, and weight data collected height and BMI was calculated. Furthermore, in order to check the menu, the staff cafeteria gave us a monthly menu.

Results: Into europe percentages, our sample showed children with overweight and obesity and a considerable percentage with underweight.

Conclusions: Family and carers play significant rol in school dining-room promoting healthy habits (with exercise and a balance diet) to prevent pathologies in adulthood secondaries to obesity, which is an security strategy in public health and for economy of health systems.

RESUMEN

Introducción: En los países desarrollados la obesidad infantil se ha incrementado alarmantemente en los últimos años; convirtiéndose en un grave problema de salud pública. La obesidad es una

enfermedad crónica de origen multifactorial que comienza durante la niñez y adolescencia. Se produce por un desequilibrio entre el consumo y el gasto energético. Como causas influyentes destacan: factores genéticos, biológicos, de comportamiento y culturales. Su tratamiento resulta muy complicado en esta etapa de crecimiento porque cualquier déficit nutricional puede repercutir negativamente en el desarrollo integral del niño.

Objetivos: Clasificar a la población de estudio en función de su Indice de Masa Corporal (IMC), establecer la relación que existe entre obesidad infantil y el uso del servicio de comedor escolar y verificar que el menú del comedor escolar es adecuado en cuanto al contenido calórico y el porcentaje de principios inmediatos.

Metodología: Se realizó un estudio observacional descriptivo transversal sobre obesidad en niños de 6 años. Para la *recogida de datos*, se utilizó una báscula para medir el peso y una cinta métrica para tallarlos, y con los datos de peso y estatura recogidos se calculó el IMC. Por otro lado, para poder comprobar el *menú*, el personal del comedor escolar nos facilitó un menú mensual.

Resultados: Dentro de los porcentajes europeos, nuestra muestra reflejó niños con sobrepeso y obesidad y también un considerable porcentaje de niños con bajo peso.

Conclusiones: Destacar el papel fundamental de la familia y cuidadores en los comedores escolares; fomentando hábitos saludables (ejercicio y dieta equilibrada) para poder prevenir patologías en la edad adulta secundarias a la obesidad, lo cual es una gran estrategia de seguridad para la salud pública y para la economía de los Sistemas Sanitarios.

INTRODUCTION

Obesity is considered as the disease of the XXI century by the dimensions acquired over the past decades, and the impact on morbidity and mortality, quality of life and health care costs. According to WHO, obesity is defined as a Body Mass Index (BMI) is equal to or greater than 30, obtained by dividing weight in kilograms by height in meters squared [1-4]

It is also considered a sign of obesity increased abdominal circumference greater than or equal to 102 cm and greater than or equal to 88 cm women men. Another way to measure obesity is by the percentage of fat a person has. [5] The total fat weight is the sum of weight of fat plus residual weight. In girls, the fat weight, ranges from 18-20% and above 30% and it would be dangerous and boys ranging in 12-18% and above 23% are already a risk.

Obesity is a chronic disease of multifactorial origin that usually begins during childhood and adolescence. This disease is characterized by excessive accumulation of fat or general hypertrophy of adipose tissue in the body. The causes of obesity are complex and include genetic, biological, behavioral and cultural factors. Obesity can be endogenous (genetic) or exogenous (lifestyle) cause. Basically, obesity occurs by an imbalance between consumption and energy expenditure.

Obesity in children and adolescents may be related to several factors, including the following quote: binging [6] (losing the ability to stop overeating, lack of exercise, obesity history in the family, medical illnesses (endocrine or neurological problems), drugs (steroids, some psychiatric medications), changes in life that cause a lot of stress (separations, divorce, moves, deaths of family members), family problems, low self esteem, depression or other emotional problems. Inside the etiologic classification of obesity is associated with dysmorphic syndromes [4] with genetic disorders such as Bardet-Biedl Laurence-Moon, Prader Will, among others. The most common cause is exogenous, due to higher energy intake than necessary, with a balanced diet is not associated with decreased physical activity.

