Reviewer’s report

Title: Comparison of The French and CARDS Classifications for Lumbar Degenerative Spondylolisthesis: Reliability and Validity

Version: 0 Date: 23 Apr 2019

Reviewer: Nicolas Roydon Smoll

Reviewer’s report:

The authors provide an comparison of the reliability of two lumbar degenerative spondylolisthesis classification tools. They find that they both are reasonable, but conclude that the CARDS system is slightly more reliable and easier to utilize.

Overall, the manuscript is well written and the data support these conclusions well.

A few issues:

1) Reliability and reproducibility - you use these terms together throughout the manuscript, but unclear what you are distinguishing. Reliability is measuring the construct of reproducibility. Unless there is a distinction I am unaware of, just use the term reliability.

2) Validity measurement: In the second part of the manuscript, the baseline differences and mean outcome scores, which is effectively attempting to measure the validity of the scoring methods. While some reviewers may disagree, you could consider changing the focus of the manuscript to "measuring the validity and reliability of the CARDS and French Classification systems". To do so, you need to be very clear on what it is that your attempting to measure. By that, I don't mean lumbar spondylolisthesis in isolation. For example, the effects of the lumbar spondylolisthesis on the function and health-related quality of life of the patient may be what you are trying to measure. You are interested in the clinical outcomes associated with the lumbar spondylolisthesis, not the spondylolisthesis itself. To conclude, I think it would improve the quality of the manuscript if you chose to use the term "validity" instead of "Clinical Utility" throughout the manuscript.

3) Minimally clinically important differences (MCID): Instead of comparing mean improvements by classification, assess the likelihood of a clinically meaningful difference (MCID). The literature has several published MCIDs for the VAS, ODI and SF-36. You may find something using these methods, and they are more robust than using "mean differences" as an outcome measure.

4) Can you report the agreement proportions in table 2 and table 3. Of course, this doesn't correct for chance agreement, but is a useful descriptor.
5) The limitations section is a bit bare, and common to all single center studies. I think there are more limitations to be discussed. For example, is 3 weeks enough time between grading? Most will not receive a 10 minute tutorial when using this system. In fact, many will read your paper and start grading from there. That 10 minute tutorial may have actually artificially increased your interrater agreement if everyone received the tutorial from the same author. Can you list whom provided the tutorial to who (very briefly i.e. one person provided the tutorial to all the participants)? The French system, because of it's complexity, may actually have much lower inter-reliability scores if the tutorial was not used. Of course the use of the tutorial will improve the internal validity of this manuscript, but at the same time limits it's external validity.

6) The figures could be of higher quality, and annotations of the images would be helpful, instead of presenting a whole spine image (unless that is imperative).

Overall, this is well done, and perhaps the authors undersold this manuscript by choosing not to use the term "validity".

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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None

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