Reviewer's report

Title: Development and repeatability of an everyday clinical tool to evaluate aesthetics in scoliosis patients: TRACE (Trunk Aesthetic Clinical Evaluation)

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Reviewer: Josette Bettany-Saltikov

Reviewer's report:

Development and repeatability of a clinical tool to evaluate aesthetics in scoliosis patients: TRACE

Overall I thought this was a very interesting paper however it appears to me that there are 2 studies written as 1 paper which can be confusing to the reader. I suggest that it be edited to exclude the AI details and results (they can be written as a separate paper if the authors wish to do so). Please note that I have abbreviated the categories for revisions as MCR, MER and DR

Specific comments:
1. Title: I would suggest using the word ‘routine’ clinical tool rather than ‘everyday’ clinical tool. Also it is not clear from the title that the AI is being compared to the TRACE (MER)

Abstract pg 1

2 I am not sure that I would agree completely with the statement “tools for everyday clinical practice have not become available” though I do agree that they are very limited (such as using the Bunnell Scoliometer and the plumb-line). I would also suggest that the whole abstract and paper should be written in the past tense. I am not quite sure what the scoliosis journal recommends but we tell all students that their work should be written in the 3rd person past tense. On the 5th line of the abstract could the authors clarify what precisely is the difference between reliability and repeatability? My understanding of these is that they are fairly similar concepts.[MER]

3 I would also strongly recommend that the authors divide the methods section in the abstract into further sub-sections these being: subjects, instrumentation, procedures, data-analysis and then proceed to discuss them in that order. [MER]

4 It would be helpful when reporting the results section that the authors also include the actual Kappa value together with the level of significance (P value).[MCR]

5. The fact that the authors have included 2 tools (the AI and the Trace) make this article a little difficult to read. I would suggest that they just describe the TRACE tool and provide the results for that and discuss the AI somewhere else (possibly another paper).[MER]

6. pg 2: regarding the conclusions I do agree that it is a sensible low cost tool
and better than using nothing at all. However the fact that the repeatability is only ‘fair’ makes me question whether or not we can recommend routine clinical use. Wouldn’t it be possible to improve the method for instance by improving the scales (i.e. stating the side of the problem and actually having a form and figure on paper on which to document this-Like the one found in Posture Score sheet [Reedco 1974]). I have a copy of this and would be very happy to send it to the authors.

I am still unclear how the assessment of the patient is recorded in the authors actual clinical practice? Do they record this on the patient records on a form? If so it should be included

Further if one sub-section say the scapulae are seen to improve and not the other sub-scales how is this recorded?

Background

I thought that the background was well discussed but a little brief. There are also some other scales that have been used to assess back shape and posture in the Scoliosis AND physiotherapy literature like for instance the REEDCO one. It would be helpful I think if the authors could discuss the pros and cons of the different methods they mention in some further detail. 

In the background it would be worth including an operational definition for ‘repeatability’ and ‘reliability’ and describing what exactly is the difference between the two?

Objectives

Regarding the objectives-these are fine.

METHODS

Again I think it would be helpful in the METHODS section to have the same subsections as recommended in the abstract ie start with the subjects, instrumentation, procedures and data analysis, in that order.

I would also just include only the TRACE and not the AI as otherwise the reader gets mixed up between the two (well I did)

Subjects:

It would be interesting to know how old the patients with AIS were? Did they all have AIS? Or were there different diagnosis? Also do the authors have the height and weight and BMI indexes for them? These factors could possibly effect the reliability of assessment.

Was consent to be included on this study obtained from the patients?

Instrumentation

The TRACE has been APPROPRIAtely described (except for the comments referred to above) but it would be helpful to place it under this sub-heading. I am not sure what Adding +1 does to the validity of the scale?
Procedure
Again this has been well described though again better just stick to the TRACE tool only. [MER]

I could not locate the section within the text where the photos of the patients were discussed?.[mer]ie needs signposting.

I am assuming the best place for them would be in the procedures section where the authors describe how they calculated the TRACE values or possibly the results section. [MER]

It would also be helpful to provide some discussion of the figures and what values each one was given by each of the observers.[MER]

Data Analysis
The methods of data-analysis need to go here. Although mentioned in the abstract it is not included here. Can the authors give some more detail on how the levels of agreement were reached? [MCR]

Discussion
I thought this was well discussed aNd appropriate references were used

Tables
Please include P values (levels of significance)[MES]

Unclear what is meant by conversion value in tables 3 and 4-however if you are only incuding TRACE they would not be relevant here.

Overall
Overall I think it is a very interesting paper but too much has been included:

The authors are either comparing AI to Trace and comparing the reliability of the two tools in which case the title needs changing. Including the two in 1 paper makes it more difficult to read.

Better just stick to trace and report the intra-rater and inter-rater reliability and levels of agreement for TRACE only.

Although a number of revisions need to be made I think this is an important paper for the routine clinical assessment of patients with scoliosis. The authors could possibly suggest ways of how they plan to make the tool more sensitive? [DR]

Level of interest: An article of importance in its field

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

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I am a joint author with Dr Zaina and Dr Negrini on a Cochrane review we are currently conducting.