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MINI COMMENTARY

"Development and validation of a prediction model for bothersome stress urinary incontinence after prolapse surgery" by Oh et al.

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We would like to congratulate Oh et al. (BJOG 2021; https://doi.org/10.1111/1471-0528.17036) for their study on the prediction of stress urinary incontinence after prolapse surgery. The development of a prediction model is complicated and should therefore be applauded. Besides, the study has important strengths: the authors used a relatively large cohort, the stress test was standardised and the outcome is clinically relevant.

Preventing stress urinary incontinence after prolapse repair is challenging. More and more prediction tools appear to help us to balance over- and under-treatment (Yasa et al. *Neurourol Urodyn* 2021;40:688–94; Chen et al. *Int Urogynecol* 2021; *Neurourol Urodyn*. 2021; https://doi.org/10.1007/s00192-021-04985-7). Using the data of the OPUS and CARE trial, Jelovsek et al. developed and externally validated a prediction model for de novo postoperative stress urinary incontinence (POSUI) (Jelovsek et al. *Obstet Gynecol* 2014;123:279–87). In 2019 the model was also externally validated with the data of the CUPIDO trials (Jelovsek et al. *Obstet Gynecol* 2019;133:683–90). As referred to in the article by Oh et al., we developed in the same year a prediction model for bothersome POSUI based on these two randomised controlled trials (Van der Ploeg et al. *Neurourol Urodyn* 2019;38:1086–92). Oh et al. found that their model outperformed our model (area under the curve 0.74 versus 0.63). Although better prediction of postoperative POSUI is more than welcome, we would like to mention some specific concerns.

First, the authors state that the model was externally validated. This would be the case when the model was validated on, for example, the CUPIDO data. But the authors randomly divided their 1142 patients as 915 to develop the model and 227 to validate the model. This is split-sample validation, which is a simple but inefficient method of internal validation (Steyerberg *J Clin Epidemiol* 2018;103:131–3). The authors used stepwise selection to include the final predictors in the model from a set of 13 candidate predictors. This method is more harmful than one might think. It leads to exaggeration of true predictor effects and optimistic estimates of model performance (Steyerberg et al. *J Clin Epidemiol* 2018;98:133–43). A method with the selection of limited predefined predictors and external validation would have improved the study.

Updating existing prediction models to local circumstances is a more fruitful approach to support clinicians and patients in decision-making than simply developing new ones (Su et al. *Stat Methods Med Res* 2018;27:185–97). We press researchers to focus on reliable statistical approaches and to apply the most recent insights concerning prediction model development, validation and updating.

DISCLOSURE OF INTERESTS

None declared. Completed disclosure of interests form available to view online as supporting information.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no data sets were generated or analysed during the current study.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

Linked article: This is a mini commentary on S Oh et al., pp. 1158–1164 in this issue. To view this article visit https://doi.org/10.1111/1471-0528.17036

