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Letter to the Editor

Analysis of online search trends suggests that SARS-CoV-2 Omicron (B.1.1.529) variant causes different symptoms



Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus responsible for the ongoing coronavirus disease 2019 (COVID-19) pandemic outbreak, is undergoing a progressive evolution characterized by accumulation of several non-synonymous mutations in its genome, garnered for better adaptation to its human host.¹ The most recently emerged SARS-CoV-2 variant called Omicron (B.1.1.529) is raising considerable concern due to the presence of a large number of mutations (more than 30) in the spike protein, which may have substantial impact on infectivity, virulence and pathogenicity of the virus.² Preliminary evidence suggests that the new Omicron variant may cause different symptoms and trigger outbreaks associated with less severe illness compared to outbreaks with previous strains,³ with predominance of milder clinical manifestations such as rhinorrhoea, sneezing, sore throat, headache and fatigue.⁴

To provide further insights on this matter, we conducted an electronic search in Google Trends (Google Inc. Mountain View, CA, US), using the most frequent COVID-19 symptoms as search terms (listed in Fig. 1– translated in Italian).⁵ We used country option set to “Italy” and the search periods ranged between January 3 and 9, 2022 (predominance of Omicron variant) and January 2–8, 2021 (predominance of Alpha variant). The weekly Google Trends score of each symptom, reflecting relative popularity of the search term during a specified time range (i.e., number of searches received by Google), was downloaded into a Microsoft Excel file (Microsoft, Redmond, WA, United States) and graphically plotted as percent variation in 2022 compared to the same period in 2021. The study was conducted in accordance with the Declaration of Helsinki, under the terms of relevant local legislation. This analysis was based on electronic searches in the unrestricted, publicly available national repositories, and thus no informed consent or Ethical Committee approvals were required.

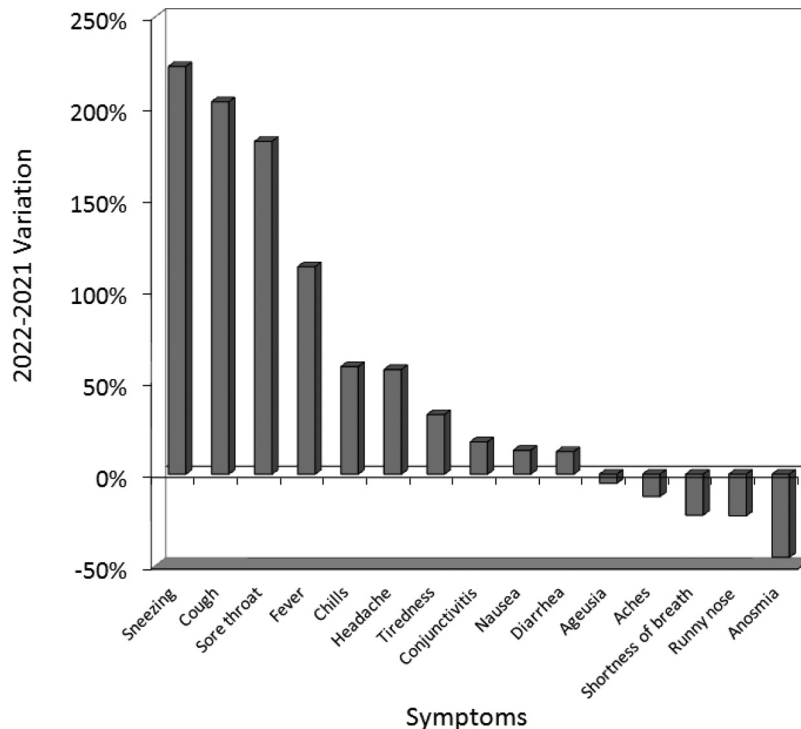


Fig. 1. Percent variation of Google searches in the UK between 20 and 26 December 2020 (predominance of Alpha variant) and 19–25 December 2021 (Omicron prevalence >80%).

Abbreviations: SARS-CoV-2, Severe acute respiratory syndrome coronavirus 2; COVID-19, Coronavirus disease 2019.

The results of our analysis are shown in Fig. 1. Most symptoms increased in 2022 compared to 2021, though six (i.e., sneezing, cough, sore throat, fever, chills and headache) displayed >50% increase whilst five (i.e., ageusia, aches, shortness of breath, runny nose and anosmia) were found to be less searched in 2022 compared to the same period in 2021.

The results of this early infodemic analysis suggest that the diffusion of highly mutated SARS-CoV-2 variants may be associated with a progressive evolution of the clinical picture. Specifically, the actual predominance of the Omicron (B.1.1.529) variant in the Italy (>80% cases) was associated with a remarkably higher number of Google searches for upper respiratory symptoms mirroring those of common cold and flu, accompanied by a considerable lower interest for shortness of breath (over 20% reduction). Since dyspnoea is a paradigmatic sign of lower pulmonary tract infection (e.g., SARS-CoV-2 pneumonia), this infodemic evidence supports preliminary claims that the Omicron variant outbreak (due to either alterations in intrinsic viral pathogenicity and/or enhanced general population immunity) may be associated with less severe illness compared to outbreaks with previous strains.

Declaration of Competing Interest

The authors have no relevant competing interest to disclose in relation to this work.

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