

Google Trends analysis of teledermatology interest in the United States during the COVID-19 pandemic



To the Editor COVID-19 pandemic guidelines on social distancing, state/city stay-at-home rules, and advocacy for payment parity have created demand for and access to telehealth.^{1,2} A 2020 survey of over 500 dermatologists showed that prior to the pandemic only 14.1% of responders had used teledermatology compared to 96.9% during the pandemic.³ We used Google Trends relative search volume for the keywords “telehealth dermatology” as an indicator of public interest in teledermatology. Interest in teledermatology in the prepandemic (January 2017-March 2020) and pandemic (March 2020-December 2022) periods were compared, as well as search volume trends in teledermatology to other medical specialties. Finally, we also assessed correlation between teledermatology interest and seasonality.

Search volume for teledermatology was significantly higher after March 2020 (Fig 1, A) and closely approximated COVID-19 search volume with a slight lag of 2 to 5 weeks during the prevaccine period (March 2020-December 2020), but not in the post-vaccine period (January 2021-December 2022) (Fig 1, B). Dermatology search volume overall was significantly higher in the spring/summer than in the fall/winter, while search volume for teledermatology did not exhibit such seasonality (Fig 1, C). Search volume for surgery and dermatology overall was higher than for psychiatry and family medicine during the pandemic. In contrast, searches for telehealth psychiatry or family medicine exceeded searches for telehealth dermatology or surgery (Fig 2).

Our results showed an increase in public interest in teledermatology after the onset of the pandemic with continued interest in the postvaccine period when compared to the prepandemic period. This parallels survey results showing that the majority of dermatologists believed teledermatology interest would continue even as COVID-19 cases declined.³ Our finding that interest in telehealth was higher for psychiatry and family medicine when compared with dermatology and surgery may indicate that the utility of telehealth varies based on disease or need for in-person

examination. From the perspective of practicing dermatologists, there are varying levels of appropriateness of teledermatology for common dermatologic complaints.³ The inability to provide close inspection and procedures has been shown to be a source of dermatology patient frustration.⁴

We also found that public interest in teledermatology did not appear to demonstrate seasonal variability across the United States while public interest in dermatology alone did. The latter result is consistent with studies identifying seasonal flares of many dermatologic conditions and seasonal fluctuation of dermatology office visit volume in the United States.⁵ Lack of seasonality in teledermatology demand could indicate that different factors motivate patients to seek virtual visits relative to in-office visits such as convenience, in-person examination or procedures.

Study limitations include the potential that search volume index may not entirely mirror patient needs and that search volume index was limited to the United States. In conclusion, our findings suggest an ongoing public interest in teledermatology care and highlight the importance of continued payment parity for virtual visits and the need for meaningful selection of appropriate cases for teledermatology to meet patient needs.

Zi-Yi Choo, BS,^a Zi-Ning Choo, BS,^b and Arlene Ruiz de Luzuriaga, MD, MPH, MBA^c

From the University of Chicago Pritzker School of Medicine, Chicago, Illinois^a; Weill Cornell Medical College, New York, New York^b; and Section of Dermatology, Department of Medicine, The University of Chicago Medical Center, Chicago, Illinois.^c

Funding sources: None.

IRB approval status: Not applicable.

Mendeley supplement: Choo, Zi-Yi; Choo, Zi-Ning; Ruiz de Luzuriaga, Arlene (2023), “Supplemental material for: Google Trends analysis of teledermatology interest in the United States during the COVID-19 pandemic”, Mendeley Data, V1, available via Mendeley at <https://doi.org/10.17632/nmmrgmgmji.1>.

Key words: COVID-19; dermatology; digital health; Google Trends; public interest; telehealth.

Correspondence to: Arlene Ruiz de Luzuriaga, MD, MPH, MBA, Assistant Professor, Section of Dermatology, Department of Medicine, University

