Relationship between stunting and wasting in children

Dear Editor,

The authors of the study titled 'Social determinants of stunting in rural area of Wardha, Central India' by Deshmukh PR et al published in MJAFI 2013; 69:213–217 must be complimented on drawing the attention of the audience on the importance of stunting in children in India. However, a comparison of the three indicators in the same population and their velocity there of, would have possibly made the article more interesting. Following comments on the three indices are made in this regard:

Anthropometry is used to estimate the nutritional status of populations across age groups. The three most important indicators are Weight for Age (underweight), Height for Age (stunting) and Weight for Height (wasting). Stunting ($z < -2SD$) represents cumulative chronic undernutrition in children and is related to environmental and socio-economic circumstances.¹ Weight for age reflects body mass relative to chronological age. Weight for age fails to distinguish between a short child with adequate weight and a tall thin child. Short term change in weight for age reveals change in weight for height.² Wasting or thinness, measured by weight for height ($z < -2SD$) on the other hand indicates in most cases a recent and severe process of weight loss, and is associated with availability of food and disease, and is quickly reversible on suitable intervention. As per WHO, provided there is no severe food shortage, the prevalence of wasting is critical above 15%, whereas in India, the prevalence is 22% (NFHS 3) in children below 3 years of age.³

Cross sectional studies⁴ have found a downward shift in the distribution of height for age in the first 2 years of life. The prevalence of stunting rises from the age of three months and slows down at around three years. Low height-for-age probably reflects a continuing process of "failing to grow" or "stunting" and for older children, it reflects a state of "having failed to grow" or "being stunted".² On the other hand, weight-for-height falters in the first year of life, after which it stabilizes or increases.¹ Decreased weight for height is short term and reversible if the child has access to adequate nutrition. Wasting may preclude linear catch-up growth over the long term.

The anthropometric assessment of a population thus needs to be comprehensive in nature, taking all the three

indices into consideration. If the prevalence of wasting is high, such as in acute starvation or infection, efforts should be towards providing adequate nutrition and prompt management of infections. If the prevalence of stunting is high but the prevalence of wasting is low or normal, preventive strategies should be directed towards socio-economic conditions, dietary quality, hygiene and sanitation, adequate potable water, etc.⁵

REFERENCES

1. Richard Stephanie A, Black Robert E, Checkley William. Revisiting the relationship of weight and height in early childhood. *Adv Nutr*. 2012;3:250–254.
2. WHO. *Global Database on Child Growth and Malnutrition*; 2013. Available at: <http://www.who.int/nutgrowthdb/about/introduction/en/index2.html>. Accessed 24.09.13.
3. NFHS 3 Fact Sheet; 2005. Available at: <http://www.rchiips.org/nfhs/factsheet.shtml>. Accessed 24.09.13.
4. Dewey KG, Hawck MG, Brown KH, Lartey A, Cohen RJ, Peerson JM. Infant weight-for-length is positively associated with subsequent linear growth across four different populations. *Matern Child Nutr*. 2005;1:11–20.
5. Gorstein J, Sullivan K, Yip R, et al. Issues in the assessment of nutritional status using anthropometry. *Bull World Health Organ*. 1994;72(2):273–283.

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Reply

Dear Editor,

On behalf of the authors, I thank the readers for the deep interest and scholarly analysis of the article and for providing a well researched addendum which will help in my future endeavours. In response to authors two concerns my reply is as below:

1. Velocities would have been reported.
2. All three indicators would have been reported as it presents comprehensive picture. Following is our response.

First, for velocities to be reported a data from cohort study is required. This being a cross-sectional study, velocities cannot be calculated.