Author’s response to reviews

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

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Author’s response to reviews: see over
Dear Dr. Angelina Ilievska,

We would like to thank the editor and the reviewers for their helpful comments, which enabled us to improve the manuscript *Low-intensity blue-enriched white light (750 lux) and standard bright light (10 000 lux) are equally effective in treating SAD. A randomized controlled study* by Ybe Meesters, Vera Dekker, Luc J.M. Schlangen, Elske H. Bos and Martine J. Ruiter (MS: 1461656780418061)

For a detailed description of the changes made in the manuscript, please see below.

*Comments of the associate editor*

Information about the study design has been added to the title and the abstract. The citation in the abstract has been omitted.

*Review by Paul Desan*

We have included a discussion on the lack of a placebo condition in this study and refer to a study of identical design with placebo condition in our clinic in which participants visit the clinic for treatment in the morning (Koorengevel et al., 2001).

We have removed Table 1 as suggested by the reviewer and included the information in the text.

- We have removed the sentence about the proportional response.
- The effect size reflects the difference between baseline (day 1) and the results on day 22. We think that calculating the effect sizes is useful when comparing the results of the present study with those of other studies.
- In the analysis of the SIGH-SAD we used repeated measures ANOVA. We now mention this in the text.
- The section on the impact of baseline severity is useful because it is not necessarily true that patients with higher baseline scores benefit most from treatment. For some therapies, the reverse is true. Moreover, it may be that the different types of light as used in the present study have different effects in patients with higher vs. lower severity scores. We tested this potential difference as well. Therefore, the information in this section goes beyond the issue of regression to the mean and we think this section is meaningful.
- Table 1 clearly contains the data of the scores on the SIGH-SAD. Including the same data in Figure 2 is would not seem very useful. The data of the daily questionnaires are not presented elsewhere in the manuscript, so we think it is useful to present them in a figure.

*Review by Cecilia Rastad*

1. The randomization procedure has been clarified more clearly now.
2. The data of baseline severity on the different aspects are mentioned in Table 1.
3. The blue-enriched light fixtures have been manufactured in accordance with safety guidelines of the CIE. We have included some additional remarks in the text about the
fact that the calculated risks of the blue-enriched light are far below the threshold of
the safety guidelines
4. We have removed the reference from the abstract.
5. We have included more information about the randomization procedure in the
abstract.
6. We have added some remarks about sleep quality, activation and lack of energy in the
introduction.
7. Saturation has been explained now.
8. SLT and BLT are explained in the introduction when mentioned for the first time.
9. ‘design’ has been changed to ‘study’.
10. We have added a few remarks about the number of participants recruited by means of
an advertisement.
11. All 22 subjects included in the analysis received all ten treatments. A few data on the
daily questionnaires were missing. Linear Mixed Models were used to compare the
two conditions on the basis of the daily self-rating questionnaires. One of the
advantages of these models is that all available data can be used, including data of
subjects with one or more missing values. Consequently, in these analyses data of all
22 subjects were used.
12. We have included more information about the prototype light treatment devices, the
hospital and treatment conditions.
13. The participants were given information about the goal of the study: to investigate the
effects of low intensity blue-enriched light treatment in relation to the standard light
treatment. We now mention this in the text.
14. On day 1, participants filled out a questionnaire about their expectations, which were
evaluated at day 22. We have added a few words to clarify the text.
15. The outcome of the evaluation questionnaire on day 22 in relation to expectations on
day 1 is described more clearly in the discussion section. Since these results are not
the primary outcome measures, but worth mentioning, we have chosen to mention
these results in the discussion only.
16. We have removed information about statistic from the results section and inserted it
into the method section.
17. The definition of responder has been included in the statistics section.
18. The statistics used to compare between-group differences and within-group
differences over time are described in the statistics section. Differences at baseline
were tested by means of t-tests (continuous outcomes) and chi-square tests
(dichotomous outcomes). We have added a sentence in the statistics section to make
this clear.
19. The primary results from this study were those based on the differences between the
SIGH-SAD at Day 1 and Day 22.
20. The scores on the daily questionnaires of the first 3 days (= before light treatment)
were considered as baseline. We have made this clearer in the text.
21. Repeated measures (M)ANOVA is a procedure adjusting for serial dependency.
Consequently, there is no risk of bias in the estimates of the (M)ANOVA.
22. Assumptions for the analyses were checked by performing residual diagnostics on the
final models. We mention this in the statistics section. Intention-to-treat analysis did
not apply, as all patients received the intervention as intended. In the linear models we
used data from all participants, regardless of whether these data were complete or
incomplete. The repeated measures ANOVAs were performed on the completer’s
sample. We now mention this more clearly in the text.
23. The rather small sample size does lead to a power problem. Before conducting the study, we performed a power analysis. According to this analysis, both groups should have had a sample size of 17 participants. We did not succeed in recruiting so many participants. For this reason, these results should be considered preliminary.

24. The reviewer is right. There was an error in the table. We have done the calculations again and made corrections in the table and text.

25. We have changed GSK in GSQS in Table 3 (now Table 2).

26. We have added some extra information to the figure.

27. We have added some remarks about the results in relation to the phase-shift hypothesis.

28. The results on all parameters did not differ between the conditions. There is no rationale to discuss these findings separately.

29. We do not agree with the reviewer that the lack of follow-up is a limitation of the study. We think that presenting data about follow-up is beyond the scope of our study.

30. We have added a few words to make our statement more clearly.

31. The exact measures are mentioned in the literature referred to.

32. We have made some corrections.

33. We think that the abbreviations used in this paper are logical and have been adequately explained. We also think that it might be rather confusing to use different abbreviations.

We think that our manuscript has improved and hope that it will be accepted for publication.

Yours sincerely,

Ybe Meesters, PhD