Reviewer's report

Title: Outcomes of polytrauma patients with Diabetes Mellitus

Version: 1  Date: 5 February 2014

Reviewer: Daniel Denis

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Minor Essential Revisions

1. The authors should avoid statements such as “statistically different” or similar, and instead provide effect size or similar measure to emphasize any differences found. For instance, in the abstract, the authors write: “The group of diabetic patients was statically [sic] older (p < .001).” Instead, I would prefer see statements such as these rephrased as “The group of diabetic patients was found to be older (p < .001)”. The reason for this change is that readers are already aware that the obtained evidence is based on the sample, and not on the population. Including “statistically” and “p < .001” mean the same thing in this regard. Another example is on p. 6, 3rd paragraph: “Statistically the diabetic patients spent more time in hospital . . . “ How about simply, “It was found that the diabetic patients spent more time in hospital . . .” and then state the level of significance used to reject the null. I would suggest this type of change for other places in the manuscript as well where the authors use the word “statistically” in this way.

2. Coupled with #1 above, authors should as much as possible include effect size measures along with their statements of p-values. They include confidence intervals, which is great, but where means are analyzed, Cohen’s d can be used to quantify the extent of mean difference. And whether means or medians are used to assess differences, the magnitude of difference observed should be commented on or contextualized for the reader. We know that statistical significance does not tell us anything about whether differences are meaningful, so the authors should include effect size estimates as much as possible and comment on the importance/magnitude of differences. Odds and odds ratios are good examples of where the authors did do this. Odds ratios aren’t impacted by sample size the same way significance tests are.

3. In a couple places (e.g., p. 13, paragraph 2), the authors write a statement such as “Due to the low prevalence of diabetes, the loss of data could have led to some findings not being statistically significant.” Though performing power analyses on all hypotheses tested probably doesn’t make the most sense for this type of report, I think it’s important for the authors to again highlight the magnitude of effect, including places where statistical significance was not found, but results may still be deemed important. If the problem is insufficient sample size, then true we cannot generalize to the population parameter(s), but we can still gleam an idea of whether the effect in the sample is meaningful to us. The
authors should emphasize effect size and magnitudes instead of focusing too much on statistical significance. Include both where you can.

4. Skewness is mentioned at the top of p. 5 as a reason for using non-parametric tests. While I don’t see a problem with using non-parametric tests for this paper, it should be recognized that even slight skew should not rule out using parametric tests. Given that non-parametric tests were used, authors should provide a bit more justification for them, perhaps by commenting on the extent to which distributions were skewed. Reporting a skewness measure for a couple of the variables would be a good idea so the reader knows whether the skew is slight or extensive. Or, one could provide a couple histograms illustrating the extent of skew. At minimum, I think it would be a good idea to comment on the extent of skew in a sentence or two, or the general nature of distributions as a whole.

5. Keep the reporting of p-values consistent. Either report exact p-values or “<” but be consistent. On p. 6, mid-way through the page, authors write “p = 0.005”, but in other places, write “p < .001” for instance.

6. Top of p. 8, an example where the small N argument could be elaborated a bit for the reader: “however, the small numbers involved meant that these results are not statistically significant.” We don’t know this for sure because statistical power is not reported. A magnitude is reported (i.e., “double that of PMC” and “five times that of the no PMC group”), but then it is “lessened” by saying it’s not stat. sig. The authors may know very well the consequences of it not being stat. sig., but I think it would be useful to add a sentence or two explaining to the reader what to make of the finding. Perhaps saying something like, “What this means is that though we can see differences exist in the sample, we do not have the inferential support to generalize these findings to the population parameters” or something of the like.

7. Watch for unnecessary typos, e.g., p. 8, 3rd paragraph, “P = 0.002” instead of using small p. And again, equality is used here instead of “<”. Whichever one is used, it should be the same throughout the paper.

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.