

Prevalence of overweight and obesity among Portuguese children. Comparison of WHO standard and references with IOTF and CDC references

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Introduction

Due to the high worldwide prevalence of childhood obesity the creation of a growth reference with a high widespread application become necessary. Thus, experts from WHO, following the presentation of the standard growth curves for children up to age 5, decided to construct reference curves for ages between 5 and 19, from the reconstruction of the curves of the NCHS / WHO for 1977. So, in 2007 the WHO presented the growth curves of reference for school children and adolescents, reproducing a smooth transition to the standards of WHO child growth (0-5 years).

Aims

The aim of this work was to report the prevalence of overweight and obesity in Portuguese children (3-11 years), according to the WHO standard and reference and compare with the values of CDC and IOTF references.

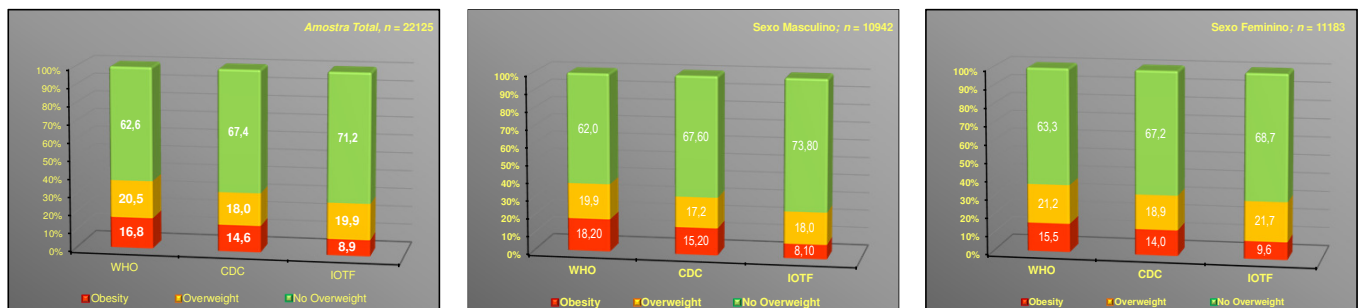
Design and Methods

This is a cross-sectional study in which 22122 school children, from all districts of mainland Portugal, were studied during 2009-2010. Weight and height were measured in order to calculate the body mass index (BMI). Nutritional status was classified into three groups (obese, overweight and non overweight), according to the standard and reference of WHO (2006 and 2007, respectively) and compared with the reference of CDC (2007) and the cut off recommended by the IOTF and proposed by Cole *et al* (2000). Descriptive statistics and χ^2 test were applied. The level of significance adopted was $p < 0.05$, and data were analyzed using SPSS for windows v19.

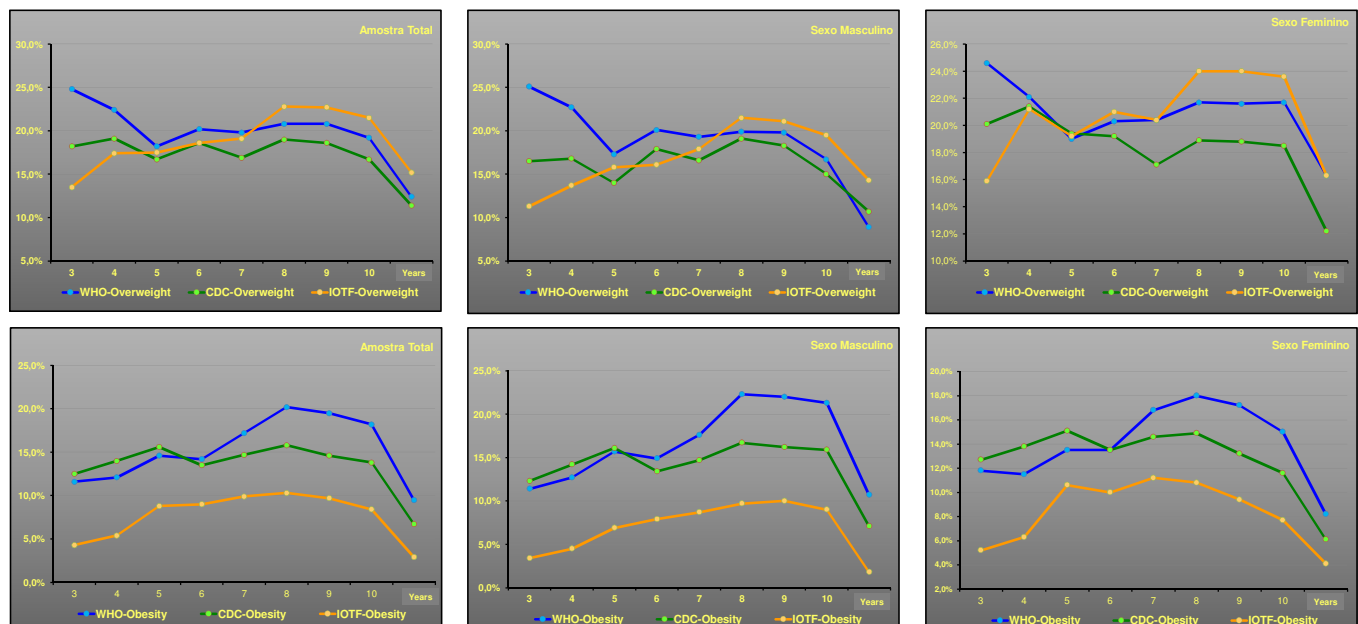
Results

The prevalence of overweight and obesity is higher using the WHO methodologies (20.5% and 16.8%, respectively; $p < 0.01$). The higher prevalence of obesity (18.2%) was observed among boys using the WHO criteria whereas the higher prevalence of overweight (21.7%) was observed among girls using IOTF cut-offs. The combined prevalence of overweight and obesity was higher when the WHO criteria was applied, boys and girls were 38.0% and 36.7% ($p < 0.05$) respectively. The prevalence of obesity increases until 9 years old, whereas the prevalence of overweight had an irregular evolution with the age, but in both cases we observe a decrease after 9 years old. There were significant differences with the age whatever the criteria, but analyzes by sex using the CDC references did not show significant differences.

Prevalence of Overweight and Obesity among Portuguese children (3-11 years old) according WHO standard and CDC and IOTF references, by sex



Prevalence of Overweight and Obesity among Portuguese children (3-11 years old) according WHO standard and CDC and IOTF references, by age



Conclusion

Among Portuguese children the prevalence of overweight and obesity depends of the criteria used, 20.5% and 16.8% (WHO), 18.0% and 14.6% (CDC), and 19.9% and 8.9% (IOTF), were observed respectively. The combined prevalence of overweight and obesity was higher when the WHO criteria was applied and whatever the criteria the higher prevalence was observed at 8 years. The differences found between the different criteria may be more related to the quality of the samples used, in particular for the inclusion criteria, than with the methodology employed.