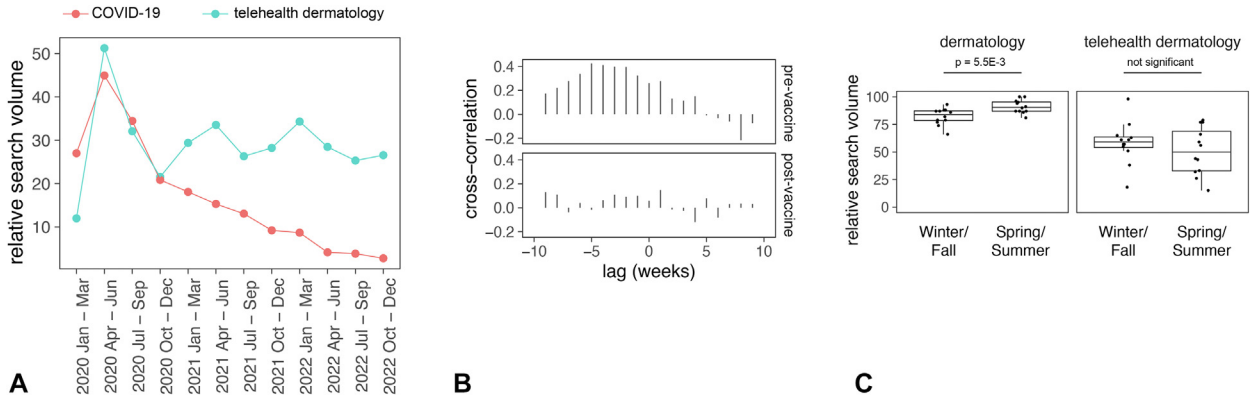


Fig 1. Relative search volume of telehealth dermatology in the United States from January 2020 to December 2022. **A**, Relative search volume of COVID-19 and telehealth dermatology with respect to time. **B**, Cross-correlation between weekly relative search volume for dermatology and COVID-19 during the prevaccine (March through December 2020) and the postvaccine (January 2021 through December 2022) periods. Negative lag indicates that dermatology search counts were shifted backwards relative to COVID-19 search counts, and vice versa for positive lag. **C**, Seasonality of monthly relative search volume in the United States in dermatology (*left*) and telehealth dermatology (*right*) in the pandemic period from March 2020 to December 2022.

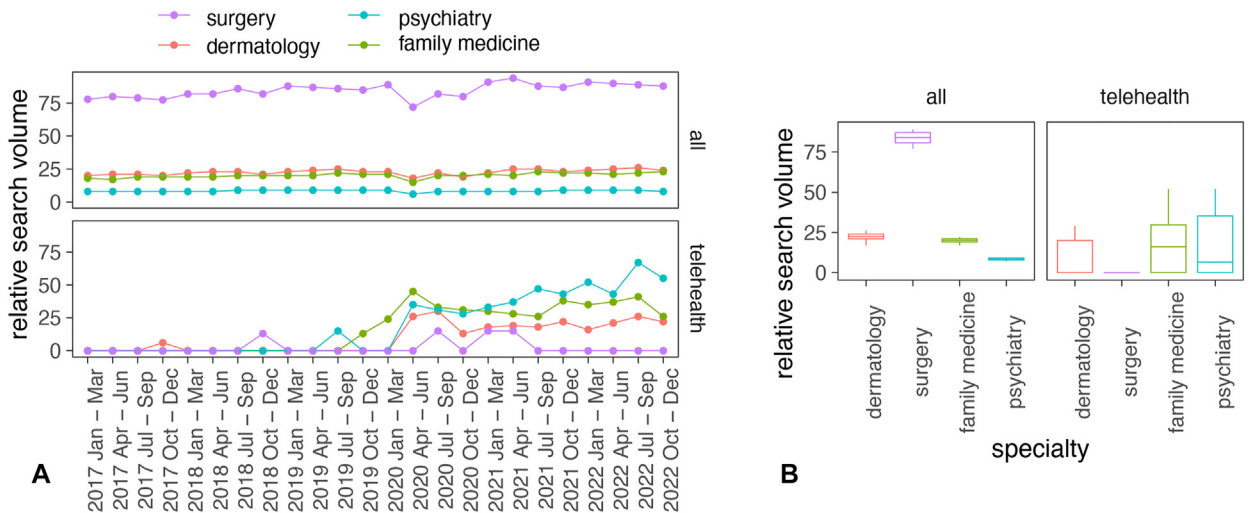


Fig 2. **A**, Relative search volume in the United States for dermatology, surgery, family medicine, and psychiatry overall (*top*) and for each specialty in relation to telehealth (*bottom*). **B**, Relative weekly search volume in the United States in the period from March 2020 to December 2022 for each specialty overall (*left*) and in relation to telehealth (*right*). Boxplot body: median and interquartile range; whiskers: 1.5 times interquartile range.

of Chicago Medical Center, 5841 S. Maryland Ave,
MC #5067, Chicago, IL 60637

E-mail: aruizde@bsd.uchicago.edu

Conflicts of interest
None disclosed.

REFERENCES

1. CDC Centers for Disease Control and Prevention COVID-19. Accessed January 2, 2023. https://www.cdc.gov/coronavirus/2019-ncov/community/index.html?utm_medium=email&utm_source=transaction
2. Medicare telemedicine health care provider fact sheet. Published March 17, 2020. Accessed January 2, 2023.

- https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet?utm_medium=email&utm_source=transaction
3. Kennedy J, Arey S, Hopkins Z, et al. Dermatologist perceptions of teledermatology implementation and future use after COVID-19: demographics, barriers, and insights. *JAMA Dermatol.* 2021;157(5):595-597.
 4. Yeroushalmi S, Millan SH, Nelson K, Sparks A, Friedman AJ. Patient perceptions and satisfaction with teledermatology during the COVID-19 pandemic: a survey-based study. *J Drugs Dermatol.* 2021;20(2):178-183.
 5. Hancox JG, Sheridan SC, Feldman SR, Fleischer AB Jr. Seasonal variation of dermatologic disease in the USA: a study of office visits from 1990 to 1998. *Int J Dermatol.* 2004;43(1):6-11.
- <https://doi.org/10.1016/j.jdin.2023.04.006>