

Letter to the Editor

The article by Del-Rio-Navarro et al¹ provides percentiles of height, weight and body mass index (BMI) for Mexican youth aged 10-18 years, calculated using a version of my LMS method. However their description of the method is incomplete and misleading.

They describe their approach as a least-mean-squares (LMS) procedure similar to that of Kuczmarski et al.² They then say that “In the LMS technique, three parameters are estimated: the median (M), the generalized coefficient of variation (S) and the power in the Box-Cox transformation (L).” In fact the L-M-S they describe is the lambda-mu-sigma of my LMS method,³ which they don’t cite. They go on to fit it in two stages rather than one, while analysing the data in one-year age groups rather than using continuous age, an approach that leads to bias. They may be interested to know that free lmsChartMaker software exists, designed for non-statisticians, to fit the LMS method as originally described.

The process of fitting the LMS method involves deciding on the smoothness of the three curves for L, M and S plotted against age. Judging from the fitted percentile curves in Figures 1-3, where the outer percentiles are appreciably rougher than the inner ones, the L curves were insufficiently smoothed.

Separately, the Discussion of the article states that “WHO has issued international definitions for overweight and obesity in children (Cole et al, 2000).” I should like to emphasise that WHO had no involvement in these cut-offs, which were sponsored by the International Obesity TaskForce (IOTF).⁴

The IOTF cut-offs were obtained by averaging across six nationally representative samples BMI percentile curves corresponding to BMI 25 and 30 kg/m² at age 18 years.⁴ They have been highly cited since publication. Following the IOTF example the authors propose using as their national cut-offs similarly defined percentile curves, but based on their own data. It would have been interesting to see how closely their curves match the IOTF cut-offs– they are likely to be very similar. It is worth noting that the IOTF cut-offs would be just as effective as the Mexican percentiles for national obesity monitoring purposes, but the IOTF-based prevalence rates would have the advantage of being comparable to other published rates, which the nationally based cut-offs would not.

T J Cole

*MRC Centre of Epidemiology for Child Health,
UCL Institute of Child Health,
London, UK
E-mail: tim.cole@ich.ucl.ac.uk*

1. Del-Rio-Navarro BE, Velazquez-Monroy O, Santos-Preciado JI, Lara-Esqueda A, Berber A, Loredó-Abdala A, et al. Mexican anthropometric percentiles for ages 10-18. *Eur J Clin Nutr* 2007;61:963-75.
2. Kuczmarski RJ, Ogden CL, Guo SS, Grummer-Strawn LM, Flegal KM, Mei Z, et al. 2000 CDC growth charts for the United States. Methods and development. Hyattsville, Maryland: National Center for Health Statistics; 2002.
3. Cole TJ, Green PJ. Smoothing reference centile curves: the LMS method and penalized likelihood. *Stat Med* 1992;11:1305-19.
4. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity: international survey. *BMJ* 2000;320:1240-3.