Obesity is part of the metabolic syndrome being a risk factor for several diseases: cardiovascular, diabetes mellitus type 2, sleep apnea, stroke, osteoarthritis and some forms of cancer, especially hormone-dependent, as there is a good fatty storage to synthesize estrogen.

In children aged 5-14 is difficult to measure overweight and obesity because there is no standardized and clear definition of childhood obesity. Children who are obese between six months and seven years of life are likely to remain obese because the cells that store fat (adipocytes) are multiplied at this stage.

In childhood, the excessive accumulation of fat in the body involves difficulty breathing, sleep interference, orthopedic problems, skin disorders, excessive sweating, swelling of feet and ankles, increased risk of coronary heart disease, diabetes, asthma, cancer, among others. Also they include psychological problems caused by societal discrimination as self-esteem issues.

Interest in childhood obesity has increased in recent years in all developed countries. Profound concern that its prevalence has increased over the last 20 years between 2 or 3 times. In the Spanish child population its prevalence is estimated at around 13% [7]. Today, we know that between 16 and 33% of European children and adolescents are obese. Overweight children tend to become overweight adults unless they adopt and maintain healthier patterns around.

Usually a child is not considered obese until they weigh at least 10% more than recommended for your height and build weight.

The increase in obesity is due to new habits and styles secondary to the incorporation of women into working life adopted, the speed of the pace of life, broken families increased as a consequence of this has been to consume ready meals high caloric value or realization of unbalanced diets, not having enough time to cook; thus passing of the Mediterranean diet to fast food. Also a consequence of all this is an increase in child inactivity and the use of the video game is prioritized, the Internet, watching TV, for an excessive number of hours per day, thus neglecting the practice of daily exercise.

It is for this reason that we plan to carry out a study on childhood obesity.

Our **objectives** were:

General:

- To classify the study population according to their BMI.

Specifics:

- To determine the relationship between the prevalence of childhood obesity and the use of school meal service.
- To check that the cafeteria menu is adequate in terms of calories and percentages of carbohydrates, lipids and proteins.

METHODOLOGY

The study was conducted in a public school in Cordoba, primary school children, to try to quantify the percentage of obese children and see the similarity with European rates.

In this center there were no previous experience on this type of study, although at national and international level are numerous studies out there about childhood obesity and relating to new lifestyles that are taught to the generation of new technologies.

Design

We conducted an observational, descriptive, cross-sectional study on BMI in children 6 years. A type of intentional sampling was not random developed and defined in advance from the study objectives. As inclusion criteria were considered only bring up the informed consent signed by parents. No exclusion criteria were considered.

A scale was used for collecting data to measure weight and a tape measure to carve, and weight data collected height and BMI was calculated. On the other hand, to check the menu, the cafeteria staff provided us with a monthly menu.

So that children could participate in the study, parents should complete the corresponding prior informed consent, in which you are guaranteed the data protection and anonymity. Being minors will not accept the participation agreed verbally.

Data collection was carried out during the months of January-February 2013 and were analyzed using SPSS version 18.0, calculated the absolute, relative and percentage frequencies for qualitative variables. (Appendix 1)

They were informed of the project and the selection criteria of the sample, so that they could inform caregivers and invite them to participate. Furthermore they should deliver a briefing paper and consent informado[8] and request a contact number that later would call the researchers, unless caregivers express their refusal to provide more information if necessary and seek their collaboration, specifying the date and place Interview flexible manner and adapted to the circumstances of the participants. It was intended that the acquisition was as uncomplicated as possible, to facilitate the participation of caretakers and not favour the loss of potential participants.

RESULTS

Table 1: BMI results as percentage

	Percentages obtained		
BMI	**OBESITY**	**THINNESS**	OVERWEIGHT
Prevalence	**10,5 %**	**11%**	**15%**

The study eventually involved 75 students, of which the 38.67% were boys and 61.33% girls. In the sample, it was found that 10.5% of participants were obese. Of these, 6% corresponds to the female and 4.5% male.

On the other hand, 15% of participants were overweight, with 8% of female and 7% of men. Another percentage, 11%, was underweight or underweight, indicating extreme thinness (7.5% girls and 3.5% boys). Of all participants, only a 12% it made use of the cafeteria. These showed normal-weight.

