

COMMENTARY

Challenges and future directions in studying sequencing as a debiasing strategy in forensic psychological assessment: A commentary on Kukucka and Quigley-McBride (2025)

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In 1979, Kahneman and Tversky showed that human information processing is subject to bias. They identified a number of factors, such as the order in which information is presented, that systematically lead people to make decisions that are not rational. In 2020, an international group of researchers tested $N=4099$ participants from 19 countries and 13 languages and found that 94% of Kahneman and Tversky's (1979) findings were replicated (Ruggeri et al., 2020). This makes the evidence for human susceptibility to bias one of the most replicated findings in psychology, and one in urgent need of remedy.

Intuitively, the most effective way to avoid being biased by certain information is to not have that information. This technique is called masking (or blinding) and inspired the debiasing approach *Linear Sequencing Unmasking-Expanded* (LSU-E, Dror & Kukucka, 2021). The LSU-E approach is based on empirically verified principles and has been applied to several forensic sciences, including the detection of deep-fake images (Casu et al., 2024) or the identification of victims (Dahal et al., 2022). Against this background, LSU-E is a promising approach for reducing bias in forensic psychological assessments. In an initial study, we tested whether a core factor, that is the sequencing of case information, was effective in reducing bias in criminal risk assessment as an exemplary area of forensic psychological assessment (Oberlader & Verschuere, 2024a).

In their commentary on our article 'Bias is persistent: Sequencing case information does not protect against contextual bias in criminal risk assessment' (Oberlader & Verschuere, 2024a), Kukucka and Quigley-McBride (2025) critically assessed the validity of our study. The authors warned that our results and interpretations may give an overly pessimistic picture of the effectiveness of the debiasing approach LSU-E (Dror & Kukucka, 2021). Here, we first address what we consider to be their main criticisms of our study and then suggest future avenues for investigating the effectiveness of this promising debiasing method.

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EXPLANATION OF STUDY SPECIFICATIONS

In a preregistered experimental study with 308 informed lay participants, we investigated whether the presentation of irrelevant case information biases criminal risk assessment based on an actuarial-empirical risk assessment tool. We supposed that participants' criminal risk assessment in a fictitious case would be closer to the result of an actuarial-empirical risk assessment tool, and thus less biased, if they were given only relevant case information than if they were additionally given irrelevant case information. Case information was defined as relevant if it was necessary for the application of the actuarial-empirical risk assessment tool, and as irrelevant if it was not.

Critically, we also tested whether this bias could be reduced by presenting irrelevant case information after, rather than before, the application of an actuarial-empirical risk assessment tool. We supposed that sequencing case information could prevent the actuarial-empirical risk assessment tool itself from being biased by irrelevant information, thus reducing the influence of this information on the final judgment of the offender's risk of reoffending.

The participants' criminal risk assessments were indeed biased by the irrelevant case information. Unfortunately, sequencing did not reduce this bias. Participants were equally biased regardless of whether the irrelevant case information was presented after, rather than before, the use of the actuarial-empirical risk assessment tool. Kukucka and Quigley-McBride (2025) voiced several concerns about our study, which we address in the following three sections.

The presentation of irrelevant case information

First, Kukucka and Quigley-McBride (2025) criticised us for examining the role of the presentation of irrelevant case information in order to investigate whether sequencing is an effective debiasing strategy. They point out that according to the LSU-E approach, irrelevant case information should, in fact, be excluded altogether rather than presented later.

Our decision for late presentation rather than simple exclusion of irrelevant case information is based on the specific nature of forensic psychological assessment. In the context of forensic psychological assessment, there is usually little or no guidance as to what case information experts should consider or collect, and how they should evaluate and integrate the case information to answer the legal question. In that respect, forensic psychological assessment differs from other forensic sciences, where it is much clearer what the relevant information is (e.g. fingerprint, DNA sample, or blood spatters). Because of this lack of guidance, experts in forensic psychological assessment have a large degree of freedom in deciding which information to use (Oeberst & Oberlader, 2024).

