longer follow-up time (> 4 years) can be considered HF survivors, who are more vulnerable to death from other causes in the long-term. This would explain the sharp increase in noncardiovascular mortality observed in the last 3 years: up to two thirds of deaths in 2018.[2] Therefore, there is a bias due to the longer follow-up of HF survivors. However, both studies concur in finding a lower sudden death rate attributable to improvements in treatment, which reaffirms the importance of treatment adherence. They are also complementary, as the study by Moliner et al.[2] allows us to see what would happen to patients in our study who survived beyond this 4-year period. Current treatments have mainly reduced the risk of sudden death and delayed death due to HF, which, if avoided, means that other forms of noncardiovascular death predominate at long-term follow-up. Whether it is simply a question of time or whether there is a correlation between diseases such as HF and cancer remains an open question.

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REFERENCES

1. Fernández-Vázquez D, Ferrero-Gregori A, Álvarez-García J, et al. Changes in causes of death and influence of therapeutic improvement over time in patients with heart failure and reduced ejection fraction. *Rev Esp Cardiol.* 2020;73:561–568.
2. Moliner P, Lupón J, Antonio de M, et al. Trends in modes of death in heart failure over the last two decades: less sudden death but cancer deaths on the rise. *Eur J Heart Fail.* 2019;21:1259–1266.

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The sample size myth

El mito del tamaño de la muestra

To the Editor,

Quite often, a researcher will send a project to a committee to apply for funding or an article to a journal for review and will receive as a response the objection that the sample size is not scientifically justified and that it may not be sufficient for the study objective. After correcting this point in their proposal or manuscript, adding one or two sentences, the funding or publication is approved.

In some cases, this is a logical and necessary process, in which the judges detect that something is missing and the author rectifies it appropriately. But in many cases, it is a completely illogical process,[1,2] in which both parties do not know the subject they are discussing but rather feign knowledge and accept the use of sentences that do not make sense.

Indeed, few subjects in the field of research methodology are so poorly understood as the minimum sample size needed for a study.[3] Many authors and reviewers assume that statistics can provide formulas that give the "right" sample size for each investigation and the reviewers ask the authors to "rigorously" justify the sample size used.

Many authors do not understand the use of formulas related to this question and, feeling obliged to say that they have used them to determine the sample size, resort to copying sentences from other projects. Since they do not understand what these sentences are saying, they often make transcription errors that make them unintelligible. Then, later on, other authors may use these as models to copy, each adding more errors that end up turning the sentence into a jumble of words that makes absolutely no sense. This comes full circle when these paragraphs are read by certain reviewers who also do not understand the subject, but who, seeing these technical terms related to it, assume that they provide a "rigorous" justification of the sample size and accept them.

This widespread attitude is a frontal attack on logic (it violates the most basic principles of common sense), on ethics (everyone is "faking it") and on style. The worst (and most striking) part of this ritual of confusion is that it does not benefit anyone and harms everyone. Nobody wins with this chain of absurd nonsense and everybody loses time, energy and dignity. Unfortunately, many biostatistics professors contribute, in their classes and books, to these continued misunderstandings.

Not all reviewers and evaluators take part in this nonsense, but many do. Experts in biostatistics should not look the other way and let this unfortunate situation be perpetuated indefinitely. Solutions are needed. We must support initiatives to make things easier and accurate, working together to put an end to this wrongdoing, which is, incidentally, endemic in all countries that conduct medical research.

Breaking this chain of nonsense does not require researchers to have a master's in biostatistics. An unrushed read of an article that explains the subject clearly[4,5] would be enough for a doctor to get out of this circuitous, fruitless maze, showing them the limitations inherent to applying these formulas and enabling them to understand in which situations they should use them and how.

We hope that sooner rather than later, scientific journals, universities and medical societies will decide to join forces for the benefit of everyone. Many thousands of doctors doing research would appreciate it enormously.

CONFLICTS OF INTEREST

The authors of this Letter to the Editor have no conflicts of interest to declare.

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REFERENCES

1. Kelly PJ, Webster AC, Craig JC. How many patients do we need for a clinical trial? Demystifying sample size calculations. *Nephrology.* 2010;15:725–731.
2. Guyatt GH, Mills EJ, Elboure D. In the era of systematic reviews, does the size of individual trial still matter? *PLoS Med.* 2008;5:e4.
3. Prieto Valiente L, Herranz Tejedor I. *Bioestadística sin dificultades matemáticas.* Madrid: Díaz de Santos;; 2010:183–195.
4. In J, Kang H, Kim JH, et al. Tips for troublesome sample-size calculation. *Korean J Anesthesiol.* 2020;73:114–120.
5. van Breukelen GJ, Candel MJ. Efficient design and sample size calculation for trials with clustered data. *Stat Methods Med Res.* 2015;24:491–493.

https://doi.org/10.1016/j.rec.2020.04.023
1885-5857/