



Patient-Reported Outcome Questionnaires for the evaluation of olfactory and gustatory dysfunctions in COVID-19

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Dear editor,

We read the letter of Passali and Bentivoglio [1] about our epidemiological study entitled “Olfactory and gustatory dysfunctions as a clinical presentation of mild-to-moderate forms of the coronavirus disease (COVID-19): a multicenter European study” [2]. The authors stated that the use of the short version of the Questionnaire of Olfactory Disorders-Negative Statements (sv-QOD-NS) may bias the evaluation of the prevalence of the olfactory dysfunction (OD) in our population regarding the social anxiety, annoyance and the eating questions of sv-QOD-NS in a context of pandemic, which involves hospitalized and isolated patients.

We wish to remind that the aim of the study was to evaluate the prevalence of self-reported smell and taste loss in

the European mild-to-moderate COVID-19 patients and the majority of them were not hospitalized. The lower smell loss prevalence (25–30%) reported by Passali and Bentivoglio could be due to differences in severity of COVID-19 population (hospitalized versus non-hospitalized).

At the time of the study conduction, there were no data supporting the recognition of the smell and taste impairments as prevalent COVID-19 disorders. The assessment of the prevalence of both olfactory and gustatory self-reported dysfunctions was based on the smell and taste component of the National Health and Nutrition Examination Survey (NHANES), [3] and not on the sv-QOD-NS, which was only used to evaluate the quality-of-life impact of OD.

NHANES is a population survey that was implemented by the Centers for Disease Control and Prevention to continuously monitor the health of adult citizens in the United States through a national representative sample of 5000 persons yearly [3]. We strongly argue that these questions covered qualitative and quantitative chemosensory symptoms encountered in smell and taste consultation. For example, the questions provided us valuable data about subjective alteration of taste perception (oral detection of salty,

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sweet, bitter and sour) and aroma perception (detection of molecules flowing from the oral cavity to the nasopharynx and back to the olfactory cleft). Alteration of both, olfactory and taste function, has been further confirmed by Vaira et al. who reported patients with psychophysically measured olfactory loss without gustatory loss and vice versa [4].

In our questionnaire, we also included other questions about other ear, nose, and throat symptoms including rhinological complaints. We observed that the self-reported OD was not associated with nasal symptoms suggesting the absence of nasal inflammation, which was recently supported by the psychophysical assessments or imaging studies [5, 6].

Although we acknowledge that large media coverage of these symptoms in the pandemic context may lead to overestimation of self-reported chemosensory loss, we are confident that we used a reliable patient-reported outcome questionnaire to assess the prevalence of self-reported olfactory and gustatory dysfunction during the COVID-19 pandemic.

As abovementioned, the large media coverage of these symptoms in both Western Europe and US may be a factor that may support a potential overestimation of OD compared with Asia where the prevalence seems to be lower. The lower OD prevalence in Asia compared with Europe and US [7], has been suggested in the Letter of Wee et al. [8], who reported less than 30% of OD in their COVID-19 population. In addition to the media effect, the differences between Asian and Caucasian patients (e.g., Europe and US) could be explained by polymorphisms in angiotensin converting enzyme-2 (ACE2) expression [9, 10], which is reported among European populations and could exist between world regions.

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Compliance with ethical standards

Conflict of interest The author had no conflict of interest.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

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