Reviewer's report

**Title:** A randomized, controlled cross-over trial of lavender (Lavandula angustifolia) oil as a treatment of agitated behaviour in dementia

**Version:** 3 **Date:** 12 April 2013

**Reviewer:** Li-Chan Lin

**Reviewer's report:**

Study background and methodological issue regarding lavender oil trial are described clearly in background section. This study has scientific merit and is an important issue for clinical practice. However, the following questions need to be clarified.

1. The primary outcome measure is agitated behavior. This study uses Cohen Mansfield Agitation Inventory (CMAI) as a measure to represent the concept of agitation. Agitated behaviors in CMAI include three categories: aggressive, physically aggressive, verbally agitated behaviors. One of sampling inclusive criteria is a physically agitated behavior that occurred at least several time each day in daylight hours, at times other than during nursing care, to a degree that required staff intervention. This criterion shrinks recruitment of subjects and is inconsistent with the definition of agitated behaviors from Cohen-Mansfield.

2. The olfactory pathway and the area in the brain responsible for awareness of the ability to smell might be damaged early in Alzheimer’s disease from literatures. However, neither ability of smell nor type of dementia was presented in this study. Both might confound the effect of Lavender essential oil in reducing agitation.

3. Figure 1 study flow chart seems inconsistent with the text of study design in p.7.

4. MMSE was measured (p.8), but score of MMSE was not show in text or Table 1. Please add range of age, CMAI and Affect Rating Scale.

5. It is recommended to compare the effects of CMAI subscales including aggressive, physically aggressive, verbally agitated behaviors between experimental and control groups.

**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' below. If your reply is yes to any, please give details below.