Author’s response to reviews

Title: Prevalence and psychometric screening for the detection of Major Depressive Disorder and Post-Traumatic Stress Disorder in adults injured in a motor vehicle crash who are engaged in compensation

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Responses to reviewers’ comments

PSYO-D-17-00096R2

Prevalence and psychometric screening for the detection of Major Depressive Disorder and Post-Traumatic Stress Disorder in adults injured in a motor vehicle crash who are engaged in compensation

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BMC Psychology

Editor Comments:

Your manuscript "Prevalence and psychometric screening for the detection of Major Depressive Disorder and Post-Traumatic Stress Disorder in adults injured in a motor vehicle crash who are engaged in compensation" (PSYO-D-17-00096R2) has been assessed by our reviewers. Based on these reports, and my own assessment as Editor, I am pleased to inform you that it is potentially acceptable for publication in BMC Psychology, once you have carried out some essential revisions suggested by our reviewers.
Two reviewers have now commented on your revision. As you will see there are still some outstanding queries and clarifications that need to be dealt with. I look forward to receiving a further revision.

Response: Thank you very much for your decision to potentially accept once we have made the necessary changes, which we believe are appropriate and which will improve the paper.

BMC Psychology operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Whitney Scott (Reviewer 1): I thank the authors for their attention to my previous comments in their revised manuscript/response letter. I am satisfied with most of their responses and revisions. However, there are several remaining issues:

Response: Thank you for these comments.

Abstract: Should say, "a computerized (or online) psychiatric interview"

Response: This has been done see Abstract page 2 line 10

- "In prospective research, drivers and passengers who had sustained injury in a MVC had significantly elevated levels of trauma distress of around 30% (i.e. probable PTSD)". This should say "...elevated levels of traumatic distress" (p. 4)

Response: this has been done page 4: paragraph 2 line 13:

"It is therefore proposed that for those scoring close below the cut-off score, there is some justification to conduct further assessment, such as referral to clinically trained professional for gold standard interviews." (p. 19). Should this say, "It is therefore proposed that for those scoring close to but below..."?

Response: This has been done, thankyou. See page 20 line 9
Results:

- "For the valid detection of probable PTSD, and using the decision rule discussed in the Method, the following is recommended: (i) the IES-R total cut-off scores between 33-40 should be applied to detect PTSD, detecting over 90% of actual PTSD cases and from 50-60% of those not having PTSD (PPV range: 30.2-35.8%; NPV range: 95.6-96.4%; LR+ range: 1.8-2.3; LR- range: 0.19-0.16). It should be noted that cut-off scores up to 40 maintain a high sensitivity of over 90%, but reduce FPs as one approaches 40. However, it is not recommended to apply cut-off scores over 40, as they are becoming distant from the historical norm of 33 [33]."

In contrast to the results for the DASS in which the authors identify a single cut-off score, a range of cut-off scores are suggested in relation to the IES-R for identifying PTSD. Could the authors select a single cut-point for the IES? This might facilitate consistency of use of the cut-off in clinical practice and research. A score of 40 provides the same sensitivity as scores 36-39, and has higher specificity than these other scores. The authors seem to suggest against a cut-off score of 40 on the basis of historical norms. However, the purpose of this paper is to determine the cut-offs in this context, and the current data are suggesting a slightly higher cut-off score may be more appropriate. Therefore, using historical norms to counter the current data does not seem to be justified.

Response: Thank you. We have chosen a cut-off score of 40. This has a high sensitivity and high specificity. Therefore the sentence now reads: “…cut-off score of 40…” Page 16-17, paragraph 3, line 5 onwards. We have also deleted non relevant sentences. This section now reads:

“(i) the IES-R total cut-off score of 40 should be applied to detect PTSD, detecting over 90% of actual PTSD cases and from 61% of those not having PTSD (PPV range: 30.2-35.8%; NPV range: 95.6-96.4%; LR+ range: 1.8-2.3; LR- range: 0.19-0.16). Based on the decision rule, this score is therefore proposed as the optimal cut-off score to detect PTSD. (ii) The DASS-21 anxiety domain could also be applied if a cut-off score of 7 or 8 was used, with around 90% of actual MDD cases detected and around 50% of those not having MDD being detected (PPV: 32.7%; NPV: 96.1%; LR+: 2.0; LR-: 0.17).

