# Critical appraisal of methodological rigor in a systematic review on post-COVID-19 vaccination-associated olfactory dysfunction*

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**Dear Editor:**

We read with keen interest the article by Kawabata et al. titled "Olfactory disorder after COVID-19 vaccination," which explores 16 cases of olfactory dysfunction temporally associated with vaccination [1]. The paper addresses an important and under-recognized topic; however, several methodological aspects warrant clarification to aid accurate interpretation.

First, the inclusion of five institutional cases within a review otherwise presented as PRISMA-compliant raises questions regarding methodological consistency. Under PRISMA, all included studies should be identified through transparent and reproducible database searches [2]. Clarifying whether institutional data were processed separately from literature-derived cases would strengthen transparency and avoid confusion about the evidence level.

Second, while the review briefly mentions normal nasal endoscopy findings, information on relevant comorbidities—such as chronic rhinosinusitis, neurodegenerative, autoimmune, or metabolic disorders—is not provided. These conditions may influence olfactory performance and could confound causal inference. Although it is unlikely that an experienced group in olfactory research would overlook such diagnoses, explicit reporting of baseline health status would reinforce the study's validity.

Third, the diagnostic tools used across cases were heterogeneous. Patients were assessed using either the Sniffin' Sticks or T&T olfactometry tests, which, though individually validated, apply different scoring systems. Harmonizing interpretation across these instruments—or at least providing categorical comparisons (e.g., normosmia, hyposmia, anosmia)—would improve comparability [3].

Another limitation is the absence of a comparator cohort. While systematic reviews typically synthesize published data rather than include control groups, a contextual comparison with vaccinated individuals without olfactory complaints or with post-COVID-19 olfactory loss could help distinguish vaccine-related effects from background occurrences. Moreover, undiagnosed prior infection remains a possible confounder despite negative PCR findings.

Finally, the observed female predominance (3:1) may reflect biological susceptibility or reporting bias. The wide variability in symptom duration (days to > 1 year) and non-standardized interventions further underscore the need for uniform follow-up and outcome reporting.

In summary, this review provides valuable descriptive evidence on a rare and difficult-to-prove phenomenon. Clearer methodological separation between institutional cases and systematic data, standardized diagnostic reporting, and detailed baseline characterization would enhance future research on post-vaccination olfactory disturbances. We commend the authors for highlighting an emerging clinical concern and hope these remarks assist in refining subsequent investigations.

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## Conflict of interest

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