Correspondence on 'Statistical review: frequently given comments'

We read with great interest, the article by Lydersen, in which he summarised a number of issues indicated to authors as a statistical reviewer in the past.[1]

Although this article was published in 2015, it is still quite useful and instructive, especially in clinical research. However, we were concerned regarding the author's advocacy of how to report summary statistics for continuous variables.

He suggests using the mean rather than median to describe the statistics for all types of data with continuous distribution, citing an example of the advantage of possible integration in later meta-analyses. We agree that the median is very close to the mean in data with sufficiently large sample sizes according to the central limit theorem. However, for summary statistics of continuous data with an asymmetrical distribution, the median has been found to reflect the distribution more accurately than the mean, and the Strengthening the Reporting of Observational Studies in Epidemiology statement and Statistical Analyses and Methods in the Published Literature (SAMPL) guidelines recommend that the median and IQR be presented for skewed data.[2–4] In particular, clinical studies often have continuous variables without a naturally normal distribution. Moreover, many studies on rheumatic diseases have reported significant results despite sample sizes being too small to statistically satisfy the condition of the central limit theorem because of their rarity. In case of continuous variables that show asymmetric distribution, it would be better to analogise the variance of data from the median using IQR rather than with SD.

Moreover, if a meta-analysis is performed including papers that present significantly skewed data as the mean and SD, the results of the meta-analysis may be distorted.[5] As many of the continuous variables used in biostatistics are known to be non-normally distributed, this issue needs to be discussed extensively.[6]

In conclusion, we believe that the appropriateness of the mean or median for non-parametric continuous variables should be considered by including the central limit theorem.

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