In the context of criminal risk assessment, for example, there are highly standardized tools, so-called actuarial-empirical risk assessment tools, which contain precise specifications of what case information is needed and how it must be integrated to predict the risk of reoffending. But even these tools do not always specify what information can be used to score the items. In addition, less standardised approaches that do not provide strict specifications are still widely used, with experts often deciding on a case-by-case basis which information is considered risk-relevant and how it is taken into account. In Germany, for instance, experts are legally obliged to carry out a case-specific assessment of the risk of relapse (Dahle, 2010). Thus, we think it is reasonable to assume that experts often make use of task-irrelevant information. This assumption is supported by the observation that the predictive validity of actuarial-empirical risk assessment tools is higher than that of less standardized methods (e.g. Wertz et al., 2023), and that forensic psychologists often weigh in information that is not empirically associated with reoffending (e.g. Huls et al., 2018).

Feedback on the use of the actuarial-empirical risk assessment tool

Second, Kukucka and Quigley-McBride (2025) criticised the fact that we gave participants feedback on the risk score based on the actuarial-empirical risk assessment tool. After using the actuarial-empirical risk assessment tool, participants were given information on what the risk score would have been if the actuarial-empirical risk assessment tool had been used correctly.

The authors rightly point out that the experts do not receive such feedback in a real-life setting, and that this limits the ecological validity of our study. However, as the participants were informed laypeople, we included this feedback to ensure that all participants started from the correct risk score when assessing the criminal risk for recidivism, thereby standardising the baseline for potential bias and debiasing effects. In addition, the feedback was standardised, that is it was given regardless of whether the participants had actually used the actuarial risk assessment tool correctly or not.

No measurement of the processes of change in criminal risk assessment

Third, Kukucka and Quigley-McBride (2025) point out that our study design did not allow us to examine the psychological processes of change in criminal risk assessment as a function of the information presented. In a between-subjects design with three conditions, we were able to test how criminal risk assessment changed depending on (a) whether only relevant or also irrelevant case information was presented and (b) when the irrelevant information was presented. However, we were not able to test to what extent, for example, the evaluation of the relevance of information changed due to the order of presentation. In the next section we will take up this point and present ideas on how this question could be investigated in future studies.

FUTURE DIRECTIONS FOR STUDY SEQUENCING AS A DEBIASING STRATEGY

‘Information hygiene’—controlling the sequence and nature of the processed information—can help to avoid bias (Oberlader et al., 2025), and we highly welcome the LSU-E for providing a framework for dealing with potentially biasing information. To reduce bias, experts should only receive the information they need for a particular step in the assessment. All other information should be kept away from them for as long as possible. Although this idea seems simple at first glance, our initial study shows that it poses challenges for implementation in forensic psychological assessment. These challenges may inspire which elements of LSU-E may be helpful in debiasing forensic psychological assessment, and under what conditions the LSU-E approach may work in forensic psychological assessment.

First, it is important to consider that the LSU-E approach includes other elements in addition to the sequencing of case information (e.g. documenting changes in assessments as new case information is coming in), and future studies should evaluate these components as well as the integral application of LSU-E for forensic psychological assessment. Moreover, these studies could assess their presumed benefits other than minimizing bias, such as increased transparency (Dror & Kukucka, 2021). Second, future research should focus on capturing the psychological processes that take place during the assessment process to understand why the LSU-E approach does (not) work (e.g. how the relevance of case information is assessed; the extent to which experts trust different sources of information). Such processes could, for example, be investigated in think-aloud studies (Somerén et al., 1994). Third, to increase the ecological validity of study results, it would of course be important to consider a sample of experts rather than informed laypeople. Although there are many similarities between different areas of forensic psychological assessment, it is important to examine the effectiveness of the LSU-E approach in relation to other legal issues, such as credibility assessment, in order to test its generalisability or specific boundary conditions (Oberlader & Verschuere, 2024b).

Since we know that bias is not only inherent in human information processing but also very persistent, scientists should be equally persistent in finding ways to make forensic psychological assessment as objective and fair as possible. Numerous approaches have been discussed in the recent past (e.g. Neal et al., 2022; Oberlader et al., 2025; Vredeveltd et al., 2022). Now we need to thoroughly test them.

AUTHOR CONTRIBUTIONS

Verena Oberlader: Conceptualization; writing – original draft. **Bruno Verschuere:** Conceptualization; writing – review and editing.

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The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

There are no data associated with this article.

