Author’s response to reviews

Title: Development and validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia

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Version: 3 Date: 21 October 2015

Author’s response to reviews: see over
Dear editor,

First of all, we would like to thank the reviewers for their valuable and insightful comments, which have improved the manuscript. We have done all the changes they have required.

We have updated the title, the abstract and the authors’ details, as they have changed since the first version. We have uploaded the reviewed version of the manuscript following the journal’s instructions.

We have uploaded the Spanish version of the questionnaire with the final format in a supplementary file.

You will find a response point by point to each of the reviewer comments as well as an indication of where in the manuscript a change was made in response to these comments. All answers for reviewers have been written in red, and changes have been included throughout the manuscript in red, too.

Change in the title:

Development and psychometric validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia

Answers to reviewer’s concerns

**REVIEWER 1**

**Reviewer’s report**

**Title:** Development and validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia

**Version:** 2

**Date:** 14 September 2015

**Reviewer:** Ana Diez-Fernandez

**Reviewer’s report:**

The authors present a well-conducted manuscript with the aim of developing and validating a quick and user-friendly scoring questionnaire to assess lifestyle of Catalan adolescents, due to that no other questionnaire exists for these specific population, or are not suitable for adolescents, are antiquated, took a long time to answer or were based in a different Spanish culture. I appreciate the writing clarity and level of detail provided in the explanation of the procedures in both development and validations phases, although my first impression was the length of the document, which was arduous to follow sometimes. With the following comments I suggest a few modifications that would be interesting to address:

Major Compulsory Revisions
1) As I comment previously, I was hard to read the manuscript in some points. Discussion should be reduced summarizing specially from line 295. This would make the manuscript more attractive and easier to read.

Taking into account all the reviewers’ suggestion in relation to the discussion section, we have added what it was required and we have summarized what we considered it was possible.

2) I found the questionnaire really interesting; it provides a full impression of healthy lifestyles in adolescents, using close and open responses, the methods seem correct for me as well as the indicators but I couldn’t find the final version of VISA-TEEN questionnaire in Spanish with the final format in the supplementary files. If it’s possible please attached it in following reviews.

We are uploading the original questionnaire as reviewers have requested.

3) Reading the title of the manuscript I had the idea that the questionnaire was in Catalan instead of Spanish. Is not this reviewer’s purpose to conflict but you comment that other questionnaires are based in a different Spanish culture, you mean that these could be antiquated or that were developed in different Spanish regions? Which are the differences between Catalan adolescents and adolescents from other Spanish regions?

We have decided to create this questionnaire in Spanish language, because looking at the demographic characteristics of adolescents living in Catalonia, 54.2% have Spanish language as the first one. We also consider that in Spanish, this questionnaire will allow us to study the adolescents from the rest of Spain. On other hand, when we refer to questionnaires used in different Spanish culture, we mean population that have Spanish as language, but their culture origin is from Latin-America, or North America Hispanic group.

Minor Essential Revisions
4) Reading the non-validated English version I’m worried about questions regarding physical activity. You discuss that question 4 was considered the most difficult and I find appropriate to divide in it two different questions, but the examples you provided may be misleading: riding a bicycle can be considered vigorous PA (mountain bike) or moderate if adolescents use them in the city to go to school. Please modify that point or use other example from the Talk test list. Maybe in the DIN-A5 booklet with the illustrations is clearer, but I couldn’t see it.

We agree with this suggestion and we will take it into account when translating the word “pasear” into English. Instead of riding, we will use biking in the city going to school, but not quickly.

5) Why the hours of nap (siesta) are not considered in the relaxation indicator? Probably in other countries is not so common but I think it must be at least considered in Spain.
The questionnaire will be applied during school days, when adolescents do not sleep “siesta”, not only because they do not have time, but also because other biological conditions of adolescence period. But it is also a fact to be considered in the future.

6) Some grammatical mistakes or expressions should we revised: line 92, line 254 (“the component was composed”), line 266 and format of table 8.

We have change the expressions required, as well as the format of table 8.

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: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests'.

