

ANSWER TO REVIEWERS' COMMENTS

Dear Editor,

We firstly would like to acknowledge the given opportunity to resubmit a revised version of our manuscript entitled: 'Factor structure of the Positive and Negative Affect Schedule (PANAS) in adult women with fibromyalgia from southern Spain: the al-Ándalus project'. We would also like to thank the reviewers for their valuable comments. We have considered all of the suggestions, and have either incorporated them into the revised manuscript or offered our rationale for not doing so. Changes to the original manuscript are highlighted in yellow background, and we believe that our manuscript is stronger as a result of these modifications. An itemized point-by-point response to the editor and reviewers' comments is presented below.

Editor's comments to author:

Comment 1

Dear Dr Estevez-Lopez

Thank you for submitting your work to PeerJ. I have had the privilege of two reviewers evaluating your manuscript in addition to my own evaluation. Please address all of the points that are raised by the reviewers. I particularly highlight some below:

1. Could you please explain your choice of method? Why SEM? Why not item-response theory?

Response 1

Thank you for this constructive comment. We have included now our rationality for doing so (lines 106-118) as follows: *'Several techniques are available to analyse the factor structure of a questionnaire. In the early phase of the PANAS, exploratory factor analyses (EFA) were used (Watson et al., 1988; Mehrabian, 1997; Killgore, 2000). In the next step, CFA allowed estimation and testing of a hypothesized model based on previous literature, of correlated uniqueness terms, factor variances, factor covariances, comparison of competing models, and selection of the best fitting model (Lloret-Segura, Ferreres-Traver, Hernández-Baeza, & Tomás-Marco, 2014). CFA and item-response theory (ITR) are often considered as complementary approaches; CFA is suggested to be a more appropriate approach when analysing multidimensional models*

(Wang, 2005) while ITR is better suited for testing equivalence of item parameters (Meade, 2004). Most studies tested the factor structure of the PANAS using CFA (Leue & Beauducel, 2011). Therefore, and for the sake of clarity, only CFA literature related with the PANAS is mentioned hereinafter’.

Comment 2

Could you please discuss the full extent of your findings? For example, the feasibility of the correlated error terms.

Response 2

Thanks for catching this. We have conducted more appropriate analyses; i.e., composite reliability rather than Cronbach’s alpha. Therefore, we have described this new analysis (lines 260-265) as follows: *‘When correlated error terms are allowed, conventional estimates of reliability (e.g., Cronbach’s Alpha) may be biased (Hankins, 2008). Therefore, internal consistency of positive affect and negative affect were computed with composite reliability (ρ) (Raykov, 2001; Raykov, 2004). A $\rho > .70$ was considered as a minimum acceptable cut-off value, which is in line with the interpretation of Cronbach’s alpha (Nunnally & Bernstein, 1994)’*. We have also discussed it (lines 412-416).

Comment 3

Although this is about the factor structure of PANAS in fibromyalgia patients, there is little mention that this is also in Spanish. It should be clear in the title as well.

Response 3

We agree. Thank you. We have indicated that our sample is from ‘Southern Spain’ in the title, abstract (lines 55 and 64), aim (line 178, 384 and 385), and conclusion (lines 494 and 495). We have also emphasised this fact in the introduction and discussion, writing a bit more about previous studies conducted in the Spanish population (lines 102-105 and 385-394, respectively). Finally, a new limitation of the present study has been included accordingly (lines 490-492)

First reviewer's comments to author:

Comment 1

Basic reporting

This article is a methodological study and exposes how authors assessed the structural construct validity of the PANAS in adult women with fibromyalgia using CFA.

This paper is elaborated in a clear, unambiguous and professional English used throughout.

Response 1

Thank you. We are delighted to read this.

Comment 2

However, when the abstract describes: “the present study demonstrates positive affect and negative affect as core dimensions of affect in adult women in fibromyalgia” (lines 61-62); this description seems indefinite or incomplete. I recommend authors to specify this phrase. For example: “the present study demonstrates both positive affect and negative affect are core dimensions of affect in adult women in fibromyalgia” if authors would say this.

Response 2

Absolutely! Done. Thank you.

