Author’s response to reviews

Title: The trajectory of symptom burden in exposed and unexposed survivors of a major avalanche disaster: A 30 year long-term follow-up study

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A point-by-point response letter to BMC Psychiatry

We thank the reviewers for their valuable comments and appreciate their suggestions. We have answered all the comments from reviewer 2 one-by-one below, since there were no comments from the editor or reviewer 1 this time. As requested by the editor, the revised manuscript at this stage should not contain track changes or highlighting. Submission of the revised manuscript will be a clean version of our manuscript.

Answer to Reviewer 2:

Reviewer 2 addresses two issues that were not addressed properly.

1. Comments from Reviewer 2:

Concerning linear models with continuous outcome, it is not clear to me if the assumptions of normality along with linearity and homogeneity of variance have been tested and fulfilled.
Response from the authors:

Concerning linear models with continuous outcome, the assumption of normality is for the residuals not the outcome. We agree with the reviewer that it is very important to check the assumptions for the models, especially when the sample size is limited and thus the results less robust. We have tested the normality assumptions by means of visual inspection of the residual plots and indeed, the model fit was good and the residuals followed normal distribution. The homogeneity of variance was also acceptable.

To clarify this issue the following sentence was added to the “Statistical analyses” section, line 13-14, page 9:

“The model fit for regression models was good and the residuals followed normal distribution”.

2. Comments from Reviewer 2:

Concerning power analysis, as I stated, if a statistical test has inadequate power, it may not be able to detect a difference even though a difference truly exists, thus, leading to the type II error. Power analysis can reveal what size sample is needed to detect an effect of a given size. This is a matter of validity of the analysis and the design of study (either experimental or observational) is irrelevant. For instance, the unexposed group reported not significant (all p>0.05) lower proportions of individuals above cut-off points for almost all instruments. These results are because no true differences exist or because there is not enough power to detect existing true (even small-sized) differences? In other words, does this sample size allow enough power to detect differences of various magnitudes (from small to large)? This point is not even mentioned in the limitations.

Response from the authors:

We completely agree with the reviewer that a power analysis is crucial when comparing two or more groups, particularly in RCT-studies. However, in our case the study was not designed as a controlled trial and was partly observational. We used all the data available and it was not possible (for obvious ethical reasons) to include more individuals in any of the groups. In addition to scientific reasons, we had an ethical obligation to analyze the available data.

Moreover, we have presented all our findings as point estimates with confidence intervals to indicate the level of precision we had given our limited sample.

However, we agree with the reviewer concerning this important issue. There is a difference when publishing a negative finding and presenting not significant results due to too small sample size. As explained above we were not able to increase the sample size to ensure sufficient power. According to our power calculations we would require 25 (PTSS-10), 23 (IES-15) and 121 (STAI-12) in both groups to reveal our findings as statistically significant. This issue is already mentioned in the “Strengths and Limitations section, line 10-13, page 19-20. However, to
emphasize this important issue further, we have added the following to the “Strengths and Limitations section, line 13-16, page 20:

“Our analyses would require a higher sample size to reveal the main findings as statistically significant. However, due to ethical reasons it was important to present the results despite some of them being largely descriptive”.