Author's response to reviews

Title: Resilience or hope? Incremental and convergent validity of the Resilience Scale for Adults (RSA) and the Herth Hope Scale (HHS) in the prediction of Anxiety and Depression

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The authors' response letter has been included as a supplementary file

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Dr. Anna Clark

BMC Psychology

Dear Academic Editor,

We would like to begin by expressing our appreciation to you and the reviewers for the insightful comments and constructive suggestions. Here below, in the “Response to the Reviewers”, we will present our point-by-point responses to your suggestions. As you will see, your recommendations have inspired concrete changes in the manuscript. We refer to the page, section, or line of each change of the revised manuscript (“Manuscript with track changes”). In addition, we will copy here some complete paragraphs added or rewritten based on your suggestions.

Thank you for your time and effort that have been of great help in improving the quality of our paper. We appreciate the opportunity to resubmit our paper. We hope that this improved version will meet your expectations.
Yours sincerely,

First Author

On behalf of all co-authors

RESPONSE TO THE REVIEWERS

We will summarize and highlight the suggestions made by Reviewer No.2 with bold font. Then, we will answer to her comments, explain the changes introduced, and copy texts that were completely rewritten.

1. I would suggest: (a) Making sure that all terms used with a specific, technical meaning are clearly defined, either in the main text or in supplementary material and, (b) Editing the text more generally so that it is accessible to non-specialists. For example, resilience, hope, and incremental validity are not defined in the introduction but are defined in subsequent sections. How are cognitive, motivational, affective, social and transcendental attributes defined? Both generally and in the context of this specific research?

(a) We have presented the definition of several technical terms in the text, each time in relation to its use in our study. Following the specific suggestions in numbers 3, 5 and 6, we have clarified concepts such as SEM, hierarchical models (in the Introduction subsection, page 3), homoscedasticity, Hedge’s g, non-representative sampling methods, and convenience sample (in the Methods section, from page 8).

(b) Certainly, the Introduction, at the beginning of the Literature Review was a very short subsection. The literature review revolves around the concepts of resilience, hope, their relation with mental health, and incremental validity. In the brief Introduction to the Literature Review, resilience and hope are presented with a broad perspective, as "sources of inner strength". In the following subsections, these concepts are defined in a deeper fashion, and as constructs related to the measurement instruments used (the RSA and the HHS).

In order to clarify the research proposal, the short Introduction subsection contains now a basic definition of ‘Incremental validity’ and the term ‘SEM approach’ has been replaced for a more precise ‘mediation analysis’. We have included an initial explanation of these methods, and the advantages of using both, a structural equation and a regression based approaches (page 3, lines 63 - 74). At the end of the Introduction, we have presented the organization of the following subsections for the reader to know that he or she will find a detailed description of resilience and hope in the following pages (page 4, first paragraph).

In the first paragraph of page number 4 (line 109), we have deleted the imprecise reference to “motivational, affective, social and transcendental attributes” of hope, in order to focus on the definition of Hope as the Herth Hope Scale measures it.
2. There seems to be some overlap between the literature review, results and discussion sections. Careful editing could help reduce this and give extra words for more detail in the methods and limitations sections of the paper. In addition, there is some overlap in the descriptions of the RSA and HHS descriptions given in the literature and methods sections that could be reduced.

Following your suggestions, we have done complete editing of the text, giving special attention to your suggestions to reduce the extension of the Literature Review and Discussion sections. In the Literature review, we have summarized the descriptions of the RSA and HHS scales (page 4, lines 100 to 106).

In the Discussion, we have cut several repeated sentences or ideas, for example, from page 21: lines 475 – 477; 484 – 485, 492 – 493, 503 – 504, 514 – 516, 535 – 536, 555 – 556, and 561 - 564.

3. More detail about the methods used would help the reader. In particular:

(a) how participants were identified, invited and selected to take part in the study, the sampling frame and target population. I wonder whether the detail given about the sample in the methods section would be better presented as results. Or is this a description of the population the participants were sampled from?

We have followed your advice regarding the presentation of the sampling process and the participants:

- We have moved and detailed the description of participants to the Results (second paragraph, page 12).

- In the Methods section, subsection Participants (page 8, lines 203 - 212) we have added a detailed description of the sampling frame and the process undertaken to select the participants.