See also page 19 paragraph 2 line 10, where we have changed the cut-off score to 40 rather than a range.

Limitations:

- "Also, the recruitment style used will result in bias, as well as the potential restrictions enforced by the exclusion/inclusion criteria. Any research that has an opt-in recruitment
approach will have bias problems. The impact of these limitations on the occurrence rates of MDD and PTSD in the sample needs to be considered."

Could the authors provide specific implications regarding the bias they identify particularly as it relates to their study design? For example, how might they expect the identified biases to affect the rates of MDD/PTSD reported? If this was just a cross-sectional questionnaire study, it might be that rates of MDD/PTSD are under-reported as more distressed people might not want to participate due to low perceived benefit to themselves. However, as these are baseline data from a trial of a psychological treatment, might participants with higher distress have been more likely to participate, therefore inflating the current estimates?

Response: Thank you. We have added the following to the Limitations on page 20 paragraph 2 lines: 7 onwards

This now reads: “Possible biases would include underestimation of rates, for example, distressed people may not want to participate due to low perceived benefits, or overestimation of rates, for example, perhaps participants with higher distress could be more likely to participate in an intervention trial”

Maria Papadakaki (Reviewer 2): Many thanks for sending this new, well-revised version of the manuscript. The authors have improved most of the parts and addressed many of our previous comments. Below are some additional comments for them to consider.

Response: Thank you for these kind words.

Background

1. "...are considered gold standard strategies...." - maybe changed to "...have been used in previous research as gold standard...."

Response: this has been done see page 5 paragraph 2, line 5

2. "This introduces the concept of public health ....subsequently deteriorates" - some references are necessary.

Response: This has now been referenced: see page 6, line 3.
3. "...have promise for use in compensation settings" - perhaps rephrased to indicate the authors' wish.

Response: We have added the following to the sentence: “The authors believe two scales that have been extensively used for detecting psychological disorder have promise for use in compensation settings and were therefore selected to investigate their capacity to detect MDD and PTSD.” See page 6 paragraph 2 lines 1-3.

4. "...broader information about mood, anxiety..." - broader as compared to what? Please provide some comparative evidence to show the advantage of one against the other OR evidence on the limitations of others that are efficiently met by the one chosen.

Response: We have addressed this point by adding additional information about the DASS-21 and how it provides information not only on depressive mood symptoms, but also information on anxiety and stress (e.g. breathlessness, agitation). On page 6, paragraph 2, lines 1-11.

This section now reads: “The authors believe two scales that have been extensively used for detecting psychological disorder have promise for use in compensation settings and were therefore selected to investigate their capacity to detect MDD and PTSD. The first scale, the Depression Anxiety Stress Scales (DASS) [23, 24] was chosen as the preferred screen for MDD rather than a more specific screen like the self-report Patient Health Questionnaire-9 (PHQ-9) [25] because the DASS-21 is widely used in clinical settings, it has substantial data available on its validity and reliability. It provides broader information about mood, anxiety and levels of stress from 21 items that presents twice the amount of information than the PHQ-9 on aspects not only on symptoms of mood, but also questions physical symptoms of anxiety, for example, "I experience trembling", "I find myself getting agitated" and "I experience breathing difficulty (e.g. excessively rapid breathing)".

5. "The DASS-21 has not been used.....engaged in compensation" - what other measures have been used in this setting and what is the current experience?

