Reviewer's report

Title: High body mass index is not associated with atopy in schoolchildren living in rural and urban areas of Ghana

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Reviewer: Kostas Priftis

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The present cross sectional study by Larbi et al. investigates whether BMI of schoolchildren living in rural and urban areas of Ghana is associated with atopy. The main finding was that children with high BMI have no association but underweight ones have a reduced risk of atopy.

GENERAL COMMENTS

The manuscript is clearly organized and very well written providing interesting information. The individual sections are also clear and concise.

The weaknesses of the study that could be commented on are the wide age range which weakens the observations and the very low response rate (59%).

SPECIFIC COMMENTS

Background

- It would be better for the reader to be divided in more paragraphs.
- The question posed by the authors is well defined.
- Under the light of the inverse association of underweight with atopy that was found in the present study, it would be useful to mention in the introduction not only what is currently known about the association of atopy with the high BMI but also with low.
- Is high BMI in children a real problem for Ghana today? It would be of interest to give some figures if available.

Methods

- Methodology is clear and well described.
- Was any difference in response rate between urban and rural areas?
- How selected fresh fruits were tested? Did you use a prick to prick testing?
- The analysis would be much stronger if the authors would use BMI – SDS, as you have different ages and sexes.

Results

- The results are presented clearly and concisely.
- There is a difficulty with the comparison of BMI of different age groups.
Discussion

- Authors discuss the findings adequately.
- Although asthma and other allergic symptoms are not included in the analysis, authors should discuss the clinical meaning of their findings.
- Authors should discuss-speculate the immunological background of their finding with the inverse association of underweight and atopy.
- Authors should discuss the limitations of the study.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

declare that I have no competing interests'