

Anosmia and olfactory training – A Google Trends analysis*

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Rhinology Online 5: 183 - 184, 2022

<https://doi.org/10.4193/RHINOL/22.021>

*Received for publication:

July 23, 2022

Accepted: December 8, 2022

Published: December 15, 2022

Dear Editor:

Google Trends (GT) is an online and free tool of Google Inc. in big data analytics, that uses the Google's search engine to show how often a given search term is looked for ⁽¹⁾. Providing information by region and time periods, it can be used to study general public interest and awareness in several medical topics, as well as to measure the impact of awareness campaigns in the society, trying to face disinformation sources that are ubiquitous in our current times ⁽²⁻⁵⁾.

The relationship between anosmia and coronavirus disease 2019 (COVID-19) has been recognized since the early beginning of the current pandemic ^(6,7) and in the third year of the pande-

mic it's still a relevant area of investigation ⁽⁸⁾. Olfactory training remains one of the most powerful treatments, recommended by the Clinical Olfactory Working Group ⁽⁹⁾.

Anosmia Awareness (anosmiaawareness.org) ⁽¹⁰⁾ is a non-profitable organization established with the objective to increase public awareness about loss of smell in order to encourage research centers all over the world to explore treatment options for patients with anosmia. Anosmia Awareness Day (AAD) is celebrated internationally on the 27th February since 2012 ⁽¹⁰⁾. To evaluate whether the AAD campaign increases public interest in anosmia and its treatment, we conducted a GT search to look for any increase in the Relative Search Volume (RSV) over time.

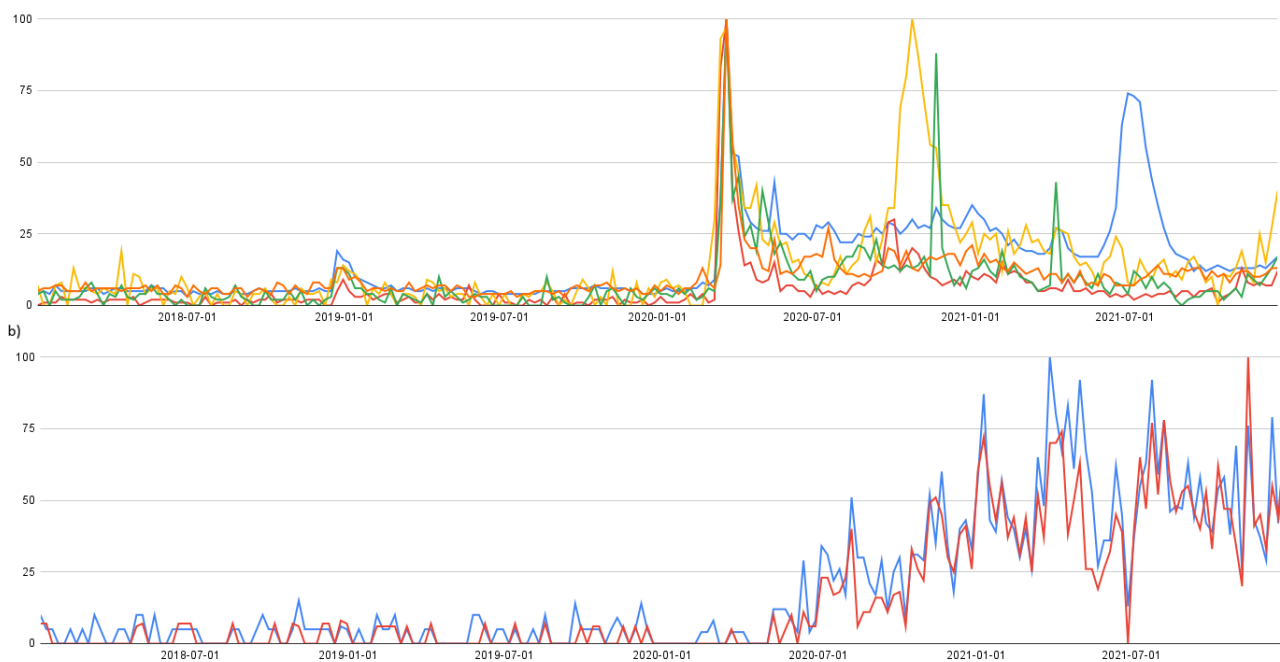


Figure 1. a) Relative search volume from January 2018 to December 2021 of the search term "Anosmia": Worldwide (blue line), France (red line), Italy (yellow line), Spain (green line) and USA (orange line). The highest interest on a search query is quantified as 100 relative search volume (RSV), decreasing to 0 RSV, indicating no interest. b) RSV from January 2018 to December 2021 of the search term "Olfactory Training": Worldwide (blue line) and USA (red line).

