Reviewer's report

Title: Treatment compliance and effectiveness of a cognitive behavioural intervention for low back pain: A complier average causal effect approach to the BeST data set.

Version: 2 Date: 29 August 2013

Reviewer: David J Torgerson

Reviewer's report:

This is an interesting paper and I am a fan of using CACE as a secondary analysis to ITT. Indeed, we have a similar paper under review looking at CACE analysis for yoga and back pain study. Consequently some of my comments reflect what is in our paper and I'd be interested to see in your study. One message I think this paper could deliver is to look at the difference between CACE and per protocol or treatment received analysis (both of which whilst commonly done are methodologically suspect) and make the point that the CACE analysis is more robust.

A minor point saying CACE is a recent technique in the introduction - it has been about for at least 20 or so years.

When you used change scores did you also adjust for the baseline value of the change score (e.g., change in R&M with baseline R&M as a covariate) otherwise I personally am always a bit worried about using change scores alone as they are not as precise as ANCOVA and can exaggerate regression effects.

I would like to see the main CACE analysis the one which there is complete non-compliance and any level of compliance is defined as compliance as I think the assumption of no effect by offering people a treatment is usually valid and probably so here, I’m much less convinced that a attending up to 3 classes has no effect on outcome.

I think CACE is fine to allow clinicians etc to judge whether the effect of the intervention is worthwhile when considering offering the treatment to their patients; however, I think you over-extrapolate by implying if you get better compliance you will get an increased ITT estimate. Non-compliers are different so even if you could compel people to comply the ITT estimate may not change as the non-compliers may be incapable of responding to the treatment.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:

No competing interests