When checking the monthly menu, it was found that the diet was adequate in terms of heat quantity and proportion of macronutrients (carbohydrates, lipids, proteins 55%, 30% and 15% respectively.

Figure 2: Results obtained stratified by gender

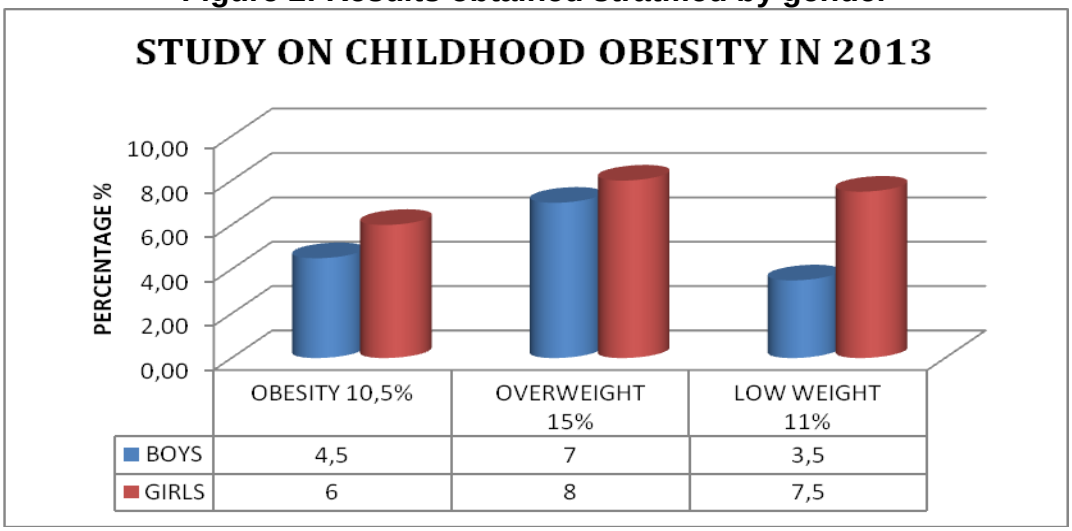
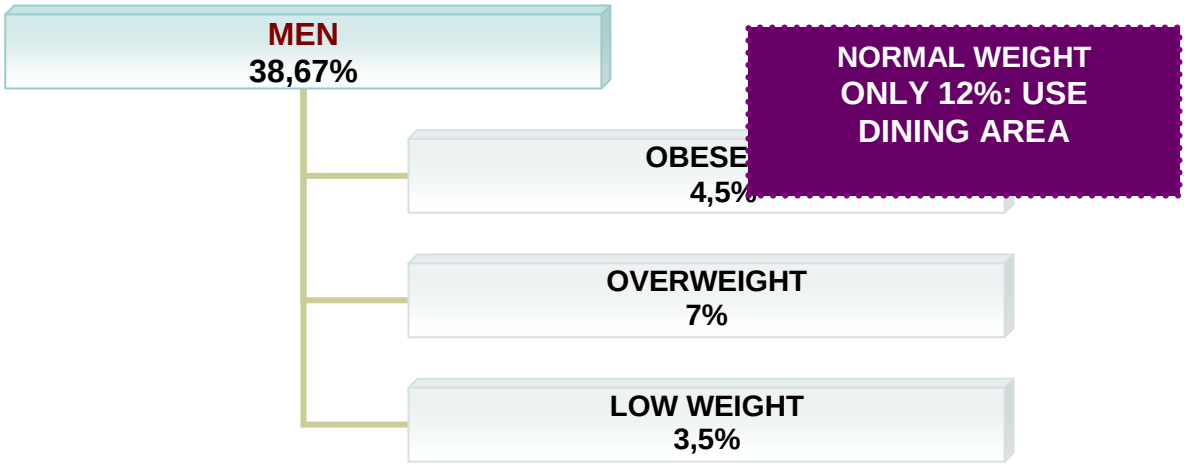
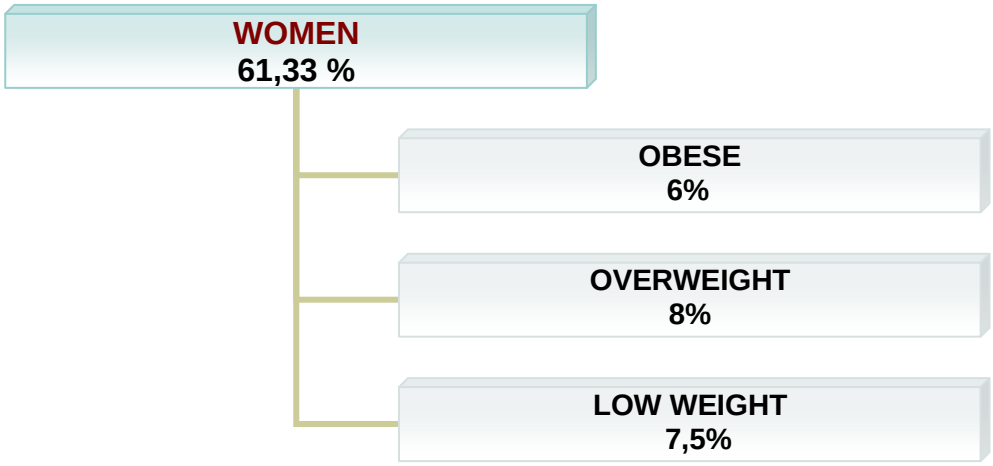


