Reviewer's report

Title: Spanish validation of Bad Sobernheim Stress Questionnaire (BSSQ.es) for adolescents with braces

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Reviewer: Tomasz Kotwicki

Reviewer's report:

The subject of the language and cultural validation of HRQL questionnaires is important. The idea to validate BSSQ into Spanish deserves support, as BSSQ together with BrQ are the two questionnaires designed specially for adolescents wearing corrective braces for scoliosis. Thus, the paper is worthy of publishing if the necessary changes are made in the text. Moreover the methodology is correct and such a publication could serve as an example for researchers wishing to perform a validation of BrQ or BSSQ into other languages.

The paper needs some improvement.

1. The authors acknowledge an English language native speaker. However their paper is still not easy to follow because of the language. I would recommend clarifying the text. For example, only the present or only the past tense should be used throughout the article but not the two. The background section needs more attention from the authors. It is difficult to read and to follow.

2. There are two BSSQs: BSSQ Deformity and BSSQ Brace. The authors should indicate which one was analyzed. The proper name should be used throughout the article.

3. I do not understand quite well why the authors decided to use SRS-22 (measuring the quality of life including pain, physical function etc., but not being a specific tool for a patient being currently under brace treatment) as a criterion of validity for the BSSQ - a questionnaire measuring something quite different (the level of stress introduced by wearing the corrective brace). Please, argument more about your choice. Otherwise it seems that the argumentation is that many people know SRS-22 and few people know BSSQ, so it was decided to compare something new to something better known(?). However, the two questionnaires are not measuring the same thing. I would be more cautious and would say that correlation with SRS-22 was checked, but would not use the term of “validity”.

4. The Methods section should be completed by adding the detailed description of what was done and how was done (reliability, validity, principal component analysis etc.) These terms cannot appear suddenly in the Results section without having been previously introduced and described in the Methods section. Please try to keep the Methods and the Results sections parallel in construction.

5. Background, second line: [1] first position of the references does not really support the meaning of the sentence (“psychological studies on this topic are limited”), please clarify.
6. Background, line 7, please complete the sentence: “bracing is a risk factor for adolescents” – risk of what? To be precise, the conclusion of the work you cite (Maruyama et al. 2009) was that the TYPE of brace affected quality of life – is that what you wanted to disclose here?

7. Background, the sentence starting in the line 8 (“Adolescents who are sixteen...”). I do not understand this sentence. Again – risk of what? Stress? Affected quality of life? What they began in infancy? Scoliosis? Bracing? What age is infancy for you? Less than 3 years of age? (would concern a very specific and limited group of patients, not really comparable with AIS patients). When stating “physical pathologies could create more problems at that time” do the authors mean “psychological problems”? In the same paragraph: “may effect” or “may affect”?

8. The next paragraph: “Studies have not yet come to a single conclusion regarding patient quality of life” – please complete with “during brace treatment for spinal deformity”.

9. In the same paragraph please substitute “researchers agree” with “researchers reveal” or “researchers evoke” etc. Otherwise you would need to give numerous references at each point and not only one reference to justify the word “agree”.

10. Background last paragraph: the abbreviation IS is not explained.

11. The same paragraph: please avoid the general and imprecise term of “scientific community”. The creators of the two questionnaires were rather individuals capable to look deeper into the issue of psychological impact of conservative scoliosis treatment than any sort of “scientific community” whatever this term denotes.

Methods section

12. What was the number of patients wearing the brace at school? 16 hours a day may be with school wearing or without school wearing, which can be decisive for the level of stress in an adolescent.

13. Did you study the compliance in terms of the number of adolescents who were ordered to wear the brace at school but they did not? This could severely affect the stress level.

14. Methods, page 5, line 10: what is the reference 18 for?

15. Methods, page 5, line 12: QOL abbreviation is not explained.

16. The authors seem to substitute the term “stress” with “quality of life” (methods, page 5, line 12). What is the reason for that? Are these terms exchangeable?

Results section:

17. The first 12 lines of the Results section are the description of the patients and not the results of testing the questionnaire. This part would fit much better in the Methods section.

18. Kolmogorov-Smirnov and Shapiro-Wilk are two different tests for normal distribution. The authors seem to mix them into one test. Please explain.
Moreover the use of the present tense: “test verifies normal distribution” makes this sentence a general statement not related to the content of this paper: there is some incertitude whether any of the two tests confirmed the normal distribution or not. Please make it clear.


20. Validity: please write again the first sentence. The normal distribution of SRS22 is not the main message to pass. The message is that SRS22 was taken as criterion to check the validity (which is disputable anyway).

21. The last 18 lines of the Results section are unclear, not introduced in the Methods section, not supported by references, not explained for the meaning and significance. A reader of the article would certainly like to know more about usefulness of the parameters presented here.

Table 1.
Please round the values to one decimal place. Please explain somewhat strange terms: (1) report, (2) TOTBSSQ, (3) Edad. Is there any reason to use alternatively light blue and dark blue lines in this table? (valid also for all other tables).

Tables 2, 3 and 4 are unclear, confusing and without good explanation are useless in their present form. Some unclear words appear (Eigenvalues).

Table 5.
The title does not reflect the content of the table. Please explain the “con corse”. Please round the values to two decimal places.

Unable to decide on acceptance or rejection.
I have no competing interests.
Tomasz Kotwicki

**Level of interest:** An article whose findings are important to those with closely related research interests

**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 declare that I have no competing interests'