

Psychophysical evaluations are important, usefulness and usability approaches to study the smell disorder related to COVID-19

Dear Editor,

We read the letter of Arana Fernandez *et al.* regarding our paper entitled 'Prevalence and 6-month recovery of olfactory dysfunction: a multi-centre study of 1363 COVID-19 patients' [1]. The authors [2] highlighted the fact that psychophysical olfactory evaluations (Sniffin' Sticks test) are not objective but subjective testing. We partly agree with this statement. The Sniffin' Sticks test (Burghardt®, Wedel, Germany) is a psychophysical test developed by Hummel in 1997 that allows a semi-objective assessment of the patient's olfactory performance [3]. The terminology 'semi-objective' is used by many physicians [3] and refers to an evaluation that is midway between objective and subjective evaluations. The popularity of psychophysical evaluations is related to its usefulness and usability in clinical practice. Arana Fernandez *et al.* explained that the olfaction may be objectively assessed with olfactory-evoked potential, functional magnetic resonance imaging or electro-olfactogram, which may all evaluate the objective olfactory function. These approaches are all objective but not available in the majority of hospitals, they are not covered by many national health insurance system, especially olfactory-evoked potential and electro-olfactogram, and their usefulness in clinical practice is still not demonstrated [4]. The usefulness of MRI as an objective olfactory assessment method in smell disorder related to COVID-19 is not demonstrated regarding the lack of identification of specific indicators of olfactory dysfunction [5]. The psychophysical evaluations, also called semi-objective testing [3], remain interesting regarding the availability, usability and the fact that they were all validated in many studies [3, 6-8]. Another advantage is the fast learning of the approach for physicians who aim to perform Sniffin' Sticks test. Moreover, the Sniffin' Sticks test results may give the patient concrete feedback about its ability to detect fragrance at baseline and over the recovery time. The use of semi-objective testing is strengthened by the frequent occurrence of a mismatch between the severity of patient


self-reported olfactory dysfunction and the results of semi-objective tests [9]. Because the olfactory clinics may be overloaded by anosmic and hyposmic patients since the onset of the pandemic, we encourage the use of Sniffin' Sticks in general otolaryngological and nonuniversity departments. According to these points, we still believe that the use of the objective olfactory approaches is not clinically realistic regarding the cost, the availability and the usability of methods in a context of increasing consultations of patients for smell dysfunction. We agree with the fact that Sniffin' Sticks is not an objective but a semi-objective approach. The authors stated that 'the use of suitable and correct terminology, well-validated tests, and unified classifications are indispensable to achieve homogeneous and comparable results'. Regarding the validation of the Sniffin' Sticks, we refer the authors to the papers in which Sniffin' Sticks [6-8], including 16-pen [7], were validated. Note that the validation studies of the Sniffin' Sticks included patients from Austria [7], UK [8] or Germany [6], who are close to our patients from an ethnicity standpoint.

Conflict of interest

The authors have no conflicts of interest.

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