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 on the central limit theorem. Therefore, for summary statistics of continuous variables used in biostatistics are known to be non-normally distributed, this issue needs to be discussed extensively.5

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.

Daisuke Waki 1, Masahiro Banno 1, Takashi Fujiwara 2–4

1Department of Endocrinology and Rheumatology, Kurashiki Central Hospital, Kurashiki, Japan
2Department of Psychiatry, Seichiryo Hospital, Nagoya, Japan
3Department of Psychiatry, Nagoya University Graduate School of Medicine, Nagoya, Japan
4Department of Public Health Research, Kurashiki Clinical Research Institute, Kurashiki City, Japan

Correspondence to Dr Daisuke Waki, Department of Endocrinology and Rheumatology, Kurashiki Central Hospital, Kurashiki 710-8602, Japan; dw15712@kochinet.or.jp

Twitter Masahiro Banno @MasahiroBanno

Contributors DW authored this correspondence with contribution from MB and TF.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

© Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite Waki D, Banno M, Fujiwara T. Ann Rheum Dis Epub ahead of print: [please include Day Month Year]. doi:10.1136/annrheumdis-2021-220332

Received 10 March 2021
Accepted 11 March 2021

http://dx.doi.org/10.1136/annrheumdis-2021-220332
Ann Rheum Dis 2021;0:1. doi:10.1136/annrheumdis-2021-220332

ORCID iDs
Daisuke Waki http://orcid.org/0000-0002-1393-2654
Masahiro Banno http://orcid.org/0000-0002-2539-1031
Takashi Fujiwara http://orcid.org/0000-0002-6790-8713

REFERENCES