Figure 3: Research results





DISCUSSION

Analyzing the data, we can say that the whole obese children and overweight children account for a third of the total study sample, which is worth considering. Regarding children with extreme thinness (BMI <18), being also a high percentage, it would be interesting to submit a study to see if nutritional status is healthy.

We must stress that using school dining room are in normal-weight, it is conceivable that compliance with the diet, established in menus, which takes place in the center. It is important that health education from the school and the transverse axis creating healthy habits for physical, mental and social well-being of children and thereby prevent childhood obesity and its complications in the future to develop. [9-13]

Thus, an analysis of food advertising to children in 2008 found that 71.2% of commercial food and beverage communications issued during the time period announced enhanced protection ("less healthy") products of poor nutritional profile as Model nutritional profile of UK 3-11. The consumption of sugary foods (desserts) and drinks is positively correlated with the incidence of overweight and obesity in preschool children and mayores[10].

The new code (PAOS, 2012) signed by the Spanish Agency for Food Safety and Nutrition, provides first Internet advertising and seeks to respond to Article 46 of the Law on Food Security and Nutrition 1 also provides that "the establishing codes of conduct to regulate commercial communications of food and drinks for the population under fifteen years in order to help prevent obesity and promote healthy habits." However, restricting its application to children under 12 years in broadcast and print media, contravenes the provisions of the law, allowing, for example, that food advertising on television aimed at the over 12 years to avail known to the general public who enjoy a high degree of popularity among children characters.

It is becoming increasingly clear that the tactics of food and advertising industries to oppose tackles state regulation and promote self-regulation by way of voluntary agreements are similar to those previously used by the industries of snuff and alcohol, whose self it has proven ineffective and counter to public health. It should not be surprising, since the economic interests of both industries are directly linked to increased consumption of the products advertised, mostly high-energy and low in nutrients, in clear contrast with public health goals.

Therefore, if you want to contribute effectively to prevent childhood obesity and promote healthy habits, it urges establishing mechanisms for state regulation prohibiting all advertising aimed at children of foods and beverages high in saturated fats, trans fatty acids, free sugars or salt .

Limitations

By current economic conditions it has decreased the number of children who use the service of the cafeteria. Care, also, a whole wide range of pathologies, concomitant with obesity, they will installing in childhood. These are type 2 diabetes, various respiratory problems, metabolic syndrome, hepatic steatosis, or pseudotumor cerebri, among others. Accepting sure that, in its origin, the circumstances that produce the development of childhood obesity are of an exogenous nature, the possibilities of preventive action must be directed to modify those, in the sense of improving the ways and modes of supply Children as well as their social and recreational behaviour. [7]

We recommend the active participation of the family because it plays a key role in the different stages of growth / development of the child. It is also important to consider that from this age is when the main habits such as diet and exercise are established, so it should be considered a good time to influence them.