Comment 3

On the other hand, introduction and background show context clearly and literature is relevant, but not always well referenced:

There are some in-text citation that not fill norms of PeerJ:

In lines 106-107 the in-text citation follow APA norms, ordered multiple references to the same item alphabetically; but PeerJ demands to order chronologically. The same problem occurs in the in-text citations en lines 132-133, 143, 152-153, 195, 246-48, 368-69, 392-93, 406-07,

Response 3

Done it. Thanks. This multiple changes here and there have not been highlighted so that the new major changes (according to the reviewers' questions) can be more clearly identified.

Comment 4

The list of references meet the criteria of the APA, which does not contradict the requirements of PeerJ .

The structure is conform to PeerJ standard discipline norm.

Figures are relevant, high quality, well labelled & described.

Response 4

Thank you.

Comment 5

Experimental design

This work is an original primary research within Scope of the journal.

Technical and ethical standard has been performed adequately.

The research question is well defined. In addition, this question is relevant and meaningful. It is stated how research fills an identified knowledge gap.

Response 5

Thank you very much.

Comment 6

The authors assessed the structural construct validity of the PANAS in adult women with fibromyalgia using CFA. The association between the two dimensions of the PANAS in clinical populations is important for authors because it shows how the PANAS should be used and interpreted in clinical settings.

Most of the instruments created to assess the human suffering not always represented (in its data) the people who suffer, but also other kind of samples (student, i.e.). So, studies assessing outcomes in clinical populations are needed; as this article does.

Authors find a knowledge gap because their review of the literature elicited just two studies that have addressed the factor structure of the PANAS with CFA in clinical samples, but no one was with fibromyalgia, a disorder characterized by pain.

Methods are described with sufficient detail and information to replicate.

Response 6

Thanks for your compliments.

Comment 7

Validity of the findings

Impact and novelty

The main impact of the research is the suggestion that people with fibromyalgia may experience affect differently than healthy peers. The two factors of PANAS in the clinical sample are associated as well as distinctive, inversely to healthy women.

Data and statistical

Data is robust, statistically sound, & controlled. But some authors questioned the use of CFA or they proposed other options, as Exploratory Structural Equation Modeling (ESEM)*. I recommend authors to justify the methodological decision of applying CFA analysis over other methods, as it's developed in this article.

* Lloret-Segura, Ferreres-Traver, Hernández-Baeza & Tomás-Marco. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada. *Anales de Psicología*, 30(3), 1151-1169

Response 7

Thank you for this constructive comment. We have included now our rationality for doing so (lines 106-118) as follows: *'Several techniques are available to analyse the factor structure of a questionnaire. In the early phase of the PANAS, exploratory factor analyses (EFA) were used (Watson et al., 1988; Mehrabian, 1997; Killgore, 2000). In the next step, CFA allowed estimation and testing of a hypothesized model based on previous literature, of correlated uniqueness terms, factor variances, factor covariances, comparison of competing models, and selection of the best fitting model (Lloret-Segura, Ferreres-Traver, Hernández-Baeza, & Tomás-Marco, 2014). CFA and item-response theory (ITR) are often considered as complementary approaches; CFA is suggested to be a more appropriate approach when analysing multidimensional models (Wang, 2005) while ITR is better suited for testing equivalence of item parameters (Meade, 2004). Most studies tested the factor structure of the PANAS using CFA (Leue & Beauducel, 2011). Therefore, and for the sake of clarity, only CFA literature related with the PANAS is mentioned hereinafter'*. We have included the suggested reference.

Comment 8

Limitations of the study

Rightly, the authors notice the limitations of their study in the gender of the sample, justified in difficulties of prevalence of population with fibromyalgia. This limitation affect even to the title. Emotional results use to be different in men and in women but authors, appropriately, addressed the question at the end of the paper exposing the need of further research in affect structure between general population and clinical samples, as well among chronic pain conditions. Authors could propose an intention to project a study of this type or they could suggest a way to get it, overcoming the difficulties they found already.

Response 8

We have included more information in the limitations paragraph of the discussion (lines 463-492). This paragraph contains some new information according to reviewers' concerns and suggestions. We also have changed the order of the limitations of the present study. Our rationality is to show the majors limitation at first and, later on, move to valuable future steps forward in the field.

Dr Hankins's comments to author:

Comment 1

Basic reporting

The basic reporting is OK, but there is some unusual phrasing that might be improved: "factor structure" is probably more commonly used than "factorial structure", for example; "two correlated factor structure" might be better phrased "structure with two correlated factors"; the Results section of the abstract starts with what was not found rather than what was found, which should lead.

