Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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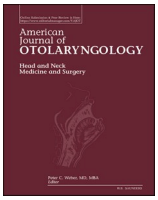

The detection of smell disorder depends on the clinical tools

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Dear Editor,

We read the paper of Patel et al. entitled "Five-item odorant test as an indicator of COVID-19 infection in a general population [1]". Authors evaluated the reliability of the 5-item odorant test in determining the COVID-19 status in the general population. The authors used the real-time polymerase chain reaction (RT-PCR) to detect severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, thus assessing different sensitivity and specificity levels of 5-odor testing [1]. We congratulate the authors for this interesting study because testing olfactory function as detection approach for SARS-CoV-2 infection is undoubtedly cost-effective. Indeed, the acute loss of smell was an unusual symptom before the coronavirus disease 2019 era, and it is probably the natural clinical signature of mild and moderate forms of the disease [2,3]. In this letter, we would like to draw attention to some important points.

First, the prevalence of smell disorders in the general population is around 20% and may be related to neurological, traumatic, or several otolaryngological conditions [4]. It is unclear if Patel et al. excluded from the analysis individuals with some conditions associated with olfactory dysfunction (OD), *i.e.*, chronic rhinosinusitis, neurological disorders, or post-traumatic lesion of the olfactory nerve.

Second, the most important problem of RT-PCR testing remains its sensitivity (60–90%), which may significantly vary based on the experience of the practitioner who performs the swab, the swab site (nasopharynx *versus* oral cavity), and the phase of the infection in which the swab is performed [5]. In the study of Patel et al., this diagnostic method was considered the gold standard to compare the 5-item odor testing and determine its specificity and sensitivity. However, there were no details about how the swabs were performed, especially the site of sampling and the experience of the practitioners who performed the swab.

Third, most authors agreed that the reliability of the tool used influences the detection of OD. Depending on the method used to evaluate the olfaction, the prevalence of OD may vary [6,7]. Self-reported subjective evaluations reported poor reliability [6]. The psychophysical olfactory evaluations are currently considered the best cost-effective approach for detecting OD. To date, several psychophysical tools with a different number of tasks and odorants are available for clinicians to use to measure olfactory function. Interestingly, the prevalence of OD may vary according to the number and the type of odorant used. The impact of the psychophysical olfactory test used on the prevalence of OD was highlighted in the first European studies, where the prevalence varied even among close populations [8–10]. In these studies, the use of the full set threshold/discrimination/identification Sniffin' Sticks test (TDI) or Connecticut Chemosensory Clinical Research Center orthonasal olfaction test reported a higher prevalence of OD than the use of identification part of the Sniffin' Sticks test [8–10]. Thus, it would be interesting to compare the 5-odor results with a TDI examination in a population sample to have an idea about the usefulness and better assess the reliability of 5-odor testing. However, we congratulate the authors for this interesting study and encourage future teams to evaluate the reliability of 5-odor testing with TDI and COVID-19 diagnosis approaches with better sensitivity and specificity values.

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