RSV ranges from 0 to 100, representing search interest in a specific search term relative to its peak of popularity (RSV =100) for a given region and time, but it doesn't demonstrate the absolute search volume. Our search included two terms: "Anosmia" and "Olfactory Training", that we translated into the five most spoken languages worldwide (english, mandarin, hindi, french and spanish). The search has been performed on the 23th of november, 2022.

We conducted a visual analysis of the RSV-timelines for every year between 2018 and 2021, at a worldwide level, and in 3 European countries with different speaking languages (France, Italy, and Spain) and in the United States of America (USA).

In the visual trend analyses we did not find any increase in research for anosmia or olfactory training in result of the AAD celebration (Figures 1a and b).

Our analyses revealed an increase in search for anosmia beginning in March 2020, with one or two popularity peaks. All searches showed a peak in March 2020, and in Italy, Spain and worldwide, we also observed a second peak in July 2021, October and November 2020 respectively (Figure 1a). These findings are probably related to the beginning of the COVID-19 pandemic and the establishment of anosmia as a symptom of these disease.

As for olfactory training, there was also an increase in interest that lagged until May 2020, but there was not enough data to observe this in France, Italy or Spain (Figure 1b).

In conclusion, the data presented suggests that the mentioned sensibilization campaign do not consistently increase popu-

lation's interest in loss of smell and its management, as it was already found with other respiratory disease campaigns⁽²⁾. Since the beginning of the COVID-19 pandemic, the interest in these topics has consistently increased and might be an opportunity to spread knowledge to the general public about this topic. Nevertheless we must strive to elaborate new strategies to increase the effectiveness of awareness campaigns as a tool to increase health literacy in the general population.

Acknowledgements

Not applicable.

Authorship contribution

RSP wrote the protocol, analyzed and interpreted the patient data. All authors read and approved the final manuscript.

Conflict of interest

The authors declare that they have no competing interests.

Funding

Not applicable.

Ethics approval and consent to participate

Not applicable.

Availability of data and materials

Google Trends: <https://trends.google.pt/trends/?geo=PT>. [Publised 2022](https://trends.google.pt/trends/?geo=PT). [accessed November 23 2022].

References

1. Google Trends. <https://trends.google.pt/trends/?geo=PT>. Published 2022. [accessed November 23 2022].
2. Gomes RE, Saraiva I, Morais-Almeida M. Awareness and education in lung diseases: are we reaching the target? *Pulmonology*. 2022;28(5):330-332.
3. Pier MM, Pasick LJ, Benito DA, Alnouri G, Sataloff RT. Otolaryngology-related Google Search trends during the COVID-19 pandemic. *Am J Otolaryngol*. 2020;41(6):102615.
4. Barbosa MT, Morais-Almeida M, Sousa CS, Bousquet J. The "Big Five" lung diseases in COVID-19 pandemic - a Google Trends analysis. *Pulmonology*. 2021;27(1):71-72.
5. Camacho B, Aguiar R, Tanno LK, Ansotegui IJ, Morais-Almeida M. Anaphylaxis and COVID-19 vaccines: real-time interest using Google Trends. *World Allergy Organ J*. 2021;14(8):100570.
6. Qiu C, Cui C, Hautefort C, et al. Olfactory and gustatory dysfunction as an early identifier of COVID-19 in adults and children: an international multicenter study. *Otolaryngol Head Neck Surg*. 2020;163(4):714-721.
7. Hopkins C. Two years of COVID-19 - smell is still stealing the spotlight on the rhinology stage. *Rhinology*. 2022;60(2):81.
8. Addison AB, Wong B, Ahmed T, et al. Clinical Olfactory Working Group consensus statement on the treatment of postinfectious olfactory dysfunction. *J Allergy Clin Immunol*. 2021;147(5):1704-1719.
9. Addison AB, Wong B, Ahmed T, Macchi A, Konstantinidis I, Huart C, Frasnelli J, Fjaeldstad AW, Ramakrishnan VR, Rombaux P, Whitcroft KL, Holbrook EH, Poletti SC, Hsieh JW, Landis BN, Boardman J, Welge-Lüssen A, Maru D, Hummel T, Philpott CM. Clinical Olfactory Working Group consensus statement on the treatment of postinfectious olfactory dysfunction. *J Allergy Clin Immunol*. 2021;147(5):1704-1719.
10. Anosmia Awareness. <https://www.anosmia-awareness.org/>. Published 2022. [accessed March 29 2022].

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