

Re: One or Two tails: II ?

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Thom wrote:

*** Marvin Zelen dismisses one-sided tests in another way—he finds them unethical! His

argument is as simple as it is elegant. Put in terms of comparing a new treatment to standard, anyone who insists on a one-tailed test is saying the new treatment can't do worse than the standard. If the new treatment has any effect, it can only do better. The method of analysis should be part of a study's design. If investigators are prepared to justify the use of a one-tailed test at the start of the study, then it is unethical not to give the new treatment to everyone!

I agree with Zelen's argument in that context, but there are other limited contexts which make some directional tests sensible and ethical. For example in a replication and extension one might introduce a manipulation/intervention expected to influence effect A but not effect B. If effect B is well established in the literature one might use the more powerful one sided test to establish that your participants demonstrated effect B. For effect A one would use a two sided test.

Thom

One other situation where I feel you can reasonable justify a one-sided test is where you would only administer a treatment if it was superior. I'm thinking here of a surgical intervention compared to standard medical care. In order to justify exposing a patient to the risks associated with a surgery, it better be superior to the medical care they would receive, especially when the surgery will be in addition to the standard medical care.

That's how the argument goes and I'm sure others could produce sound arguments in favour of two-sided tests in this situation.

—

Kevin E. Thorpe

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