Author’s response to reviews

Title: Pain perception and functional/occlusal parameters in sleep bruxism subjects following a therapeutic intervention

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HAFM-D-18-00055R3

Dear Professor Stamm,

Please find enclosed our again revised manuscript “Pain perception and functional/occlusal parameters in sleep bruxism subjects following a therapeutic intervention” submitted to Head and Face Medicine. We are thankful for your assistance and the detailed comments of the reviewers to enhance the quality of our manuscript. The reviewers comments have been regarded very seriously and we have tried to incorporate them as accurately as possible.

We hope that our manuscript will now meet the requirements for publication in Head and Face Medicine.

In accordance with the “Author Guidelines” we assure that this paper is original from our interdisciplinary research group, not presently under consideration for publication elsewhere, free of conflict of interest, and conducted by the highest principles of human subject.
We are grateful for any further suggestions on your part.

Thanking you in anticipation.

Yours sincerely,

Michelle A. Ommerborn

Itemized answers
Reviewer reports:

Reviewer #1:
1. Unfortunately, it is clear that English is not the native language of the authors. For example, the first sentence of the abstract is written in the past tense [correct], whereas the second sentence refers to the future: 'several functional parameters should be investigated'. This is a relatively small aspect compared to the incorrect use of 'has been/ have been' instead of was/ were (throughout the entire manuscript; for example p6/line 26 and 33, p8/l15 and l20 etc.).
Authors: The authors are very grateful for your patient and detailed review. With respect to the wrong use of the tense, authors have revised the entire manuscript, thoroughly.

2. I have great concerns about the fact that the authors compared the recorded individual pain perception scores with those from a reference table belonging to the Pain Perception Scale. Even though this table is ought to be based on information of more than a thousand persons, attention should be paid when directly comparing scores. It is very likely that the comparison group consisted of persons who were not in the same age range as those of the study (viz. 20 - 40 years). It is without question that studies should always try to include their own reference group. The following argument needs to be taken carefully 'Due to its good to very good reliability values, this instrument has been proved suitable for group comparisons, comparisons with a reference group and the evaluation of therapeutic effects.' I do have my doubts about this, especially when there is such an extreme small difference [only 1 point!] of the obtained scores with the reference (…obtained values ranged between 37 and 38. As T-values between 30 and 39 were categorised as below average etc.)
Authors: For the interpretation of psychometric tests, most of them provide reference groups of some specific diseases, but typically not for all. In case of a missing adequate reference group, the use of total reference sample is suggested. One advantage of the reference sample is its large size (typically including more than thousand subjects), although it may show a broader age range. A further advantage is seen in in the ability to compare subgroups by the standardization of raw values, because the t-values include distribution values. For that reason, it appears justified to relate the present findings at least in
an expressionistic way to clinical groups. Accordingly, as the SES manual did not provide an adequate reference group the decision was made to apply the data of the general reference sample for comparison. Regarding the results of the present study, the recorded T-values of 37 to 38 for the affective pain perception were located within the first distribution quartile of the reference sample. This means that 80% of the total reference sample (n=1,048) report stronger affective pain in the sense of the SES than the investigated sleep bruxism groups.

Keeping in mind the reviewers' criticism, authors have revised this section more carefully. For details, please see in the methods section page 11 and in the discussion section page 17.

3. Reviewer #1:
Why did the authors aim to investigate ten standard functional/occlusal parameters? In case the current literature still points to the potential relationship between occlusal/anatomical factors and bruxism, which I doubt, please provide the references.
Authors:
The Authors absolutely agree to the reviewers’ opinion. Indeed, there is sufficient evidence available from the literature substantiating that there is no causal relationship between occlusal and/or functional factors in the aetiology of bruxism. The reason for recording functional/occlusal factors in the present study was that these parameters ought to be assessed as covariable. For instance, if the results would have shown strongly deviant values regarding pain perception, one might have also questioned whether the investigated sample could have revealed perhaps functional or occlusal parameters within normal ranges or not. To clarify this aspect, the present study estimated both, the pain perception as well as several occlusal/functional parameters.

4. Reviewer #1:
In the table I see that the baseline group guidance was significant between both groups. Why isn't this mentioned in the text/ may this have influenced the results?
Authors:
The p value obtained for the group comparison of the percentage of sleep bruxism subjects with displaying group guidance at baseline amounted p=0.08. As mentioned in the methods section, a α-error probability of p<0.05 was found statistically significant. Therefore, groups did not differ significantly, and consequently, authors did not reported this separately.

5. Reviewer #1:
Significant changes were observed with respect to the maximum active right lateral movement and the resiliency of the right TMJ. What can I conclude from this, why not left? Perhaps this is due to chance as the authors investigated a lot of variables within (only) 57 participants?
Authors:
Authors are very grateful for the reviewers' justified question, which we asked ourselves following to the statistical analysis of the obtained data. Our interpretation and conclusions were reflected in the discussion section. For details, please see page 20, row 11. As values calculated for all functional/occlusal variables as well as those obtained for the sensory pain perception were clearly located within normative ranges at each measurement period, these values were interpreted rather as the result of physiologic variability and not to mention might be due to the rather measurement. In order to integrate these findings in a plausible context, authors found it worth to indicate that “Apart from the observed statistically significant effects, it appears noteworthy that the values calculated for all functional/occlusal variables as well as those obtained for the sensory pain perception were clearly located within normative ranges at each measurement period.” For details, please see page 16, row 15.
6. Reviewer #1:
Table 1: the footnote about education and crowding should be in Statistics.
Authors:
Your suggestion has been taken into account. Now these explanations were mentioned in the methods section at the statistics. Please, see page 11.

7. Reviewer #1:
Tables 2 and 3: where can I see the outcomes of the statistical tests as mentioned in the footnotes
Authors:
In order to provide a clear arrangement of the relevant data, the descriptive values of the three measurement periods were listed for each intervention group separately. The respective p-values of the analysed variables which revealed statistically significant differences are reported in the results section.

Reviewer #2:

1. Reviewer #2:
The authors have adequately dealt with my comments, and the manuscript has subsequently improved.
Authors:
The authors would like to thank you for your valuable comments, which truly enhanced the quality of our manuscript.