Reviewer’s report

Title: Evaluating a Screener to Quantify PTSD Risk Using Emergency Care Information: A Proof of Concept Study

Version: 0 Date: 30 Aug 2019

Reviewer: David Elashoff

Reviewer's report:

1. Statistical methods section:
   a. The method for calculating the calibration slope should be provided in more detail.
   b. The methods for AUC should be clarified since you are presumably using the predicted probabilities from the logistic model but this is not stated.
   c. Unclear as to the value of the pseudo-R2 here when we have the other measures that have more direct interpretations.
   d. The unrestricted model is not described in the methods section
   e. Ridge penalization and transformations are described in the methods section but there is not anything in the results to say whether they were used and if so, for which model were they used.
2. I would suggest an additional model with the demographics and trauma variables alone. If we want to assess the value of adding the PDEQ, we need to know how much prediction gain is provided over and above readily collected demographic and trauma variables. While we see that adding demographics/trauma variables only increases the AUC by 0.03-0.04 over PDEQ this does not really tell us the whether PDEQ is driving the prediction strength. It could be that PDEQ is correlated with the other measures and already "accounts" for the effect of those measures.
3. In the above assessment, it would be good to include a significance test for the delta AUC between the demographics/trauma model and the demographics/trauma/PDEQ model.
4. In Table 3, it should be noted what the reference group for the sex variable is.
5. Table 4 is not referenced in the results section and the values in the table are not self-explanatory. Are they the fitted predicted probabilities from the logistic model? If so which model? Based on the section of the results about likelihood estimation I would guess that it is the stacked/adjusted model, but this should be clarified.
6. Table 3 reports the regression coefficients and the text reports the ORs. This may cause some confusion to the reader without a background knowledge of logistic regression.
7. The sensitivity analysis could be phrased more specifically (the regression coefficients described are the interaction terms in the model?)

Minor

1. Unclear value of providing the 95% confidence intervals for the means in Table 2. The typical goal of a table like this is to describe the population. More useful descriptors might be the 25th and 75th percentiles or the range.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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