



# Comment on: diabetic retinopathy and cognitive dysfunction—a systematic review and meta-analysis

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Dear editor,

A recently study by Wu et al. searched available databases and conducted a systematic review and meta-analysis to evaluate the relationship between diabetic retinopathy (DR) and cognitive dysfunction as well as explore the effects of DR on different cognitive domains, which was published in the recent issue of *Acta Diabetologica* [1]. They came to the conclusion that "DR can help to identify people at high risk of cognitive dysfunction." Although the results are of great importance, we should highlight the shortcomings in this meta-analysis for the sake of academic rigor.

First, detailed study registration information should be highlighted and explained in the article. Registering a systematic review protocol is important as it enables the promotion of transparency and avoidance of potential biases including both selection and selective outcome reporting biases.

Second, the authors should further optimize the search strategy and expand the scope of the databases to avoid the omission of the qualified literature. In this meta-analysis, the databases mentioned in the author's article are still inadequate in our view. If some other English databases including Google Scholar, Scopus, NLM Gateway and PsycINFO can also be searched, then it may increase the target articles and thus improve the persuasiveness of the outcomes.

Finally, we agree with the author's conclusion that the evidence supports the significant effects of DR on helping to identify people at high risk of cognitive dysfunction. However, according to the *Cochrane Handbook for Systematic*

*Reviews of Interventions* 5.0, a high inter-study heterogeneity makes definitive conclusions hard to draw; thus, high heterogeneity in the outcomes is our biggest concern. The authors attempted to explain the source of heterogeneity by adequate subgroup analyses, but this did not guarantee that the outcomes were sufficiently stable. We suggest that the traditional random-effects models can be replaced by a new model called Inverse Variance Heterogeneity, which addresses the known problems of underestimation of statistical errors and false overconfidence in random-effects models [2].

Overall, Wu et al. analyzed a valuable issue. High-quality studies with larger sample sizes are still needed in future to confirm these conclusions.

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## Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

## References

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2. Doi SA, Barendregt JJ, Khan S, Thalib L, Williams GM (2015) Advances in the meta-analysis of heterogeneous clinical trials I. The inverse variance heterogeneity model. *Contemp Clin Trials* 45:130–138. <https://doi.org/10.1016/j.cct.2015.05.009>

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