Therapeutic Skepticism

The ubiquity of bias in contemporary medical research is well established. Bias resulting from poor study design, selective publication or industry sponsorship results in misleading therapeutic evidence. Philosophers of science have advanced various proposals to prevent these problems in future. However, there remains the question of what to do about evidence already tainted with the blight of bias as well as the therapies that are implicated by that evidence.

Jacob Stegenga provides an answer to this latter question he calls Medical Nihilism: "we should have little [or low] confidence in the effectiveness of medical interventions" (2018, 167). In this talk, I will present an objection to Stegenga's account, *the unconstrained probabilities objection*, to motivate a turn away from Medical Nihilism and towards an alterative that I call Therapeutic Skepticism, which makes use of meta-research evidence to analytically correct for bias in therapeutic evidence.

The unconstrained probabilities objection targets Stegenga's Master Argument for Medical Nihilism, which uses Bayes' Theorem to argue that the posterior probability that an intervention is effective is 'low'. For instance, he argues that the prior probability of effectiveness is 'low' because the pathophysiology of many diseases is complex. However, expressions like 'low' or 'high' are vague and do not have a regimented meaning in medicine. Thus, despite its formal mathematical structure, Stegenga's Master Argument is too vague to be defended and to yield unambiguous implications. While it is difficult to deny that research bias should make us *less* confident in the conclusions of therapeutic research, to succeed in arguing that our confidence should be 'low' using Bayes' Theorem, Stegenga must make his probabilities more definite; but no precise or imprecise probabilities are warranted by his arguments.

As an alternate response to the problem of unreliable therapeutic evidence, I propose Therapeutic Skepticism: we should generally doubt therapeutic estimates (e.g. the effect size) provided by clinical research. To 'doubt therapeutic estimates' is to regard them as inaccurate by a (defeasible) default, and to seek to correct them using 'meta-research evidence'. Meta-research evidence is higher-order evidence that quantifies the extent of industry bias, publication bias and other biases that plague first-order therapeutic evidence (Fuller 2018). Meta-research could thus serve as an untapped evidence base for correcting therapeutic evidence. While Therapeutic Skepticism is compatible with Medical Nihilism, the former escapes my objections to the latter and is thus a better response.

I will illustrate the Therapeutic Skepticism approach with the example of meta-research on industry bias. A systematic review by Lundh et al. (2017) showed that industry-sponsored drug and device studies are 1.27 times as likely to show favorable efficacy results as non-industry sponsored studies. This meta-research evidence should cast some doubt on the results of most industry-sponsored studies, an attitude that is not defeated by the absence of obvious bias in a particular case because the influence of industry bias is typically undetectable using standard 'risk of bias' instruments (Lundh et al. 2017). Refining a proposal advanced my Miriam Solomon (2015, 2020), I show how the meta-research evidence suggests a correction factor of 1/1.27 for our confidence in the effectiveness of a medical intervention given industry-sponsored first-order evidence. Further, the meta-research evidence justifies downgrading confidence in the results of an industry-funded study when applying GRADE's evidence evaluation framework (Balshem et al. 2011). This example illustrates that Therapeutic Skepticism provides a defensible response to the problem of unreliable therapeutic evidence, while escaping Medical Nihilism's overly broad conclusion that we should have 'low' confidence in medical interventions.

References

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