

Re: a statistical analysis of ankle prosthesis from the Norwegian Arthroplasty Register

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Dear Editor,

We read with interest the paper by Sadoghi and colleagues in the August issue of the journal [1]. Since the article uses data from the Norwegian Arthroplasty Register as a source for their analyses, we would like to comment some flaws in the article.

To our surprise, the article at first glance gives an impression of having raw data available from the Norwegian Arthroplasty Register. However, in the statistical paragraph of the article it is stated that the data were obtained from the 2008 annual report (available from the register's internet pages). This should have been clarified earlier and preferably in the abstract and title of the article. We do not disagree in the use of the data but are additionally surprised that not later data (e.g. the 2013 report) were applied.

The article focuses on the causes for revision reported by the Norwegian registry. The statistical analysis is hence on the average annual number of revisions for the reported reasons for revision. The authors then analysed the annual numbers using analysis of variance. Since the authors observed that the data were not normally distributed, they used a transformation to correct this. However, as found in any basic statistical textbook, counting data is in nature not normally distributed but follows a Poisson distribution. The

Poisson distribution would explain several of the surprising findings, including the heteroscedasticity, observed by the authors. The Poisson distribution would also include reasons for revision with zero observations (instead of using n/a).

Another flaw in directly using the observed numbers for revision is that these numbers do not take into account the duration from the insertion of the primary prosthesis to the revision operation. Since the risk for revision (and the causes) changes during the follow-up for the primary prosthesis, the present analyses evidently have little or no value! This also includes the analyses of the annual increase in the number of revisions, since these numbers rely directly on the previous annual rates of primary operations, and the increase in these.

Tukey and Kramer correct neither of the issues mentioned, and we are sorry that this letter contributes to increase the citation index for this article.

For a more thorough analysis of ankle prostheses reported to the Norwegian Arthroplasty Register, including risks for revision and trends, study the article by Fevang et al. [2]. Neglecting to cite the paper by Fevang et al. [2] further demonstrates the lack of scientific precision in the article by Sadoghi and authors.

Regards,

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Conflict of interest All the authors are employed at the Norwegian Arthroplasty register or do research on data from the Register.

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