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Clinical Letter

The Omicron variant of SARS-CoV-2 and its effect on the olfactory system

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Soon after the coronavirus disease (COVID-19) pandemic began to unfold, an altered sense of smell and taste was quickly identified as one of the most common yet unusual symptoms. Our previous 2020 correspondence reported typical nasal manifestations of other upper respiratory tract infections, such as rhinorrhea, to be uncommon in patients with COVID-19.[1] This was followed by the addition of this symptom to the clinical profile to screen for COVID-19 by the Center for Disease Control and Prevention and the World Health Organization.[2] A novel SARS-CoV-2 B.1.1.529 variant of concern, designated Omicron, was reported in November 2021, with initial cases reported from South Africa but with scientists quickly identifying the variant all across the globe. Compared to previous variants, Omicron has proven to have much higher transmissibility and infectivity but reduced tropism for the lower airway.[3]

A study by Nicole Wolter et al. reported a significant reduction in disease severity and hospitalizations in patients infected by the Omicron variant, which has been born out in global data reported since that time, likely owing to the high frequency of mutations in the spike glycoprotein.[4] Although real-time emerging data have confirmed a spike in the number of infections worldwide, a relatively lower rate of severe COVID-19 has been observed, probably due to a combination of growing vaccination coverage, partial immunity from prior infection, and lower virulence of the virus itself.

Interestingly, the Omicron variant of SARS-CoV-2 appears to have a markedly different clinical profile than the previous variants. We report the results of 205 individuals (male: 66.3%, female: 33.7 %) who tested positive for SARS-CoV-2 with the Omicron variant through established genomic sequencing, from December 21, 2021 to January 10, 2022. Surprisingly, 68.8% had no altered sense of smell, 18% had only mild smell dysfunction, and 13.2% complained of complete anosmia. The impact on the self-reported sense of taste was similar, with no symptoms in 66.8% of individuals, partial loss of taste in 21%, and complete loss in 10.2%.

In general, among the predominant symptoms, nasal congestion was the most common, reported by 62% ($n = 127$) patients, followed by rhinorrhea (57.5%, $n = 118$), fatigue (55.1%, $n = 113$), fever (53.6%, $n = 110$), malaise and/or myalgia (52.1%, $n = 107$), and cough (50.7%, $n = 104$) (Figure 1).

History of prior infection with SARS-CoV-2 was reported in 15.6% ($n = 32$) individuals. Within this smaller cohort, loss of sense of smell was seen at a lower rate than the overall study population, with a partial loss noted in 18.7% and a complete loss in 6.2% (Table 1).

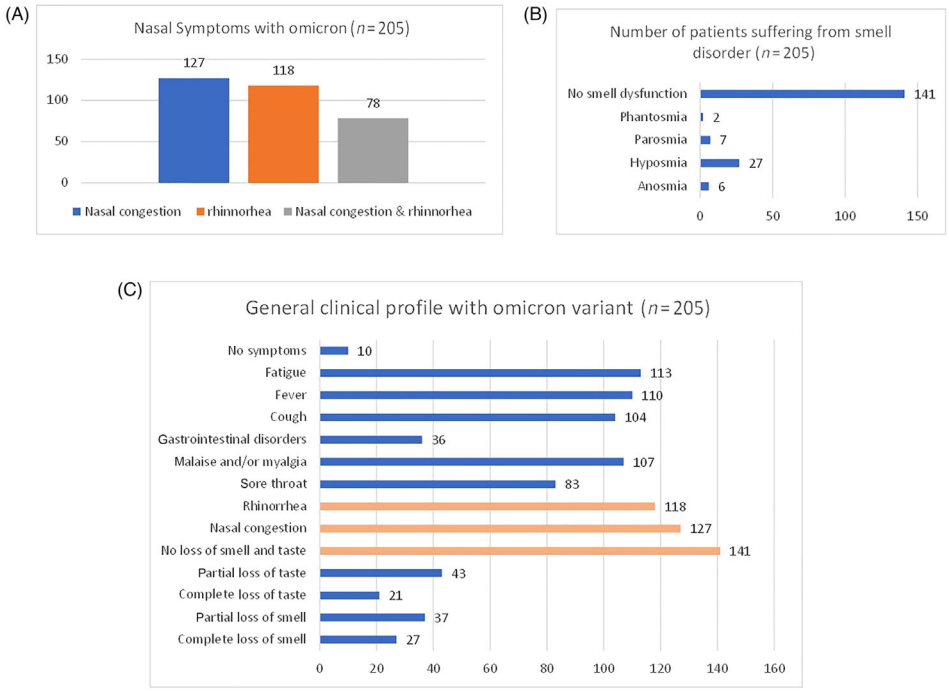

FIGURE 1 Clinical characteristics of 205 individuals (male: 66.3%, female: 33.7 %) who tested positive for the Omicron variant of SARS-CoV-2. (A) Predominant nasal symptoms. (B) Different types of olfactory disturbances experienced by the overall study group. (C) General clinical profile.

TABLE 1 The loss of smell and taste in the overall study population, and in patients with a history of prior infection with SARS-CoV-2, of patients who test positive for the Omicron variant

	Overall study population ($n = 205$)		
Loss of smell	**n**	**(%)**	
Partial	37	18	
Complete	27	13.2	
None	141	66.8	
	Overall study population ($n = 205$)		
Loss of taste	**n**	**(%)**	
Partial	43	21	
Complete	21	10.2	
None	141	66.8	
	Patients with a history of prior infection with SARS-CoV-2 ($n = 32$)		
Loss of smell	**Yes**	**No**	**Total**
Partial	6	31	37
Complete	2	25	27
None	24	117	141
	Patients with a history of prior infection with SARS-CoV-2 ($n = 32$)		
Loss of taste	**Yes**	**No**	**Total**
Partial	6	37	43
Complete	1	20	21
None	25	116	141

Our study findings support the decreased observation of isolated smell and taste loss with the Omicron variant in comparison with previous variants of SARS-COV-2, in accordance with the study findings by Menni et al. and Coelho DH et al.[5,6] Instead, Omicron appears to have lesser tropism for the lower airways, and predominant upper respiratory disease, including nasal congestion, sore throat, headache, fatigue, and cough, with clinical expressiveness that appears comparable to other coronaviruses such as OC-43, making it much less distinguishable from other common upper respiratory infections. Highlighting the change in presentation of the Omicron variant is important, as continued overreliance on the loss of smell as a diagnostic marker will lead to most cases being overlooked. Although still present in 20% to 30% of patients, this relative sparing of the olfactory sense will lead to a significant reduction in the long-term morbidity associated with COVID-19 by decreasing the overall percentage of COVID-19 patients who will suffer from long-term severe olfactory loss.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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