

A fallacious publication on "The table 2 fallacy"

Generic critiques of the merit of peer-review are common, and I have contributed my share. From time to time we also encounter instances where peer-review unquestionably fails. A recent, amusing example is worth mentioning.

In an article titled "The Table 2 Fallacy: Presenting and Interpreting Confounder and Modifier Coefficients" (*Am J Epidemiol*, Jan 30, 2013), two authors describe a common misinterpretation of regression coefficients from a multi-variable model. Their key message, with which I agree, is this: Not all coefficients have the same causal interpretation, and some of them don't have causal meaning at all. Therefore, many publications contain the so-called "Table 2 Fallacy": researchers present all the coefficients (or exponentiated coefficients) from a single regression model, many of which are biased, or mistakenly interpreted as the total effect.

At first glance, the article (titled Commentary) seems to deliver an important new message, and should be of interest to many readers. Neither is true. How come?

We don't need to look very far. Not bothering to introduce the method of causal diagrams (which is no small challenge), the authors write:

"We presume the reader understands causal diagrams, as many introductions are now available (5–8)." [Italics added]

Several introductions are indeed available, some better than others, but readers of the article belong to one of two groups: those who are familiar with

causal diagrams and those who are not. Who is expected to benefit from the article? No one.

Anyone who claims to understand causal diagrams (myself, for example) understands very well why the coefficients of variables in a multi-variable model are not "mutually adjusted" (as it is often erroneously taught in biostatistics courses.) That's the main lesson one takes home after studying the ideas of open paths and blocked paths. If there is any other meaning to "understanding causal diagrams", I have yet to hear it.

And what about the vast majority of readers who are not familiar with causal diagrams? Unfortunately, they cannot follow the article and will stop reading it sooner or later. Some of them might be motivated to read the referenced introductions, but after understanding causal diagrams, they would have already understood why the coefficients in a multi-variable model are not "mutually adjusted" ... Does a journal publish an article just to motivate a frustrated reader who cannot understand it to study the topic of the article? I doubt it.

This is a classic case where an editor did not need any peer-review to reject the article, because the editor, too, belongs to one of the two groups of readers. At most, a clever editor would have sent the article to readers who do not understand causal diagrams and ask them if they could follow the content. You can guess their answer, which was already given by the authors themselves. But I am willing to bet that the article was sent to "experts" who failed to detect the fallacy, just like the editor.

Peer review has scored again—an own goal.

Disclaimer: This is not a peer-reviewed commentary.