Methods section:

Participants

The sampling process was non-probabilistic, convenient and community-based. We wanted to reach a group of participants with a broad range of age, a comparable number of men and women, and with diverse levels of education. Therefore, participants were recruited through work, educational and social institutions. Eight hundred and forty-four Peruvian adults were invited as volunteers and they were informed about their rights as participants (informed consent). The inclusion criteria were to be Peruvian, to be older than 18 years of age, and to have completed elementary education. The participants answered a paper-based survey composed by the Resilience Scale for Adults (RSA), the Herth Hope Scale (HHHS), Spanish Language
Stressful Life-Events Checklist (SL-SLE), and the Hopkins Symptom Checklist-25 (HSCL-25). Seven hundred and sixty-two participants correctly completed the survey (response rate 90.28%).

Results section:

The participants come from a convenience sample. They are 762 Peruvian adults living in Lima. Men are 40.6 % (n = 306) and women are 59.4% (n = 448) of the total group. Participants' age ranges from 18 to 74 years old (X = 28.54, SD = 10.48). They have undergraduate education (n = 466, 62.3%), postgraduate education (n = 214, 28.6%), and secondary or technical education (n = 68, 9.1%).

(b) What methods were used to identify relevant measures for the study and what criteria were used to select the measures used?

We have answered this question in both the Introduction and the Methods sections. In the Introduction, we have highlighted the rationale of this study in the frame of a validation process of psychometric instruments in multicultural contexts (page 3, end of the first paragraph of Introduction)

In the Methods section (Instruments subsection), we made explicit the criteria and steps followed to select the instruments (pages 8, 9; lines 215 - 229), before describing the psychometric properties of each one and their cross-cultural relevance:

A pragmatic approach was undertaken to identify measurement instruments of resilience or ‘protective factors of resilience’ and hope. The databases used were Medline, Scopus, and PsychInfo. The search was from 1990 to the present. Once the most used instruments were identified, further searches were carried out to find original psychometric research in diverse cultural settings with an emphasis on multidimensional construct definitions. We consider the criteria of purpose, application, validity (internal construct validity and criterion-related validity), reliability (internal and temporal stability) and sensitivity [1] to verify the psychometric properties of the scales. We also revised systematic reviews or meta-analytic studies. For resilience scales, in accordance with Windle et. al. [2], the Resilience Scale for Adults is the only multidimensional psychometric tool (i.e. assessing intrapersonal and interpersonal factors) with adequate psychometric properties and tested in multicultural contexts. For instruments of hope, we verified that the most used and solid scale of hope (the Snyder Hope Scale) focusses on agency and planning to achieve goals [3]. Therefore, we selected the Herth Hope Scale due to its multidimensionality, psychometric properties, consistent use across cultures, and its recent validation in Peru. The characteristics of both instruments are presented as here.

(c) More detail about the statistical analysis would be useful for the non-specialist, particularly when you are using advanced techniques:

• What does SEM stand for and more generally, what are the aims of hierarchical and SEM regression models? How do they work? You discuss different steps - many readers will not be familiar with these types of models and it would be useful to guide them through.
In response to question number 1(b), we have introduced a basic definition of ‘Incremental validity’, mediation and regression analysis in the Introduction (page 3, lines 68 - 74). Then, in order to clarify the definitions and differences between hierarchical regression models and structural equation models, we have detailed these concepts in the Incremental Validity section: page 6, lines 158 – 160; page 7, lines 162 – 163; page 7, lines 167 – 176. Additionally, in the Methods section, we detailed the rationale behind the last hierarchical regression model tested (page 11, lines 296 – 299).

- What is homoscedasticity and why is it important to account for it?

In page 11 (Data Analysis), lines 278 – 280, we have presented a brief definition of homoscedasticity as an assumption needed for the regression analysis.

- What is the Hedges g and again why is it important?

In page 11 (Data Analysis), lines 281 – 284, we have presented a brief definition of the effect size parameter Hedges’ g, the general rule of interpretation, and an example.

(d) A diagram of the theoretical logic model underlying the research and statistical analysis might help in guiding the reader through the methods and results (including those presented in Figure 1).

The co-authors of this manuscript have deliberated about the requested diagram. We are not entirely sure what is exactly what the reviewer has in mind. We have also searched for similar studies and we could not find a diagram that will represent both hierarchical regression and SEM analyses together.

However, we feel that the changes suggested by the reviewer and the improvements made to the manuscript, especially in the Introduction and Methods sections, have clarified the theoretical models and analytic strategies used in this paper. We hope that you may agree with us.

4. A flow chart identifying the number of participants who were identified and invited to take part as well as those who consented to participate and those who completed the measures would be useful.

Reviewer number 2 has addressed this relevant issue in point 3.a. Due to its importance, we have clarified the characteristics of the sampling process (lines 203 - 212). In addition, in the Methods section, subsection Data Analysis (page 10,11, lines 263 - 275), we have described the process followed to manage the missing cases of the protocols (RSA, HHS, and HSCL25). The process to handle the missing cases was very important because it reduced the sample size, and gave us the final response rate:

Data Analysis
To handle the missing information, first, following the recommendations of the RSA developers, four participants with more than 10% missing responses in the RSA protocol were removed. We used the Little's Missing Completely at Random (MCAR) Test to verify that the missing responses (one to three items) in seventy-three RSA protocols were completely at random (Chi-Square statistic = 1414.016, DF = 1133, Sig. = .629). The missing responses were replaced with the mean score for the subscale that the item belonged to. Then, we eliminated the participants with three or more missing responses (10% of the total number of items) in the HSCL-25 (thirty-three participants) and the HHS protocols (forty-five participants). The mean score of the item replaced the missing response in protocols with one or two missing responses (in fourteen HSCL-25 protocols, and ten HHS protocols). Before the imputations, we verified a good internal reliability per scale (Cronbach’s α > .70). The total number of participants with complete protocols was seven hundred and sixty-two.

As described, the sampling is non-probabilistic and convenient. A flow chart is not usual for this kind of sampling method. However, if the editor finds that it will clarify further the sampling process we will do it.

5. Some indication of how representative the participants are of the group sampled and the target population would be helpful - in the limitations sections you suggest the participants are representative - some data to demonstrate this is the case is needed.

We have clarified the information regarding the sampling process in 3.a (Methods and results sections). We will return to the importance of the sampling process in response to number 6 (Limitations). You will find that we have changed our text to show that our results come from a non-probabilistic sampling process, thus our results do not aim at representing the population of adults living in Lima.

6. The limitations section could be strengthened. Limitations of the response rate to the survey, self-selection or researcher selection biases, whether there was any missing data (e.g. incomplete responses); and how this was handled, the statistical models used and how the robustness of them was assessed, the impact of unobserved variables on the analysis and results. More detail about each of these would help support the case you make for further research.

We have rewritten the Limitations section following the questions and suggestions raised by the reviewer in the points 3, 4, 5 and 6. Now, the Limitations section is structured in the following order (page 24 and 25, lines 565 to 588): limitations related to the research design, sampling process, and response rate, self-report methods and to the statistical models used.

Firstly, our study has the limitations of a cross sectional research design. The data was collected in a specific point-time without manipulation of the information, thus we have not prior or posterior information that might confirm or reject our results. Therefore, we do not draw conclusions about causal relations between the variables of the study.
Secondly, as described, our sampling method was non-probabilistic and convenient. Here, a potential source of bias is the detection of participants due to researchers’ bias (e.g. in choosing the institutions where the volunteers were recruited), and participants’ self-selection. Therefore, we do not extend our results to a population level (i.e. adults with complete elementary education living in the city of Lima).

On the other hand, convenience sampling has commonly low response rate in community-based studies. Although we have not found comparable data (i.e. community convenience sampling of Peruvian adults with 56 years of age range), we can assert that we obtained a high response rate and a sample size large enough to analyze incremental validity hypotheses. This might reflect the motivation of the participants and the appropriateness of the surveys used. The fulfillment of the assumptions allowing the regression and structural models analyses may reflect a good quality of the responses obtained. Besides, self-report measures of positive constructs such as resilience and hope may elicit socially desirable responses. In order to minimize this risk, participants were blinded to the study hypothesis (i.e. the expected relations between stress, mental health outcomes, and protective mechanisms).

As discussed in the introduction, statistical models based on linear regressions have the disadvantages of error measurement and hidden confounders. The use of mediation models to test incremental validity allows certain control of the measurement errors but they are not equivalent to the hierarchical regression models. Based on the literature, a strategy to minimize the effect of possible confounders (i.e. age, gender, life stress) they included them in the models tested. Ultimately, we emphasize that our results must be interpreted within the context of a relatively new area of research, which has not antecedents in Latin America.

In the second paragraph (lines 589 to 597), we suggest further research designs that might increase the robustness of the incremental validity conclusions. It is important to highlight that, as mentioned, experimental studies are the most plausible way to control the impact of possible unobserved variables.

References

(We have include these references in some methodological clarifications, thus they have been added to the manuscript)

