

LETTER TO THE EDITOR

Overweight and asthma in pre-school children

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Editor,

In the latest issue of this journal, Emmanouil and colleagues reported their interesting findings on the association between nutrient intake and wheeze or asthma in a Greek pre-school population (1). In this paper, they also presented observations on the association between body mass index (BMI) and wheeze or asthma.

In the discussion, the authors state that BMI was significantly different in children reporting asthma or asthma symptoms compared to children who reported no such symptoms. This conclusion is based on the findings presented in Table 2 that shows a significantly higher mean BMI in boys who reported asthma or asthma symptoms compared to boys without asthma or asthma symptoms ($p = 0.042$).

The authors' statement about the association they observed between BMI and wheeze or asthma is difficult to interpret for a number of reasons. During childhood, BMI changes considerably with age. After birth, there is a steep increase in BMI until about 9 months of age, followed by a decrease until about 6 yr of age. After the age of 6, BMI starts to increase again (2, 3). The children in this study were between 24 and 72 months of age. Between these ages, the median BMI changes from 15.7 to 15.3 kg/m² in girls and from 16.0 to 15.3 kg/m² in boys (3). Because of this change in BMI during childhood, a mean BMI, as presented by the authors in Table 2, is not an appropriate measure in a study population of children aged 2–6 years. The difference in mean BMI between children with and without asthma symptoms cannot be interpreted if age at the time of BMI mea-

surement is not taken into account. The boys with asthma symptoms were on average younger than the boys without asthma symptoms ($p = 0.042$) and were therefore likely to have a higher BMI. In addition, the authors' statement that BMI was significantly higher in children reporting asthma symptoms compared to children who do not does not seem to correspond with the results presented in Table 4. In Table 4, the percentage of children with asthma symptoms is lower among the children who are overweight or obese (39%, 346/895) than among the children who have a normal weight (44%, 417/943). Because the authors do not describe how overweight or obesity was defined, Table 4 is difficult to interpret. A prevalence of overweight or obesity of almost 50%, which is very high for this age group, makes clarity about the definition all the more important.

Although associations between BMI and childhood asthma have been observed in a number of studies (4, 5), including our own (6), the analyses presented in this paper have not convinced us that an association is present in this study population.

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References

1. Emmanouil E, Manios Y, Grammatikaki E, et al. Association of nutrient intake and wheeze or asthma in a Greek pre-school population. *Pediatr Allergy Immunol* 2010; **21**: 90–5.
2. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ* 2000; **320**: 1240–3.
3. WHO. WHO Child Growth Standards based on length/height, weight and age. *Acta Paediatr Suppl* 2006; **450**: 76–85.
4. Mannino DM, Mott J, Ferdinands JM, Camargo CA, Friedman M, Greves HM, et al. Boys with high body masses have an increased risk of developing asthma: findings from the National Longitudinal Survey of Youth (NLSY). *Int J Obes (Lond)* 2006; **30**: 6–13.
5. Gilliland FD, Berhane K, Islam T, et al. Obesity and the risk of newly diagnosed asthma in school-age children. *Am J Epidemiol* 2003; **158**: 406–15.
6. Scholtens S, Wijga AH, Seidell JC, et al. Overweight and changes in weight status during childhood in relation to asthma symptoms at 8 years of age. *J Allergy Clin Immunol* 2009; **123**: 1312–8.