Reviewer’s report

Title: The prevalence of underweight, overweight, obesity and associated risk factors among school-going adolescents in seven African countries

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Reviewer: Rahim Moineddin

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Comments on ‘The prevalence of underweight, overweight, obesity and associated risk factors among school-going adolescents in seven African countries’

The authors used cross-sectional data from the Global School-Based Student Health Survey (GSHS) collected using a clustered sample design. The authors selected a subset of data from the following African countries: Benin, Djibouti, Egypt, Ghana, Mauritania, Malawi, and Morocco, as part of the GSHS.

The data are freely available, and I downloaded the data from the public domain. There is sufficient information on the sampling such as stratum and weights that must be used in the course analysis. Ignoring sampling weights and stratum will produce biased estimates and incorrect standard deviations (and standard errors).

I haven’t seen anywhere in the paper that the authors treated the data as a non-random sample and used these sampling information in their analysis. The Stata software that authors used for data analysis has excellent features for analyzing complex survey data.

It is not clear whether reported unadjusted results such as percentages and other rates are weighted or not (for example table 2).

In table 1 it is not clear what code 0 implies and what code 1 implies.

There is a section on assessment of heterogeneity of the risk factors. In the method section authors wrote ‘There is the possibility of heterogeneous effects of these factors between the countries in these data. To test this, the regression analyses were done using a dummy variable for each country and risk factor combination. A Wald test was used in post-estimation after the regression to determine if estimates varied significantly between these dummy variables. A significant result would indicate that the effect of the variable was heterogeneous among the countries’. It is unclear what this is meant to accomplish. Then authors used Stata Statistical Software: Release 13 as a reference for their method. I recommend authors provide a pre-reviewed book or article for their approach.

The authors used logistic regression to investigate associations between risk factors and over/under-weight status. It is unclear what the outcome is. My take
is that the authors combined under/over-weight into a single category and estimated the probability of this dichotomous outcome versus the probability of being normal weight? An alternative methodology would be to use multinomial logistic regression (where the 3-level outcome is underweight, normal weight and overweight) and estimate the impact of country and other factors on the probability of falling into one of these 3 mutually exclusive categories.