

More graphs in the papers of *Cirugía y Cirujanos*?

¿Más gráficas en los artículos de *Cirugía y Cirujanos*?

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In the finance field, the analysis starts with graphs; in the education field, making a graphic representation implies higher-order mental skills, as it is a creative process. Then, what is the reason why the relevance of graphs is downplayed in medical research articles?

Research papers seek to identify relationships among variables, which can be graphically represented; even when only frequencies are reported, a graph allows for the representation of measures of dispersion, which facilitate comparisons between groups and the estimation of probable values of the variable in other samples. When the assessed variables are continuous, a graph helps to identify the characteristics of its distribution, to detect atypical values, and to describe trends, which could be omitted when reviewing the data in a chart.

In longitudinal studies, graphs can show the extent of the observed effect on the variables, and when time series are developed, they provide guidance on measures of trend, seasonality, cyclicity, and randomness. As a visual stimulus, they provide another perspective from which to analyze the results of the study, and their analysis can lead to the suggestion of new hypotheses.

Against graphs, it has been argued that they can be manipulated, that the scale can be altered to show non-existent differences, and other maneuvers that are used outside the scientific field to convince. In medical research, this is fraud, and its identification is one of

the duties of the journal reviewers. The graphs, as well as the conclusions, are to be based on the research results; therefore, they involve a synthesis exercise that needs to be properly integrated.

Some research schools start papers with a figure, and graphs can be the figure that summarizes the main findings of a study. Researchers have the opportunity to select the graphical representation that best reflects their results, probably beyond an image that compares 1% vs. 99%. As readers, the skill to interpret graphs could also be considered, while avoiding the precipitation to omit them in order to reach the paper conclusions.

As it is known, not every piece of work requires a graph, but making them is a creative exercise that allows for a better understanding of the results and a more efficient communication of them. The process makes it possible to discover design options that, usually, are not explored, to reassess the conclusions, and to create an appealing image that would tell the story of the research that has been carried out. An image is more easily disseminated than a text, and it can also spark interest in reading the full report.

Every journal has its own standards for the publication of figures, including graphs. Once those requirements are met, enriching publications with representative graphs would be a competitive advantage. Even though this editorial does not have one.

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