REVIEWER 2
Reviewer's report
Title: Development and validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia
Version: 2
Date: 16 September 2015
Reviewer: Narcis Gusi

Reviewer's report:
Background. The authors present the development of a new tool to assess the healthy lifestyle of Catalan teenagers. The evaluation of this lifestyle is crucial in health research. However, the background of manuscript presents several weakness and aspects that need to improve. Major compulsory revisions.

1) A major concern deals with the updated references. There are several European and Spanish questionnaires and projects to evaluate nutritional and physical activity (e.g., enKid, Avena, Helena) including lifestyle items that are not mentioned. I suggest to update references.

The references that the reviewer suggested (AVENA and enKID) have been added in the introduction, even though the HELENA and the enKID were already included in other sections of the manuscript.

2) I suggest to improve the clarity to present the advantage or the need to develop a new questionnaire or what is the add value to the already established and validated questionnaires For instance, but not limited to, reviewer suggests several initial references to different projects:

We consider that this references focuses in biomarkers, which is not the main objective of our paper.


This references was already discussed in the discussion section, but as suggested by the reviewer, we have also included it in the introduction section.

3) Lines 104-5. Reviewer has a major concern on ethical issues because there were no individual consent to participate in the study by parents nor teenagers. Please, revise if the Spanish/Catalan policy agree with the method to administer the questionnaires. Moreover, the individuals could give the written consent and response to an anonymous questionnaire later.

The ethical issues were solved after following the editor's suggestions. The Institutional Ethics Committee involved in the study sent a document in which it established that the permission signed by the managers of the participating schools was enough as a valid agreement. The document includes the following points:

1. The project suggests testing the students with the agreement of the school board, which acts on behalf of the parents or tutors of the students. Following the guidelines of the Department of Education of the Generalitat de Catalunya, school boards and principals should inform parents and collect their consent regarding any extracurricular activity developed in schools. The Commission for Ethics and Research accepts the previous agreement of the school board as a guarantee for a good practise.

2. Moreover, the project explains in detail that the students are duly informed about the project from the beginning, and can accept or refuse asking the questionnaire. They are also informed about the preservation of anonymity and data protection.

4) The concrete or detailed quantitative and qualitative methods should be improved. What method do authors used (paraphrasing, assessment of clarity readiness, etc.?)

The quantitative methods have been added both to the title and to the part that mentions the validation methodology (psychometric). We consider that the description of the quantitative methods is enough. The qualitative methodology has been widely explained in order to improve the explanation of how the data
were analysed. This improvement includes information about the role of experts’ panel to select the indicators used later in the questionnaire.

5) It is suggested to clarify the combination between the review literature and interviews to identify the key dimensions or items.

We have re-written the sentence in the first paragraph of the methods and clarified the idea that we obtained information from the literature, but we have not used previous studies to select our indicators.

6) I suggest using or describing better a more analytical method to score the metrics of items, e.g. did authors scored the level of understandability of each separate item?

The score rating has already been included. Moreover, the understanding of each item has been considered in this study (see the last paragraph where the development of the VISA-teen is explained.

7) Further explanation about the selection of questionnaires to validation is required. From the text, authors used a hrqol questionnaire and health status, but reviewer miss a more consistent writing about how authors validate the purpose of manuscript: healthy lifestyle. The specific items used to validate each item. These relations would help to show the convenience of the items selected and to improve the discussion.

The present questionnaire is not a validation of others. It is a new questionnaire, created specifically to study adolescents from our region. What we did looking at others questionnaires was to get information about methods and kind of items’ answers used in them.

8) The method of scoring is categorical because analysis of distances between levels of response nor scale are not not provided. Then, the use of ICC or Pearson correlation need further explanation or use other methods.

The ordinal answers to the items are scored in a range of 0-3 to get a questionnaire that can be scored. The final score of the questionnaire is obtained from the addition of the results of all the items, which transform it into a numerical value. That is why we consider that the application of ICC is adequate to evaluate the temporal stability or reproducibility.

9) Reviewer miss a consistent limitation section (e.g., ceiling effects, sample distribution lacking participants in poor health, dimensions not considered in the current questionnaire that are in other). Criterion reference validity is a big issue; it could be tested against selected items of other questionnaires. This is a crucial point to determine if the questionnaire is representative or valid to lifestyle or another concept.