Response 1

Thanks. We have modified the results section in the abstract (lines 58-60). We have also improved unusual phrasing. This multiple changes here and there have not been highlighted so that the new major changes (according to the reviewers' questions) can be more clearly identified.

Comment 2

The structure of the paper could be usefully re-worked as there are several related concepts explored and in the present draft they are inter-tangled. It seems to me that the paper is primarily concerned with the measurement properties (structure) of the PANAS and so these should be discussed in more detail in the introduction, with reference to previous findings (already done) but also the analysis methods used and how these might explain the differences reported (for example, I imagine some of these studies used EFA, some CFA, some SEM and these differences alone might explain the pattern of findings). Some of this material appears for the first time in the Methods section but is unlinked to the substantive discussion of the previous findings. A separate issue is how the construct of affect itself varies in different populations: this might explain the previous studies of the structure of the PANAS if the underlying constructs are different. Again, some reference is made to this but it needs to be clear how this material is related to the central question of the structure of the PANAS.

Response 2

Thank you very much for this constructive comment. We have re-worked and restructured the introduction accordingly. Thanks to this comment, we have also realised that, in the previous draft, we biased readers' though. We do not believe that populations or analysis methods used are able to explain the controversial findings

observed in the literature. Therefore, we have added some new lines in the discussion (lines 97-105).

Comment 3

Experimental design

Nicely done, no problems here. I'm happy with the methods used but the choices should be justified - e.g. why use SEM and not item-response theory? Why choose those particular fit measures?

Response 3

Thank you for this constructive comment. We have included now our rationality for doing so (lines 106-118) as follows: *'Several techniques are available to analyse the factor structure of a questionnaire. In the early phase of the PANAS, exploratory factor analyses (EFA) were used (Watson et al., 1988; Mehrabian, 1997; Killgore, 2000). In the next step, CFA allowed estimation and testing of a hypothesized model based on previous literature, of correlated uniqueness terms, factor variances, factor covariances, comparison of competing models, and selection of the best fitting model (Lloret-Segura, Ferreres-Traver, Hernández-Baeza, & Tomás-Marco, 2014). CFA and item-response theory (ITR) are often considered as complementary approaches; CFA is suggested to be a more appropriate approach when analysing multidimensional models (Wang, 2005) while ITR is better suited for testing equivalence of item parameters (Meade, 2004). Most studies tested the factor structure of the PANAS using CFA (Leue & Beauducel, 2011). Therefore, and for the sake of clarity, only CFA literature related with the PANAS is mentioned hereinafter'*.

Additionally, *'we chose those goodness-of-fit indices that were the most insensitive to sample size, model misspecification and parameter estimates (Hooper, Coughlan & Mullen, 2008)'*, which has been written in the improved version of the present manuscript (lines 239-241).

Comment 4

Alpha of 0.7 is not 'good' (it's an absolute minimum requirement). Also, the calculation of alpha assumes uncorrelated error terms so the authors should comment on this as their preferred model has correlated error terms.

Response 4

Thanks for catching this. We have conducted more appropriate analyses; i.e., composite reliability rather than Cronbach's alpha. Therefore, we have described this new analysis (lines 260-265) as follows: *'When correlated error terms are allowed, conventional estimates of reliability (e.g., Cronbach's Alpha) may be biased (Hankins, 2008). Therefore, internal consistency of positive affect and negative affect were computed with composite reliability (ρ) (Raykov, 2001; Raykov, 2004). A $\rho > .70$ was considered as a minimum acceptable cut-off value, which is in line with the interpretation of Cronbach's alpha (Nunnally & Bernstein, 1994)'*. We have also discussed it (lines 412-416).

Comment 5

Validity of the findings

I think there is too much discussion of the rejected/less good models which draws attention away from the key finding, i.e. the best model. The authors discuss the feasibility of the correlated error terms but not the implications for reliability (see comment above). The low correlation between the positive and negative factors is interesting. The authors discuss the findings thoroughly and list the many limitations.

Response 5

We have shortened the discussion of the rejected models (lines 452-459). Thanks.

Comment 6

Comments for the author

I think the revisions required are quite minor but I would like to see the revised draft. This appears to make my Recommendation "Major Revisions" but the authors should not be unduly alarmed.

Response 6

Thanks very much for your thoughtful and constructive comments. We are also thanks for cheering us up.