Reviewer's report

Title: Are religious beliefs and practices of Buddhism associated with disability and salivary cortisol in office workers with chronic low back pain?

Version: 1 Date: 5 December 2012

Reviewer: Anette Harris

Reviewer's report:

The manuscript is a cross sectional study and includes questionnaires from 463 participants and saliva cortisol samples from 96 participants. The aim was to examine the association between the religious beliefs and practices of Buddhism and disability and psychological stress in office workers with chronic low back pain. This is a paper with findings that are important to those with closely related research interests. The research questions posed by the authors are clearly and well defined. I recommend acceptance of the manuscript, pending inclusion of the following information.

Compulsory revision:
1) Response rate should be reported for the whole sample. Not only those who respond to the invitation letters. How many were eligible and how many participated? How many were invited to collect saliva cortisol?

2) Cortisol analysis:
- What was the intra- and inter-assay variability?
- Why do you only calculate area under the curve (AUC) with respect to ground – not the increase (AUCI)?
- Was the cortisol data normally distributed or did you perform any log transformation before the analysis?
- The cortisol levels at awakening and 30 minutes later should be presented (with mean and 95% CI), not only the AUCG. The dynamics of the cortisol curve is important.
- Since the major results were that religious beliefs and practices of Buddhism have a significant effect on psychosocial stress, measured with cortisol, I would like to see a cortisol figure, split into two groups; those who have religious beliefs and practices of Buddhism and those who not. Are they lower at awakening or do they have less cortisol response after awakening? If there is not enough space for a figure I would like to have the levels presented in a text.

Discretionary revision:
1) Most limitation are clearly stated but saliva cortisol sample, based on one day only, should not be characterized as strength; we know that there is a huge day-to-day variation (page 19, first line)(see Hellhammer 2007).
2) Relevant empirical data (Chida) are sited but I miss a theoretical point of view. Do we all agree that high cortisol levels after awakening are harmful? According to allostatic load (McEween) this is the right hypothesis, but according to cognitive activation theory of stress (Ursin and Eriksen) its not.

**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.