

Letter to the Editor

Cite this article: Kumar S, Mehta R, and Sah R (2025) Comment on 'Diet's total antioxidant capacity and women's health: systematic review and meta-analysis'. *British Journal of Nutrition* **133**: 1418–1419. doi: [10.1017/S0007114525103632](https://doi.org/10.1017/S0007114525103632)

Received: 7 April 2025

Revised: 7 April 2025

Accepted: 23 May 2025

First published online: 20 June 2025

Keywords:


Systematic review; Diet's total antioxidant; Women's health; Meta-analysis

Corresponding author:

Shubham Kumar;

Email: shubham.kumar.g2025@gmail.com

Comment on 'Diet's total antioxidant capacity and women's health: systematic review and meta-analysis'

Shubham Kumar¹ , Rachana Mehta² and Ranjana Sah^{3,4}

¹Center for Global Health Research, Saveetha Medical College and Hospital, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India; ²Clinical Microbiology, RDC, Manav Rachna International Institute of Research and Studies, Faridabad, HR 121004, India; ³Department of Paediatrics, Dr. D. Y. Patil Medical College Hospital and Research Centre, Dr. D. Y. Patil Vidyapeeth (Deemed-to-be-University), Pimpri, Pune 411018, MH, India and ⁴Department of Public Health Dentistry, Dr. D. Y. Patil Medical College Hospital and Research Centre, Dr. D. Y. Patil Vidyapeeth (Deemed-to-be-University), Pimpri, Pune 411018, MH, India

Dear Editor,

We congratulate Dutra et al.⁽¹⁾ for their comprehensive systematic review and meta-analysis, 'Diet's Total Antioxidant Capacity and Women's Health'. This synthesis of nineteen observational studies (ranging from 64 to 3209 women) elegantly elucidates the association between dietary total antioxidant capacity (TAC) and diverse women's health outcomes, including breast cancer, polycystic ovary syndrome, infertility and obstetric conditions. The meta-analysis, particularly the significant finding of lower TAC in breast cancer patients via vitamin C equivalents (VCEs) (MD: −110.53, 95 % CI: −171.53, −49.52), offers valuable insights into antioxidants' protective potential. We applaud the authors' global perspective and rigorous methodology and respectfully suggest enhancements.

The authors' use of JBI's critical appraisal tool to assess methodological quality is a strength, identifying most studies as adequate, save one of lower quality. We propose a sensitivity analysis based on study quality to explore its impact on pooled estimates. Excluding or stratifying lower-quality studies (e.g., Vahid et al., 2021, flagged for unclear exposure exemption) could clarify whether methodological rigour influences the significant VCE-breast cancer association or the mixed ferric reducing antioxidant power (FRAP)/oxygen radical absorbance capacity results ($I^2 = 0\%$ v. 68%). This would enhance robustness, offering readers greater confidence in applying these findings to diverse populations and conditions, from neoplasms to gestational diabetes⁽²⁾.

Additionally, while the review excels in qualitative synthesis, we suggest incorporating the GRADE (Grading of Recommendations Assessment, Development, and Evaluation) framework to assess evidence certainty. GRADE evaluates the risk of bias, inconsistency, indirectness, imprecision and publication bias, providing a structured lens on confidence levels. For instance, the VCE meta-analysis's low heterogeneity ($I^2 = 0\%$) suggests consistency, yet wide CI in FRAP (−1.56 to −0.05) indicate imprecision^(3,4). Applying GRADE could contextualize the moderate-to-high certainty of breast cancer findings against the less certain endometrial cancer or bacterial vaginosis outcomes, guiding clinicians on where evidence is strongest for dietary interventions.

From our clinical perspective, this study resonates deeply. The inverse TAC–breast cancer link aligns with our observations that patients with antioxidant-poor diets report higher disease burdens, supporting dietary counselling for prevention. Similarly, reduced menopausal symptoms and obstetric risks with higher TAC reinforce nutrition's role in women's health management^(5,6). However, the predominance of Iranian studies (12/19) prompts us to consider cultural dietary variations – our patients' diverse food patterns may yield different TAC profiles. We gently encourage future research to broaden geographic representation and standardize TAC methods (e.g. FRAP v. VCE) to enhance generalizability, aiding practical application in our settings.

Dutra et al.'s work is a laudable contribution to nutritional science, illuminating dietary TAC's health benefits for women. We respectfully suggest a quality-based sensitivity analysis and GRADE assessment to refine this robust analysis, complemented by our call for broader clinical applicability. This study poised to inform health strategies, and we eagerly await its final publication.

Acknowledgements. None

No funding was received.

R. M. and R. S. critically provided comments on methodological aspects. R. M. and S. K. wrote the final draft.

Not applicable since no human participants were involved in this article

The authors report no conflict of interest.

References

1. Dutra TA, Fragoso MBT, Wanderley TM, *et al.* (2025) Diet's total antioxidant capacity and women's health: systematic review and meta-analysis. *Br J Nutr* 1–29.
2. Int'Hout J, Ioannidis JP, Rovers MM, *et al.* (2016) Plea for routinely presenting prediction intervals in meta-analysis. *BMJ open* 6, e010247.
3. Li C, Zhang Z, Luo X, *et al.* (2025) The triglyceride–glucose index and its obesity-related derivatives as predictors of all-cause and cardiovascular mortality in hypertensive patients: insights from NHANES data with machine learning analysis. *Cardiovasc Diabetol* 24, 47.
4. Yin L, Kuai M, Liu Z, *et al.* (2025) Global burden of chronic kidney disease due to dietary factors. *Front Nutr* 11, 1522555.
5. Chen Z, Wen Y, Li W, *et al.* (2025) Geriatric nutritional risk index as a predictor of mortality in women with chronic inflammatory airway disease: evidence from NHANES 1999–2018. *Front Nutr* 12, 1547952.
6. Chen N & Pan J (2022) The causal effect of delivery volume on severe maternal morbidity: an instrumental variable analysis in Sichuan, China. *BMJ Global Health* 7, e008428.