Reviewer's report

Title: Additive scales in degenerative disease - introducing a scaling factor rather than calculating effect sizes

Version: 2 Date: 16 August 2011

Reviewer: Qian H Li

Reviewer's report:

Title of Paper: Additive Scales in Degenerative Disease – Introducing a Scaling Factor rather than Calculating Effect Sizes

This revised paper discusses certain characteristics of the additive measures of several symptom scores where the symptom severities change over time in the area of degenerative diseases. The main part of the paper focuses on mathematical and statistical derivations, under a simplified scenario, to show that the standardized treatment difference can be different over time for the additive measures. The problems discussed in the paper are not new in clinical assessments and are not limited to the degenerative diseases either. The additive measures, also known as composite endpoints, are well understood in clinical research. The scenario that is used in mathematical and statistical derivation simply assumes the proportionality between the deviation and mean, as well as the perfect correlation of two symptoms. Such simple case by no means reflects the real world of clinical research. The result of the mathematical exercise only confirms what we have known already.

The title of the revised paper does not completely reflect the content of the article, especially the second part of the title – “Introducing a Scaling Factor rather than Calculating Effect Sizes.” It is not clear what new scaling factor is introduced. In fact, the main of the paper discusses the calculation of the standardized effect size of the additive measures.

Many aspects of the revised paper still need improvement to increase the readability and meet the rigorous requirements of a scientific paper. For example, the first paragraph of the introduction is about meta-analysis, yet the paper has nothing to do with meta-analysis. Statements such as “the standard deviation being proportional to the observed data” are inaccurate and ambiguous. The math symbols, such as di(t), are not properly explained when first introduced. Figures are not well explained. The “j” index of lj1 and lj2 on Page 8 does not appear to be necessary.

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

Quality of written English: Not suitable for publication unless extensively edited
Statistical review: Yes, and I have assessed the statistics in my report.

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