Reviewer's report

Title: Low intensity blue-enriched white light (750 lux) and standard bright light (10 000 lux) are equally effective in treating SAD

Version: 2 Date: 12 October 2010

Reviewer: Cecilia Rastad

Reviewer's report:

General comments
This is a study investigating the effects of treatment with two different forms of Light Therapy for persons with Seasonal Affective Disorder; 1) Standard Bright Light Treatment (strong intensity white light/10000 Lux, light resembles daylight) and 2) Light Treatment with white light which is blue enriched (light with a larger portion of short wavelengths) and given at a much lower intensity (750 Lux). A strength in the study is that treatments were given in the hospital and not in patients’ home environment, since this makes it easier to know whether or not participants received the intervention as intended or not.

Even though the study has been conducted in a small sample consisting of 22 patients and results therefore must be considered preliminary, it is definitely of interest in the field of light treatment and SAD. If results are replicated in larger samples and the blue-enriched white light treatment is considered safe, it may present a simpler way of delivering light treatment in the future. However, there are some minor and a few major revisions to be made in the manuscript before publication.

Major compulsory revisions
Method/Subjects:
1. The randomization procedure is not described in the paper. When applying "straight" randomization in small samples like these, the result is often unequal group sizes. Did you use any type of restricted randomization or not?

2. Apart from information about age and gender, there is very little information to the readers regarding baseline data and demographic characteristics in the sample/the two treatment groups. The authors write “...there was no statistical difference between the conditions...” but do not present the details. A table with more information about the participants in the two groups is essential to the readers’ interpretation and evaluation of the results.

Discussion:
3. Are there no dangers for the eyes with blue-enriched light? Please discuss possible risks/safety aspects of the treatment.

Minor Essential Revisions
Abstract:
4. References should not be included in the abstract according to the instructions.
5. There should be some more information about randomization, assessments, statistics and results in the abstract.

Introduction and Discussion:
6. The authors assessed treatment effects not only for depressed mood, but for sleep quality, fatigue and different aspects of activation. The rationale for choosing these variables/measure are not mentioned in the Introduction section and the results are not discussed in the Discussion section.
7. "Saturation” – which is mentioned in both the Introduction and Discussion, may be explained to the readers unfamiliar with the concept.

Introduction:
8. The abbreviations SLT and BLT should be explained the first time they are used in the manuscript.

Method/Subjects:
9. Line 2: "design” should be changed to "study”.
10. The description of how participants were recruited is not quite clear. How many were recruited by means of advertisement?
11. Attrition/loss of one subject is described in the methods section, but not attrition/loss of questionnaires or single items? How about attrition during treatment - did all participants receive all ten treatments? Were single missing items imputed or not?

Light therapy:
12. Please give some information about the development of the "prototype”. Are there any such devices on the market or not (blue-enriched white light)? It would also be helpful with some more information about the setting; in which hospital were patients treated, were treatments given to one patient at a time? Were staff or other persons present or not?

Assessment and Procedure:
13. What information about the study was given in advance to the participants?
14. It is not clear what is meant by: "On day 22, an evaluation questionnaire was added to check the outcome of subjects’ expectations”. Please explain.
15. The questions used in this "evaluation questionnaire” should be described in the Methods section.

Statistics:
16. Information about statistics in the Result sections on p 6 and p 7 should be moved to the Statistics section.
17. Define what is meant by "responders" in the Statistics section (not the Results section).

18. Specify the statistics used for between-group and within-group analyses. What statistical analysis was used for assessing differences at baseline?

19. What measures were primary outcomes included in the analysis?

20. Which 3 pre-intervention scores were used as covariates?

21. Are there any risks using MANOVA when (and if) the dependent variables included in the analyses are highly correlated?

22. What about prerequisites for the statistical analysis such as homogenity of variance, the effect of possible outliers and absence of multicollinearity? Intention to treat-analysis or not? Complete data for all participants in all analyses?

Statistics, sample size and power:

23. The rather small sample in a study comparing two active treatments may produce a power problem. Did you perform a power analysis beforehand?

Results/Table 2:

24. The combined scores for the subscales HRSD-17 and ATYP-7 should be approximately the same as the scores for the total scale SIGH-SAD-24. How come this does not seem to be the case?

Results/Table 3:

25. The sleep questionnaire, is it abbreviated GSQS (p 4) or GSK (Table 3)?

Figure 2:

26. Some more information about the scales used would be helpful when interpreting the results; for example information about min-max, possible cut-offs for "cases" and whether or not a high value is "good" or "bad".

Discussion:

27. The phase-shift hypotheses is but one of several possible explanations for SAD, which may be mentioned in the Discussion.

28. As mentioned earlier, there are no comments on or discussion of results for the variables sleep, fatigue and activation.

29. A limitation in the study is the lack of a follow-up.

30. The two last sentences in the first section of the Discussion are difficult to understand ("In the SLT group.....or pleasant").

31. A detail only – how is such an exact Lux value measured (310.35 and 421.07) in a workplace? The measurement of Lux varies according to several measurement variables and there are many different Lux values in any one room.

References:

32. References are not written as required in the information to authors.
Discretionary revisions

33. The abbreviation used in the manuscript for blue-enriched white light (BLT) is commonly used in the literature for "standard" bright light treatment (which the authors chose to abbreviate as SLT). This way of using abbreviations may be confusing to some of the readers and the authors may therefore reconsider their use of the abbreviation BLT for blue-enriched light.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

I declare that I have no competing interests.