

# Descriptive study about bodyweight status of Extremadura adolescents. Are we applying the best indicator as the reference parameter?

- Mendoza-Munoz M.<sup>a</sup>,
- Munoz-Bermejo L.<sup>b</sup>,
- Gomez-Galan R.<sup>b</sup>,
- Calle-Guisado V.<sup>a</sup>,
- Pastor-Cisneros R.<sup>a</sup>,
- Garcia-Gordillo M.A.<sup>c</sup>,
- Adsuar J.C.<sup>a</sup>,
- Carlos-Vivas J.<sup>a</sup>

## Abstract

**Background:** There is no agreed criteria that establishes childhood obesity thresholds based on BMI, which may be used to assess adolescent overweight/obesity. This tool has been determined at the most practical and least costly in classifying bodyweight status in adolescents. However, it is an indicator of bodyweight and not adiposity.

**Aims:** To assess bodyweight status of Extremadura adolescents by sex and age using international, national, and regional reference criteria and comparing the different diagnoses criteria.

**Methods:** A descriptive cross-sectional study was conducted with 4130 adolescents (12–17 years). Bodyweight and height were assessed.

**Results:** Pairwise comparisons indicates that the World Health Organization (WHO) classified 542 individuals in a different category compared to Faustino Obergozo (FO), and 1028 individuals with respect to the Extremadura adolescents' percentiles (EX). Moreover, FO classified 684 adolescents in a different category than EX. Despite the concordance in diagnostic criteria (by Cohen's kappa test) reported between the WHO, FO, and EX for all bodyweight categories in both sexes and all age ranges, significant differences were found (assessed by Cochran Q test and McNemar test as post-hoc) between the WHO and FO for all bodyweight proportion except in the thinness category in girls (15–17 years) and boys (12–14 years). Meaningful differences were also obtained comparing WHO and EX for each bodyweight category in all ages and sexes.

Comparisons between FO and EX revealed significant differences for all bodyweight categories in all participants except for overweight in girls (12–14 years) and boys (15–17 years) and normal weight and obesity in girls (15–17 years). **Conclusions:** the WHO, FO, and EX criteria present different outcomes estimating overweight and/or obesity prevalence in adolescents aged between 12 and 17 years. The change from Extremadura criteria to the WHO reference will result in more adolescents being diagnosed as overweight or obese. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

**Author keywords**

Adolescent; Anthropometric; BMI; Childhood obesity; Classification systems; Percentiles; Youth