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REFERENCES

- Casu, M., Guarnera, L., Caponnetto, P., & Battiato, S. (2024). GenAI mirage: The impostor bias and the deepfake detection challenge in the era of artificial illusions. *Forensic Science International: Digital Investigation*, 50, 301795. <https://doi.org/10.1016/j.fsidi.2024.301795>
- Dahal, S., Chaudhary, G. K., & Agrawal, N. K. (2022). Operation Makalu air crash: Influence of cognitive and human factors on decision-making. *Forensic Sciences Research*, 7(4), 803–807. <https://doi.org/10.1080/20961790.2022.2095691>
- Dahle, K. P. (2010). Die Begutachtung der Gefährlichkeits- und Kriminalprognose des Rechtsbrechers. In R. Volbert & K. P. Dahle (Eds.), *Forensisch-psychologische Diagnostik im Strafverfahren*. Hogrefe Verlag GmbH & Company KG.
- Dror, I. E., & Kukucka, J. (2021). Linear Sequential Unmasking–Expanded (LSU-E): A general approach for improving decision making as well as minimizing noise and bias. *Forensic Science International: Synergy*, 3, 100161. <https://doi.org/10.1016/j.fsisy.2021.100161>
- Huls, L., Nentjes, L., Rinne, T., & Verschuere, B. (2018). How reliable are the predictors of sexual recidivism? Moral considerations can colour the judgement of pro Justitia reporters. *Tijdschrift voor Psychiatrie*, 60(2), 78–86.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263–291.
- Kukucka, J., & Quigley-McBride, A. (2025). On the benefits of sequencing case information to combat bias: A commentary on Oberlader and Verschuere (2025). *Legal and Criminological Psychology*.
- Neal, T. M. S., Martire, K. A., Johan, J. L., Mathers, E. M., & Otto, R. K. (2022). The law meets psychological expertise: Eight best practices to improve forensic psychological assessment. *Annual Review of Law and Social Science*, 18(1), 169–192. <https://doi.org/10.1146/annurev-lawsocsci-050420-010148>
- Oberlader, V., Quinten, L., Schmidt, A. F., & Banse, R. (2025). How can I reduce bias in my work? Discussing debiasing strategies for forensic psychological assessments. *Professional Psychology: Practice and Research*. Advance online publication, 56(3), 211–221. <https://doi.org/10.1037/pro0000615>
- Oberlader, V., & Verschuere, B. (2024a). Bias is persistent: Sequencing case information does not protect against contextual bias in criminal risk assessment. *Legal and Criminological Psychology*, 30, 143–158. <https://doi.org/10.1111/lcrp.12279>
- Oberlader, V., & Verschuere, B. (2024b). Experimentelle Studie zu Effektivität einer Debiasing-Strategie in der Forensisch-Psychologischen Begutachtung [Conference Presentation]. 20- Tagung der Fachgruppe Rechtspsychologie in der DGPs, Mainz, Deutschland.
- Oeberst, A., & Oberlader, V. (2024). Degrees of freedom as a breeding ground for biases – A threat to forensic practice. *Law and Human Behavior*, 48(5–6), 519–530. <https://doi.org/10.1037/lhb0000579>
- Ruggeri, K., Ali, S., Berge, M. L., Bertoldo, G., Bjørndal, L. D., Cortijos-Bernabeu, A., Davison, C., Demić, E., Esteban-Serna, C., Friedemann, M., Gibson, S. P., Jarke, H., Karakasheva, R., Khorrami, P. R., Kveder, J., Andersen, T. L., Lofthus, I. S., McGill, L., Nieto, A. E., ... Folke, T. (2020). Replicating patterns of prospect theory for decision under risk. *Nature Human Behaviour*, 4(6), 622–633. <https://doi.org/10.1038/s41562-020-0886-x>

- Someren, M. W. V., Barnard, Y. F., & Sandberg, J. (1994). *The think aloud method: A practical guide to modelling cognitive processes*. American Press.
- Vredevelde, A., van Rosmalen, E. A. J., Van Koppen, P. J., Dror, I. E., & Otgaar, H. (2022). Legal psychologists as experts: Guidelines for minimizing bias. *Psychology, Crime & Law*, 30(7), 705–729. <https://doi.org/10.1080/1068316X.2022.2114476>
- Wertz, M., Schobel, S., Schiltz, K., & Rettenberger, M. (2023). A comparison of the predictive accuracy of structured and unstructured risk assessment methods for the prediction of recidivism in individuals convicted of sexual and violent offense. *Psychological Assessment*, 35(2), 152–164.

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