



# IL-6 serum level and olfactory dysfunction severity in COVID-19: correspondence

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Dear Editor, we would like to comment on the publication “Correlations between IL-6 serum level and olfactory dysfunction severity in COVID-19 patients: a preliminary study [1].” Vaira et al. concluded that “In COVID-19 patients, psychophysical olfactory scores did not show significant correlations with the plasma levels of a well-recognized negative prognostic factor such as IL-6. This observation casts some shadows on the positive prognostic value of olfactory dysfunctions. [1].” We agree that it is interesting to try to find clinical correlation between olfactory symptom and a laboratory parameter for inflammation. Regarding IL-6, it is an inflammatory marker and might be associated with many confounding factors. Nevertheless, an important concern on this report is on the statistical method. In general, a correlation analysis is based on the two continuous parameters, which are derived from measurement. In the present work, IL-6 is a continuous parameter but the psychophysical olfactory scores are derived from a scoring system and is a numerical scale from a basic counting. Therefore, the correlation should not be valid and the derived coefficient parameter cannot be further interpreted. This kind of pitfall is a common statistical error in clinical association study [2].

## Declarations

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

## References

1. Vaira LA, De Vito A, Deiana G et al (2022) Correlations between IL-6 serum level and olfactory dysfunction severity in COVID-19 patients: a preliminary study. *Eur Arch Otorhinolaryngol* 279:811–816
2. Ludbrook J (2008) Statistics in biomedical laboratory and clinical science: applications, issues and pitfalls. *Med Princ Pract* 17(1):1–13

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