The fact prevent obesity is important from the point of view of safety of public health and the economy of the health system, since many diseases can be prevented in the adult age.[9]

Also we consider timely involvement in this struggle the education system to prevent childhood obesity should unify with health institutions to promote the criteria healthy lifestyles, encouraging participation and adequate family model both parties. [11]

It is proposed to repeat this study in a few years and to assess the incidence especially the use of the cafeteria and the percentage of children with obesity and extreme thinness, regarding the evolution of the economic situation. [12]

CONCLUSIONS

Obesity is a health and beauty problem that is often associated with discrimination in society today, causing the obese child physical and psychological problems, having low self-esteem, difficulty in social skills, among others. We consider it is important that teachers detect such discrimination and take action. Our percentage of obese children is below the European average, but if we consider overweight children and children at risk for obesity, our study would find itself in the European percentage.

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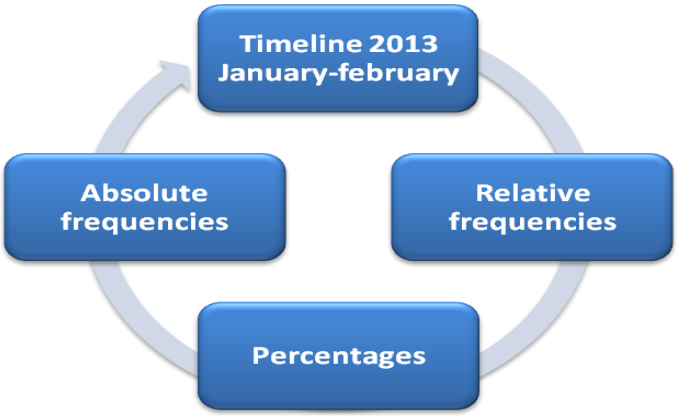
Appendix 1: Timeline. Data Collect



Appendix 2: BMI

IMC o BMI (Body Mass Index) : WEIGHT (KG) / (SIZE * (METERS))2

SCIENTIFIC COMMITTEE FOR FOOD (1994)	
Weight "Desirable"	BMI: 20-25
Malnutrition Risk	BMI: below 18,5
Overweight risk	BMI: above 25

Source: Made by myself.

Appendix 3: Altered patterns in obesity as eating disorders

EATING DISORDERS (TCA)	OBESITY
LEVEL WEIGHT	20% overweight
BELLYFUL	Occasional
WEIGHT CONTROL	RESTRICTIVE DIETS
DISTORTED BODY IMAGE	No
ANXIETY AFTER MEALS	No
RELATIONSHIP MIND-BINGE	No
SECONDARY PSYCHOPATHOLOGY	Normal to moderate

Source: Taken from Belloch y cols. (2008)

APPENDIX 4: Informed Consent.

I....., father / mother .....

NIF/NIE.....

I had the opportunity to make questions about the study in question. I received satisfactory answers and sufficient information.
I talked with managers. With contact address: colegio_fm@hotmail.com
I have also been informed in a clear, accurate and sufficient for the following matters affecting the personal data contained in this agreement and in the record or records that are open for research:
Data will be processed and guarded with respect to the privacy of my son and the current data protection legislation.
Attend me on these data the rights of access, rectification, cancellation and opposition may exercise by applying to the researcher responsible for the contact address indicated in this document.
Data may not be assigned without my express consent.

I consent only to the necessary extraction research that I have been informed exclusively in it, unable to share or transfer them in whole or in part, in any other researcher, group or different center responsible for this research or for any other purpose. I understand that I can withdraw from the study: When you want, without having to explain, with no impact on the medical care of my son. I declare that I have read and know the contents of this document, understand the commitments they assume and expressly agree. And so, I sign this informed consent voluntarily to:

EXPRESS MY DESIRE TO LEAVE participate in the study on child obesity in Cordoba State College. By signing this consent I do not waive any of my rights.

SIGNED: ----------

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