Response: Thank you for this point. We have added additional information about measures used in research on people in compensation. For instance reference 3 provides a large range of measures in many injury MVC studies that have used measures like the Symptom Checklist-90, the State Trait Anxiety scales, HADS, CES-D, however, most of these have sampled only a small proportion of participants who are engaged in compensation eg references 12 and 15. Further, most of these measures are in our view are not as appropriate or useful as the DASS-21 as they are either take too long to administer like the Symptom Checklist or are too specific on mood like HADS, CES-D, or they just focus on anxiety.
The following has now been added, see page 7, paragraph 1, lines: 7-11: “A recent meta-analysis on psychological distress following MVC injury has provided information on a large range of measures used to measure distress [3]. However most of these measures in our view are not as appropriate or useful as the DASS-21 as they either take too long to administer or are specifically on mood questionnaires, or they just focus on anxiety [3, 12, 15].”

6. "This cut-off score is therefore not appropriate..." - some justification is necessary for identifying this as "not appropriate".

Response: The following has been added on page 7, paragraph 2, and lines 10: The following has been added: “…because not all items in the scale have been included in the cut-off calculation”.

7. In the introduction, I can see very clear evidence on the need to validate the tools in MVC victims but I miss some clear evidence on the need to test new tools in compensation settings. Besides mentioning that these specific tools have not been used in compensation settings, we don't know whether other tools have been used and why new tools are necessary in these settings.

Response: We have addressed this in Point 5 above for Reviewer 2.

Recruitment

8. "The 109 adults who consented ... May 2017)". -- This indicates only the source of the participants that enrolled in the study. However, there should be more detailed information on the sampling design, earlier in the methods. What was the geographical setting and the services involved in the recruitment process? How many and how were they selected?

Response: Thank you for this comment. However, we have provided detailed information on page 8 and 9 under Recruitment and Participants concerning the recruitment process, sampling design, and context. We feel this is sufficient and placed correctly.

9. Reference (34) needs to follow the reference style at the end.

Response: Done. We have changed reference 34 in the Reference list to suit referencing style. Note the name of the organisation has changed since we submitted, so we have corrected this, and their name has no capitals. On page 28 last line and it now reads: icare lifetime care. Available from: http://icare.nsw.gov.au. See also page 9, paragraph 1, line 8.
Study design

10. I don't understand the time intervals between assessment 2 and assessment 3. They seem to be overlapping. Does assessment 3 refer to "6 months after the MVC"?

Response: We have changed this in the text to remove any confusion. On page 10 under Study Design and Procedure, lines 8-10 we have changed this to: “…assessment 2 occurring immediately after the 10 week intervention, that is 10 weeks post-baseline; assessment 3 occurring six months post-baseline and assessment 4 occurring 12 months post-baseline assessment.”

Discussion

11. How is the high prevalence of MDD and PTSD explained based on the local compensation practices? What are the implications for the post-trauma care in the local setting and what is currently offered to victims that needs to be improved?

Response: The rates of MDD and PTSD are similar to rates found in other studies (see ref 15). We have addressed this important question in the following on page 22 end of page:

The following has been added: “The findings will also enhance rehabilitation of people injured in MVCs as it will not only assist in the diagnosis of people with psychological disorder but also these findings will hopefully lead to effective brief psychological interventions designed to prevent psychological disorder from occurring when delivered as soon after the MVC as possible.”

12. In the limitations, there needs to be reference to the small sample size, the non-random selection of units, the geographical coverage and generalizability, the self-reported measures against clinical interview, etc. Additionally, some limitations are not explained. The readers may not understand what limitation lies behind the "study design".

Response: Thank you, we have added the following to the text on page 20 paragraph 3, lines 1-4: “The study has several limitations. A possible limitation concerns the inability to non-randomly select recruitment sites given the low number of potential sites in NSW and VIC (for instance in VIC there is only 1 site). The 109 participants are likely a biased sample given it is relatively small and that all participants were engaged in compensation.” See also comment on Limitations for Reviewer 1.