The limitations are considered in the discusión section, but they are not separately presented. Concerning the criterion validity, it was not done for each component because validity is prior to the extraction of components. After
validating the tool, we will test the criterion validity by analysing the connection between the different components and the data that come from other previous validated questionnaires.

10) Please, provide a more detailed wording and original questionnaire to a better review. We are uploading the original questionnaire as reviewers have requested.

11) Please, revise the English spelling (e.g. Methodos). We have taken a look to all the possible errors and corrected them.

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 declare that I have no competing interests

REVIEWER 3
Reviewer’s report
Title: Development and validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia
Version: 2
Date: 21 September 2015
Reviewer: Aristides Machado-Rodrigues

Reviewer’s report:
GENERAL COMMENTS TO THE AUTHOR:
1. The article aimed to develop and validate a scoring questionnaire to assess healthy lifestyles in adolescents. The role of analytical approaches in the scientific field is certainly a topic of great importance as we move toward a better understanding of the role that the physical, social and cultural environments have on health of our population.

2. The abstract summarizes the paper properly. However, further details are needed, especially emphasising the main result of this study and dissipating why this is a valid tool; what is their magnitude? Based on those values, at the conclusion, what is the “go home message” of this study?

The following information has been added to the abstract in the conclusions section: shown in the present psychometric tests to understand the role of lifestyle in the health of teenagers or to test the efficacy of health campaigns intended to improve teenagers’ lifestyle.
3. The study appears to have been well described and, the quality of writing is satisfactory. However, there are some significant concerns with the scientific rationale and even conceptual clarifications are needed; a number of revisions are suggested to aid clarity and readability; furthermore, the introduction, methods and discussion do require more extensive revision.

As far as we understand, what reviewer is requiring is to check the English language. We can tell that the text has been translated and reviewed by the Elsevier English language service. Anyway, it has gone through another revision with a native English person.

4. This paper has the potential to help future research on the healthy lifestyle measurements in adolescents, however, there are some clarifications and focus required in order to accept the conclusions of this manuscript.

We have answered to this suggestions in major revisions.

**MAJOR REVISION:**

General comment 1: The paper looks at the accordance between self-reported measures of adolescents’ lifestyle (i.e. nutritional habits, physical activity, sleep habits, and so on). Although the research question is of reasonable interest, there are some significant concerns with the scientific rationale. Indeed, the introduction would be substantially improved if the background, and thus the rationale for this study, was better stated.

The introduction has been improved adding new references to support and emphasize the relevance of the Project. These references are the following:


General comment 2: In the introduction, the reason for this focus, despite of acceptable, could also include other important arguments to emphasise the need of further studies in that specific topic. Furthermore, among others aspects, the authors should clarify what kind of validation approach (…throughout the manuscript, and even at the title of this paper) are trying to perform.
The introduction has been improved according to the reviewer’s comment, trying to emphasize and support the project with the references cited above.

The validation approach has been Psychometric. This has been added to the title, abstract and manuscript.

General comment 3: Further conceptual clarification is needed, particularly in terms of the congruent way of the paper (the detailed link between the objectives of the study and the methodology used). In addition, the authors have cited several studies and assessment tools and on the afore-mentioned association variables, however, little is explained about the magnitude of association of the cited instruments.

As far as we can understand, the reviewer would like to have some more information about the link of the new instrument and the variables studied. We consider that this information will be obtained once the instrument is accepted as a valid one, and later applied in the focused population.

General comment 4: On the other hand, my main concern is the assessment of ‘validity’ and the reliance on correlations to examine that.

Correlations do not allow the examination of any direction of bias or the extent of it.
We consider there is no need to study the nature of the bias and heteroscedasticity in the validation stage of the instrument. We appreciate this suggestion, and we will take it into account in future investigations when the instrument will be applied.

