Reviewer's report

Title: Prevalence and pattern of HIV-related malnutrition among women in sub-Saharan Africa: a meta-analysis and meta-regression analysis of demographic health surveys

Version: 2 Date: 18 February 2008

Reviewer: Andrew Moore

Reviewer's report:

I like much about this paper, but I do think the author could help us read it by delivering the message more cogently.

For example, I know from the title that we are dealing with malnutrition in HIV infected women, but the definition is not pulled together in one place. I think the definition is women who are seropositive for HIV (test, definition of positive??) who have a BMI of <18.5. Is that right?

If it is, then page 7 has some peculiar information. It says that the proportion of seropositive women who have malnutrition is 7.4%. In the same paragraph we are told that the meta-analytic prevalence is 10.3%. Now what is interesting is that the difference between these figures stems from giving large weights to countries with high prevalence (Malawi, Ethiopia, Burkina Fasso) and low weights to those with low prevalence (Cameroon, Lesotho). You can see this in Figure 4, though it has no scale to help us.

It is because the meta-analysis weights low prevalence less than higher prevalence - using weighting by inverse variance, that is. But this is a self-fulfilling prophesy, since low prevalence will automatically come with higher variance, given similar population sizes, which we get (Table 1).

So before we begin, we need:

1 a definition of what we seek - the outcome, malnutrition is seropositive women.
2 a reason why we need meta-analysis rather than arithmetic.
3 and especially as meta-regression adds nothing.

The most interesting part of the analysis is Figure 5 (but again, arithmetic may be a better option).

A major limit is that we don't have the number of women who are both HIV positive and malnourished. It may be a small number, because the overall HIV prevalence is limited, and the percentage who are malnourished is a small percentage of that. The point is that we cannot do our own calculations on the data, because we don't have it.

What I would suggest is:
1 Limit all numbers to two significant figures.
2 Tell us what things in brackets mean.
3 Tell us what the outcome is - and expand Table 1 to include both numbers with HIV and those with BMI less than 18.5 (and why not all varieties of BMI?).
4 Ask whether meta-analysis is appropriate, and if so defend the use of inverse variance weighting over arithmetic means (that it is done like that is not good enough, and what may be useful for RCTs may not be for prevalence).
5 Don't give us heterogeneity statistics without quoting the extensive literature that tells us that none of them can actually tell us anything about heterogeneity.
6 Provide arithmetic means as well as meta-analytic means, including for the sensitivity analyses in Figure 5.
8 Correct spelling of Malawi in Table 1.
9 Comment in discussion on relative stability of the 11 countries and whether that may affect results. For example, conditions in Zimbabwe have been in a major state of flux. Is the author confident about statistics collected there - at least in 2005/6 when changes were major. Again, do the Zimbabwean economic indicators for Zimbabwe in Table 2 of any value?

I have not made any of these essential or discretionary. The author can decide how well they want their work judged to be.

**What next?:** Accept after discretionary revisions

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests