Reviewer’s report

Title: Physical and emotional health outcomes after 12 months of public-sector ART in the Free State province of South Africa: a longitudinal study using structural equation modelling

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Reviewer: Brian G Williams

Reviewer’s report:

The availability of ART for people living with HIV has increased dramatically over the last few years. It is essential, therefore, to understand the physical and emotional impact that ART has on such people. This paper therefore deals with an important and urgent question. The authors have defined the question clearly and defined the process of data collection in sufficient detail. Their conclusions seem sound and convincing. I do however feel that they need to provide more detail in certain areas.

First of all I should like to see more of the data included in an appendix or in supporting on-line information. They might for example summarize the responses to the three adverse health affects and to the five generic aspect of current health at base line and at follow up. This could also be divided by gender and by age group. If the reader is to make a careful judgement of the results it is essential that they have a better sense of the actual data.

Secondly, the structural equation modelling techniques are familiar to many social scientists but to few biomedical scientists. They need in the methods section to explain, briefly what structural equation modelling does and why it is appropriate in this case. They then need to explain what is meant by ‘standardized loadings’ (in Table 1, for example) since this will mean little to most biomedical readers of the journal. They never spell out, for example, what is meant by RMSEA and this too needs explanation as does most of Table 1. Table 1 also gives three tests for validity one of which is significant at p < 0.05, the other two of which are not. This needs explanation.

Thirdly, the last but one figure can be dropped since it is the same as the last figure without the numbers.

In summary, I think that the paper is important and should be published. If it were written for a more formal statistical journal it might stand largely as it is. However, the authors need to add explanations, as indicated, and bear in mind that most of the readers will not be trained statisticians and the authors need to explain their model and its interpretation more carefully.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

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