

Measurement of Overweight and Obesity among a group of Affluent Children Aged 6-11 Years in Mumbai: A Comparison of Three Growth References

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Abstract

Childhood obesity represents a serious public health challenge today. Comparing childhood obesity in terms of national as well as international growth references helps in assessing the extent of agreement in classifying BMI status of children, allows for comparison on a global scale, and also aids in understanding the strengths and weaknesses of the different growth references. Thus, the objective of the study was to compare three growth references, one national (IAP, 2015) and two international (WHO (de Onis et al., 2007), Extended International IOTF (Cole and Lobstein, 2012)), with a focus on determining the prevalence of overweight and obesity and estimating the level of agreement between the growth references. In the cross-sectional study, 402 children aged 6-11 years, attending classes I to V, were the study participants. Height and weight of the participants were measured to calculate the BMI. BMI-for-age Z scores given by WHO (2007), IAP (2015) and IOTF (2012) were used to determine the BMI categories among the study participants. Kappa statistics was used to determine the level of agreement between the three growth references. The prevalence of overweight and obesity in the study participants was 18.2% and 12.2% by WHO (2007) reference, 16.2% and 19.4% by IAP (2015) reference and 18.9% and 7.2% by IOTF (2012) reference. The Kappa statistics showed that there was good agreement ($\kappa = 0.729$) between WHO & IAP references to identify overweight/obesity while a moderate agreement was observed between WHO & IOTF ($\kappa = 0.625$) references, and IOTF & IAP ($\kappa = 0.506$) growth references. The study found that the IOTF reference classified the children in lower weight status categories compared to the WHO and IAP growth references. That is, compared to WHO and IAP references, the IOTF reference underestimated obesity. The IAP and WHO growth references were, in contrast, reasonably similar.

Keywords: Obesity; Overweight; Prevalence; BMI; Growth References; IAP; WHO; IOTF.