Although the authors mention using different statistical procedures to extract components using exploratory factor analysis, no explanation for that is included. It would tell the reader much more if presentation validation measures were included to allow the examination of the extent and direction of bias. Further, this may also differ by weight status, sex and age – examination of this would also be a very interesting additional point to the manuscript. It would also extremely be useful if examination of any heteroscedasticity was included. At the moment, the reader gets very little information about the nature of the bias. It would also be very interesting to include descriptions of the differences for example, which sub-groups overestimated physical activity/nutritional habits using the self-report tool which the authors intent to validate, and which groups underestimated it.

We have used one statistical method to extract several components. So, we have changed the test in order to clarify that we only used the principal components method, that it is included in the EFA. The text has been changed in order to clarify it.

General Comment 5: The correlation statistic is limited in the respect it allows us to see whether the association in high; however, a high correlation could also mean than the self-report instrument is consistently over or under representing the studied variables (i.e. physical activity, etc…). This would be important
information to garner, especially with regards to using that tool for public health research.

We consider that we will know if the instrument will over estimate or under estimate the results when it will be applied to the population, which it is not the case in this manuscript.

General Comment 6: At the results section, it would be helpful to provide the magnitude of the difference of significant results.

The magnitude of the difference of significant results (Cohen’s d) has been added to table 7

General Comment 7: At the discussion section, the paper would benefit if the authors could also discuss the present results with other studies which used gold-standard measurement for the afore-mentioned variables.

The aim of the study was to develop an instrument to evaluate the lifestyle of adolescents, not to analyse the variables. Once the instrument is validated, our next aim in a new stage of the study, is to use the questionnaire, and later it will be relevant to compare the results of our questionnaire with previous ones which used gold-standard measurements for the same variables.

General Comment 8. This paper might have the potential to clarify the validation/association between the afore-mentioned variables/tools in adolescents, however, there are several clarifications and focus required in order to accept the conclusions of this manuscript. Even so, my main concern is clearly related to “What does this study adds to our scientific knowledge?” furthermore; how generalizable these results are to other populations (e.g., urban vs. rural, high, middle, low income populations, etc.).

We appreciate this comment. We are aware of this potential you mentioned and, because of this potential, we look forward to using the validated questionnaire with a representative group of adolescents to be able to analyse how lifestyle is related to other sociodemographic characteristics above mentioned. We cannot generalize the results because we still have not used the questionnaire. Moreover, if we would like to apply it in other groups of populations, it will be necessary to validate the questionnaire specifically for them.

MINOR REVISION:
Specific comment 1: The title does not mention what kind of validity tools will be assessed.

The psychometric type of validation has been added to the title: Development and psychometric validation of a scoring questionnaire to assess healthy lifestyles among adolescents in Catalonia
Specific Comment 2: In the introduction, there are some short paragraphs which could be together with the next one.

This formal improvement has been done, joining some short paragraphs.

Specific comment 3: In some parts, the manuscript is often hard to follow. It could do with some streamlining. Further, the scientific terminology/language may need some language refining in parts.

We have taken into account this comment reviewing the text.

Specific comment 4: The first paragraph of the discussion section might mention the main findings of that research. Even more important, in that first paragraph, it remain to add some studies in agreement or not with those main findings. In other words, discussion section would benefit if authors state in the first paragraph not just the main findings but also if these are consistent or not with other studies with the same purposes.

The first paragraph of the discussion has been changed adding the information required.

Specific Comment 5: The conclusion paragraph is concise, but was based in which magnitude of validity values? Furthermore, it would benefit if the authors also add some implication of the main results to the scientific field.

The following paragraph has been added in order to apply the main results to the scientific field:

Validity and reliability results show that this can be a good instrument to evaluate adolescents’ lifestyle, and can also be used to understand the role of how lifestyle influences adolescents. Moreover, it will also be useful to evaluate the efficacy of campaigns specifically designed to improve their lifestyle.

Comment 6: In general, the quality of writing is satisfactory, but in several places of the manuscript has to be improved (i.e. there are some grammatical details of the writing that have to be checked throughout the manuscript). The manuscript would benefit from editing or proof-reading by an English language expert.

As suggested, the manuscript has gone on proof-reading by an English language expert, even though, the text was translated and reviewed by the Elsiever English language service.

Level of interest: An article of limited interest
Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: 'I declare that I have no competing interests'