

Comparison of the Turkish Growth Standards with the WHO standards

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Background Growth standards are important tools in the monitoring of growth. In 2006 the World Health Organization (WHO) published new growth charts based on infants and young children living in optimal conditions in six countries and proposed that these and the NCHS data on North American children be accepted as standards for children in all countries throughout the world. Studies comparing country specific standards with WHO growth charts are therefore necessary.

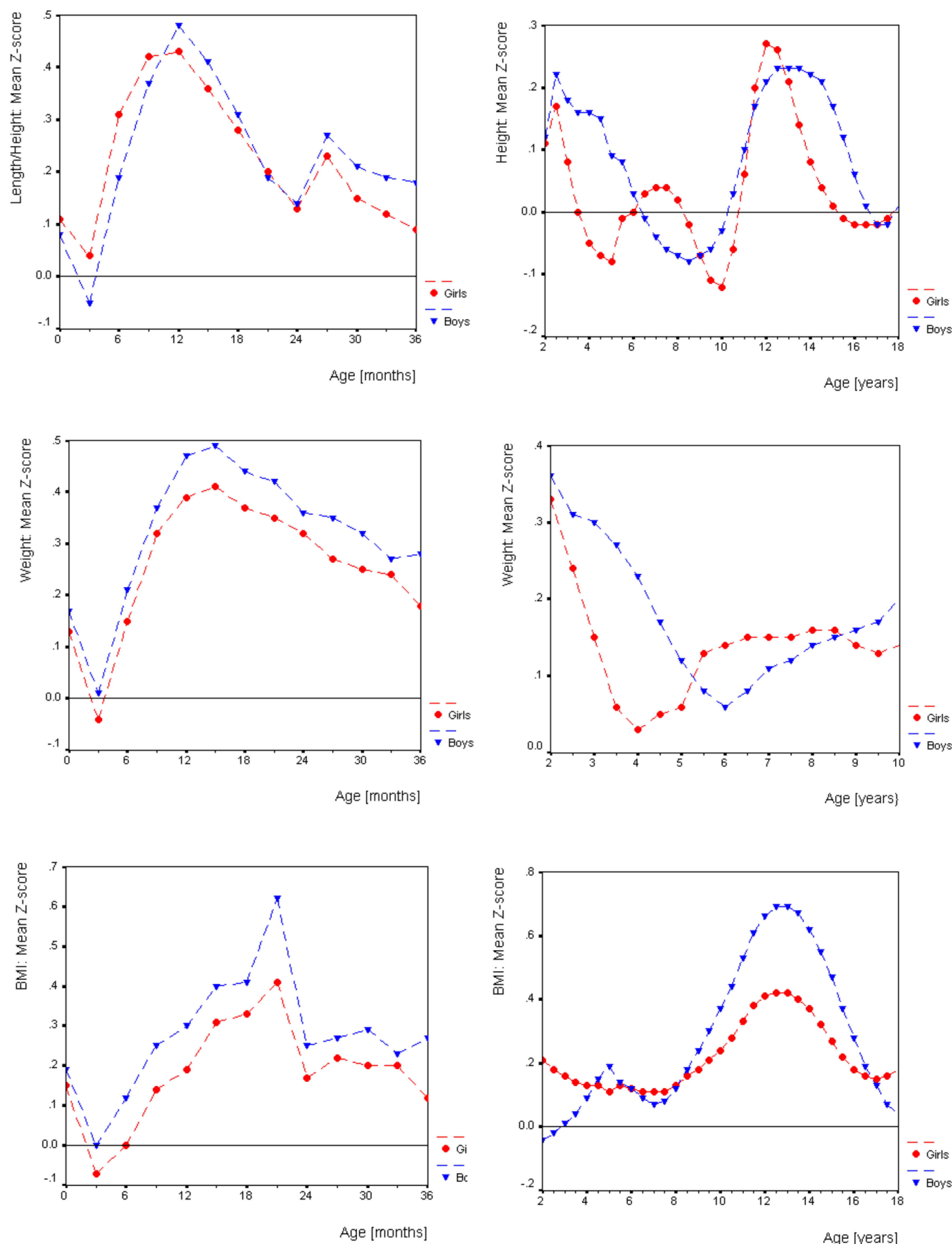
Objective To compare the WHO growth charts from birth to 18 years of age with the Turkish reference curves

Method The national growth data on infants and young children were based on 36330 anthropometric measurements (19523 boys, 16807 girls) of 2391 boys and 2102 girls attending a Well-Child Clinic. For children 6 to 18 years, height and weight measurements (6007 boys, 5657 girls) of 1100 boys and 1020 girls were obtained from healthy school children. The LMS method was used for the analyses. The studies were longitudinal, but the data were analysed cross-sectionally. Mean z scores for height and body mass index (BMI) by age and sex were calculated and graphically compared with the WHO curves.

Results Figures depicts z-score values for length/height, weight and BMI for age in Turkish girls and boys versus the WHO standards. Values pertaining to children aged 0 to 3 years are shown on the left and those for older children on the right panel of the figure. WHO values are expressed as the "0 line" in the figures. It will be noted that the z-score values for length/height were comparable to WHO standards in the first 3 months and between 3-10 years of life. Higher values for length/height existed in the age groups between 3 months and 3 years. The differences ranged between 0.1 SD and 0.5 SD. Turkish children were notably taller compared to the WHO curves after age 10 years.

It will be noted that starting at age 6 months, Turkish children showed higher weight for age values in the Z-score charts.

In all age groups between 6 months and 3 years, and in age groups between 6 and 18 years, Z score values for BMI were higher in Turkish children. BMI values in children aged between 3 to 6 years were comparable to WHO standards.



Figures. Z-score values for length/height, weight and BMI for age in Turkish children versus the WHO standards.

Conclusion Our charts showed that population differences in growth may exist and become more apparent during the pubertal years. Differences from the WHO growth charts beyond a certain magnitude would favor the use of country-specific standards.

