

In our paper, we used transparent and robust methods to derive and externally validate a short scalable tool (OxRec) for the prediction of violent reoffending in released prisoners. We made it clear that it should be used as an adjunct to professional judgement because there will be individual factors and circumstances that may need to be considered.(Fazel et al, Lancet Psych 2016) However, OxRec provides a framework with which to anchor such judgements in evidence. In addition, it could be used as a basis to prioritise non-harmful interventions towards modifiable risk factors such as alcohol and drug use disorders, and other psychiatric disorders. Thus OxRec has some key advantages of many current instruments – a transparent methodology, pre-specified protocol, large representative sample to develop the tool, and reporting of a wide range of performance measures for its external validation. We also have made available an online calculator that could be used in Sweden, and to research in other countries.

We agree with Braverman and colleagues that validation in other countries is required. They suggest that the socio-economic variables in our tool ‘track socio-economic status and race’. If ‘track’ means ‘associated with’, then this is the case for all the variables we have used, including criminal history that has the strongest links with reoffending risk. In fact, the socio-economic variables are relatively weak risk factors, and as we provide an actuarial (or probability) score, the effect of changing individual risk factors can be seen. Although it is correct to say that a change in income category could lead to a change in risk category, the effect of income on risk is small, so this will not typically be the case, and the impact of changing an individual from low to medium to high income can be seen.

We disagree, however, with Braverman that inclusion of socio-economic variables is necessarily discriminatory. As others have pointed out, this would entirely depend on the baseline criminal justice context – in other words, holding all things equal, what effect does using a potential risk calculator have to the system as it is currently practiced (Monahan and Skeem, Risk Assessment in Criminal

Sentencing, Ann Review Psychology 2016. 12:489–513). We suggest two issues need to be considered. First, are current approaches more or less transparent, consistent, and accurate than evidence-based risk assessment. However, many reviews have shown that unstructured clinical approaches do worse than structured violence risk assessments (Ægisdóttir S, White MJ, Spengler PM, Maugherman AS, Anderson LA, Cook RS, et al. The meta-analysis of clinical judgment project: fifty-six years of accumulated research on clinical versus statistical prediction. Couns Psychol 2006;34:341-82. <http://tcp.sagepub.com/content/34/3/341.abstract>).

Second, does basing decisions purely on other apparently ‘non-discriminatory’ variables reduce or exacerbate social disparities. As we have stated above, if socio-economic variables are thought to be discriminatory because they are associated with race, then the logical extension of this is that all historical variables are potentially discriminatory. Excluding them would not only render any tool weaker (and possibly not adequate) in terms of prediction, but it would

be discriminatory because it would, in the case of sex for example, predict that women have higher risk than they really have, and by underestimating risk in men, lead to higher false negative rates. In support of this view, experts have argued that if policymakers remove risk factors from a tool because they are contentious, this could reduce predictive accuracy and thus increase the racial disparities they seek to address. (Monahan and Skeem 2016 Ann Review Psychology) Furthermore, there is evidence that risk tools based on a broader set of factors predict recidivism better than criminal history and tend to be less correlated with race, (Skeem JL, Lowenkamp C. 2015. Risk, race, and recidivism: predictive bias and disparate impact. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2687339) and there is strong evidence in one US state that previous offending is linked very strongly to racial disparities in sentencing (Frase RS. 2009. What explains persistent racial disproportionality in Minnesota's prison and jail populations? Crime Justice 38:201-80 http://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1509&context=faculty_articles).

We note that Braverman discusses the goal of decarceration, which requires tools with good performance, particularly in relation to negative predictive values, which would be undermined by dropping empirically derived risk factors with incremental predictive validity.

The question of harm versus benefit of such tools is an empirical one, which will need to be tested. One distinct advantage of OxRec is that the weighting of the different items can be altered for the risk calculator depending on local factors, and we have also allowed for all the socio-economic factors to be scored as unknown (and provide risk intervals).