

Is SARS-CoV-2 Omicron (B.1.1.529) variant causing different symptoms?

Giuseppe Lippi (✉ giuseppe.lippi@univr.it)

Camilla Mattiuzzi

Brandon M. Henry

Short Report

Keywords: SARS-CoV-2, COVID-19, Omicron, Variants, Symptoms

Posted Date: January 6th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1214484/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at Journal of Infection on February 1st, 2022.

See the published version at <https://doi.org/10.1016/j.jinf.2022.02.011>.

Is SARS-CoV-2 Omicron (B.1.1.529) variant causing different symptoms?

Giuseppe Lippi¹, Camilla Mattiuzzi², Brandon M. Henry^{3,4}

1. Section of Clinical Biochemistry and School of Medicine, University of Verona, Italy.
2. Service of Clinical Governance, Provincial Agency for Social and Sanitary Services, Trento, Italy.
3. Clinical Laboratory, Division of Nephrology and Hypertension, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA
4. Disease Intervention & Prevention and Population Health Programs, Texas Biomedical Research Institute, San Antonio, Texas, USA

Short title: SARS-CoV-2 Omicron symptoms

Type of article: Short Report

Corresponding author:

Prof. Giuseppe Lippi
Section of Clinical Biochemistry
University Hospital of Verona
Piazzale L.A. Scuro, 10
37134 Verona - Italy
Tel. 0039-045-8122970
Fax. 0039-045-8124308
Email: giuseppe.lippi@univr.it

Summary

Background: Since preliminary evidence suggests that the new SARS-CoV-2 Omicron (B.1.1.529) variant may cause different symptoms and trigger outbreaks associated with less severe illness compared to previous strains, we conducted an infodemic analysis to verify these suppositions.

Methods: We searched Google Trends using the most frequent COVID-19 symptoms, with “United Kingdom” country option and search periods “20-26 December 2020” (predominance of Alpha variant) and “19-25 December 2021” (Omicron prevalence >80%).

Results: Seven symptoms (i.e., conjunctivitis, chills, cough, aches, fever, nausea and sore throat) appeared to be more searched in 2021 compared to 2020 (i.e., >15% increase), five symptoms (i.e., anosmia, tiredness, ageusia, sneezing and shortness of breath) were found to be less searched in 2021 compared to 2020 (i.e., >15% decrease), whilst the number of Google searches for headache, diarrhea and runny nose were almost comparable between the two periods (i.e., <15% variation).

Conclusion: Actual predominance of Omicron (B.1.1.529) variant in UK is associated with higher number of Google searches for mild symptoms (conjunctivitis, chills, cough, aches and fever), accompanied by considerable lower interest for a severe clinical sign like shortness of breath, which characterizes lower respiratory tract infection.

Keywords: SARS-CoV-2; COVID-19; Omicron; Variants, Symptoms

Introduction

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 a predominance of milder clinical manifestations such as rhinorrhoea, sneezing, sore throat, headache and fatigue (4).

Materials and Methods

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 Figure 1) (5). We used country option set to “United Kingdom” and the search period ranged between December 20, 2020 and December 25, 2021. Two similar periods in the past two years were compared in our analysis, i.e., “20-26 December 2020” (predominance of Alpha variant in the UK) and “19-25 December 2021” (Omicron prevalence >80% in the UK) (6). 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 2021 compared to the same period in 2020.

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.

Results

The results of our analysis are shown in Figure 1. Seven symptoms (i.e., conjunctivitis, chills, cough, aches, fever, nausea and sore throat) appeared to be more searched in 2021 compared to 2020 (i.e., >15% increase), five symptoms (i.e., anosmia, tiredness, ageusia, sneezing and shortness of breath) were found to be less searched in 2021 compared to 2020 (i.e., >15% decrease), whilst the number of Google searches for headache, diarrhea and runny nose were almost comparable between the two periods (i.e., <15% variation).

Discussion

The results of this early infodemic analysis suggest that 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 UK is associated with a remarkably higher number of Google searches for symptoms like conjunctivitis, chills, cough, aches and fever, accompanied by considerable lower interest for shortness of breath (nearly 50% 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.

Funding

This work received no funding

Conflicts of Interest

The authors have no conflicts of interest to disclose

References

1. Lippi G, Mattiuzzi C, Henry BM. Updated picture of SARS-CoV-2 variants and mutations. *Diagnosis (Berl)*. 2021 Dec 23. doi: 10.1515/dx-2021-0149. Epub ahead of print.
2. Islam R, Hossain J. Detection of Omicron (B.1.1.529) variant has created panic among the people across the world: What should we do right now? *J Med Virol*. 2021 Dec 23. doi: 10.1002/jmv.27546. Epub ahead of print.
3. Mahase E. Covid-19: Hospital admission 50-70% less likely with omicron than delta, but transmission a major concern. *BMJ* 2021;375:n3151.
4. Iacobucci G. Covid-19: Runny nose, headache, and fatigue are commonest symptoms of omicron, early data show. *BMJ* 2021;375:n3103.
5. Mattiuzzi C, Henry BM, Lippi G. Is diffusion of SARS-CoV-2 variants of concern associated with different symptoms? *J Infect*. 2021 Jul 15:S0163-4453(21)00347-9. doi: 10.1016/j.jinf.2021.07.008. Epub ahead of print.
6. UK Health Security Agency. SARS-CoV-2 variants of concern and variants under investigation in England: technical briefing 33. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1043807/technical-briefing-33.pdf. Last access: 28 December 2021.

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

