**Reviewer’s report**

**Title:** Effect of Sex and Age on Traumatic Brain Injury: A Geographical Comparative study

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**Reviewer:** Jason Kisser

**Reviewer’s report:**

The article focuses on the impact of sex, age, and the interaction of the two on TBI outcomes in different geographic regions. The topic is interesting and important to consider, especially in terms of the interaction of various demographic factors and regional differences from TBI. The paper is mostly well written with several minor grammatical errors throughout (e.g., page 3, line 25 should read "Scale, which is a four point scale...").

Regarding the study itself, the findings are very interesting, but I think a few points need to be clarified in the manuscript. First, the CRASH study was originally a randomized control trial for corticosteroids, however there was no mention that I found of how this was managed in these analyses: was only the control group used, was randomized group used as a covariate?

Also in comparing the two data sets, one from the world and one from Bangladesh, the authors conclude that demographic factors may have different impacts based on geographic locations. I think the only firm conclusion that can be made from this comparison is that head injury in Bangladesh and the impact of demographic factors on outcomes in Bangladesh may be different, or less important, than these factors in the rest of the world. The authors state that no distinction was made about countries in the CRASH data; I would either alter the conclusions drawn in the conclusion, or preferably, stratify by country, or minimally continent, in the CRASH data to compare geographic regions.

I also see no mention of severity of injury in either data set, length of time since the injury, or how these participants were selected. Fleshing out some of the methods to better understand the sample that is being studied can help understand the findings. Also if these vary, I would assume they should also be a covariate, as severity of injury and time since injury would significantly impact TBI outcomes.

I am also curious if the authors have looked at the effects of age as a continuous variable in the data sets. Creating ordinal variables with fairly large age ranges significantly limits some of the interpretability to see the overall pattern of age. This would be in addition to the categories, as I believe there is still worth in looking at the data from a categorical point of view.

The authors also state that they are looking at an interaction between age and sex, but it actually appears that they are stratifying the data and looking at each group separately. While a subtle difference, sometimes interactions and stratifications produce different results.
Also in the background, the first paragraph, while providing an overview of what will be covered in the rest of the background, seems unnecessary and confusing. It's recommended you start with the second paragraph.

Overall though the results from the study are important, and with the aforementioned clarifications about the data, will be a significant contribution to the literature.

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