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LETTER TO THE EDITOR

Spin practices in clinical prediction modelling have implications beyond communicating study findings: comment on Navarro et al.

We commend Andaur Navarro et al for their much-needed guidance on evaluating the presence of spin in clinical prediction model studies [1]. Spin practices are another consequence of academia's ''publish or perish'' culture, ie, skewing the evidence base. Their consensus statement is an actionable step toward improving evidence quality by supporting peer review and postpublication critical appraisal.

Widespread publication bias has created an environment where journals are more likely to accept studies that report positive outcomes [2,3]. Publication bias likely drives spin in clinical prediction model studies, since describing a model as having ''good'' or ''excellent'' performance implies novelty. Our recent meta-research found evidence of publication bias in reporting the area under the receiver operator curve (AUC) values, with excess AUCs just above the artificial thresholds of 0.7, 0.8, and 0.9 [4]. Whilst we agree that spin does not constitute malpractice, its use erodes trust among the research community when findings are not reproducible and leads to more attempts to build models addressing the same prediction problem. This issue is worsened when studies only report the best-performing model(s) from the full range of models trialled. Just as this self-suppression has led to null clinical trials being under-represented, publication bias has led to unnecessary duplication of prediction models that are planned but never published due to less-than-desired performance. Journals have a responsibility to publish findings from well-designed and transparently reported clinical prediction model studies, regardless of their performance. This action would reduce research waste further by signaling which health outcomes cannot be reliably predicted.

As the authors indicate, spin practices are likely driven by the need to justify developing a new model. In addition to reporting and interpreting study results, we believe that spin practices begin earlier, when authors provide the rationale for developing a new clinical prediction model (Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis statement item 3a). A common rationale used by these studies is the need to optimize the allocation of scarce health-care resources. For diagnostic outcomes, identifying individuals at high-risk of disease earlier can be used to inform risk-stratified screening and preventative health strategies. For prognostic outcomes, model predictions can be used to prioritize high-cost interventions for patients who are most likely to benefit and otherwise are unlikely to survive. These examples represent causal ''what-if'' questions that are frequently cited as rationale but rarely discussed when interpreting model results and implications for practice in favor of prioritizing model performance.

Spin should also be evaluated when reviewing a study's rationale, including how a proposed clinical prediction model addresses the limitations of any existing models and how the model will support shared decision-making. An ideal rationale would incorporate consumer involvement from the outset so that models are more likely to meet the needs of patients and clinicians [5]. At worst, this rationale is misaligned with the subsequent study design; model results do not provide useful information beyond current practices; and can lead to poorly conceived models that ''predict'' sicker patients are more likely to experience worse outcomes [6].

CRediT authorship contribution statement

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Data availability

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Declaration of competing interest

None.

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