

confounders, including age, sex, smoking habits, drinking habits, depressive symptoms, moderate physical activity based on the IPAQ score, atopic dermatitis, other skin diseases and number of comorbidities (0, 1, 2 or ≥ 3 of the following: hypertension, diabetes mellitus, coronary artery disease, cerebrovascular disease, lung disease, chronic kidney disease and gastrointestinal disease).

We requested 4589 people, and 76.3% (3500) agreed to participate in QoLCoVE study. Of those, 3330 aged ≥ 20 years were enrolled in the analysis. The population had a mean age of 50.4 years and consisted of 1645 (49.4%) males, 281 (8.4%) people with severe pruritus and 74 (2.2%) people who reported at-risk circumstances for COVID-19. Multivariable analysis revealed that participants with at-risk circumstances at baseline were more likely to have severe pruritus than those without (adjusted risk ratio = 1.45, 95% CI 1.14–1.86) (Table 1). For the longitudinal analysis, 2549 who showed no/mild pruritus at baseline were included. Results showed that participants with at-risk circumstances were more likely to develop severe pruritus during the follow-up than those without (adjusted risk ratio = 1.97, 95% CI 1.48–2.64).

Here, we revealed both cross-sectional and longitudinal associations between at-risk circumstances for COVID-19 and pruritus after adjustment for possible confounders. There were much fewer COVID-19 patients during the study period than now. Thus, pruritus observed in the study is less likely to be a symptom of COVID-19, suggesting that the at-risk circumstances itself may affect the risk of having and developing pruritus. Results showed that atopic dermatitis is closely associated with pruritus, as is generally accepted. A previous study revealed that medical workers who encountered COVID-19 patients were psychologically stressed.³ Furthermore, other studies suggested that personal protective equipment for COVID-19, such as gloves, may promote pruritus, supporting our results.^{4,5}

Although there was a possibility of misclassification bias due to the nature of the self-administered questionnaire, in conclusion, results suggest that pruritus may be more prevalent than ever during the COVID-19 era. Dermatologists should be aware of such new types of psychogenic pruritus.

Acknowledgements

None.

Conflicts of interest


None declared.

Funding source

None.

Data availability statement

Data are not available due to ethical restrictions.

T. Kogame,¹  Y. Ogawa,² K. Kabashima,¹
Y. Yamamoto^{1,2,*}

¹Department of Dermatology, Kyoto University Graduate School of Medicine, Kyoto, Japan, ²Department of Healthcare Epidemiology, School of Public Health, Kyoto University Graduate School of Medicine, Kyoto, Japan

*Correspondence: Y. Yamamoto. E-mail: yamamoto.yosuke.5n@kyoto-u.ac.jp

References

- 1 Golpanian RS, Kim HS, Yosipovitch G. Effects of stress on itch. *Clin Ther* 2020; **42**: 745–756. <https://doi.org/10.1016/j.clinthera.2020.01.025>.
- 2 Pearman A, Hughes ML, Smith EL, Neupert SD. Mental Health Challenges of United States Healthcare Professionals During COVID-19. *Front Psychol* 2020; **11**: 1–7. <https://doi.org/10.3389/fpsyg.2020.02065>.
- 3 Garcovich S, Bersani FS, Chiricozzi A, De Simone C. Mass quarantine measures in the time of COVID-19 pandemic: psychosocial implications for chronic skin conditions and a call for qualitative studies. *J Eur Acad Dermatol Venereol* 2020; **34**: e293–e294. <https://doi.org/10.1111/jdv.16535>.
- 4 Stefaniak AA, Białynicki-Birula R, Krajewski PK, Matusiak Ł, Goldust M, Szepietowski JC. Itch in the era of COVID-19 pandemic: An unfolding scenario. *Dermatol Ther* 2020; **33**: 4–7. <https://doi.org/10.1111/dth.13477>.
- 5 Yamamoto Y, Yamazaki S, Hayashino Y *et al*. Association between frequency of pruritic symptoms and perceived psychological stress. *Ach Dermatol* 2009; **145**: 1384–1388.

DOI: 10.1111/jdv.17809

Dermatological emergency unit, day-care hospital and consultations in time of COVID-19: the impact of tele dermatology

To the Editor,

During the first COVID-19 pandemic wave, dermatologists were urged to postpone non-urgent and outpatient visits,¹ to limit COVID-19 spreading. Tele dermatology (TD) integration, through live-and-interactive (LI) video consultation or store-and-forward (SF) expertise, was raised as a potential substitute to maintain continuity of care.^{2,3} The aim of this study was to determine whether TD implementation during the pandemic could (or not) compensate for the outpatient activity predicted in the absence of COVID-19 pandemic. It was conducted in a dermatology department of a tertiary centre, providing SF TD since 2016, notably for skin emergencies. To avoid cancelling in-person visits, LI TD was implemented and set in March 2020. The monthly number of scheduled consultations, dermatological emergency unit (DEU) visits, LI TD consultations and SF TD requests were retrieved from January 2019 to December 2020.

For each activity, an ARIMA model (Auto Regressive Integrated Moving Average) was applied to predict the evolution of a time series, as previously described.⁴ To confirm that time series modifications were linked to the influence of COVID-19 on the number of consultations, we used a causal inference method. The impact of COVID-19 pandemic and lockdown on the activity of the dermatology department are shown in Fig. 1 and Table 1.

During the COVID-19 period, a sharp decrease in the number of in-person consultations (dermatological consultations/emergencies) was observed, especially during the first lockdown. For DEU visits, the ARIMA and the causal inference models showed, respectively, a decrease of 4472 and 4635 visits between March and October 2020 ($P < 0.001$). Over the same period for scheduled consultations, the decrease was of 2720 and 2169 consultations, respectively, for the ARIMA and the causal inference models ($P < 0.001$). In parallel, LI TD and SF TD continued with an upward trend in the number of requests (high average of predictions). However, during the first wave of the pandemic (from March to July 2020), LI TD

does not compensate the important drop of in-person consultations. While from August 2020 onwards, hospital practitioners revert to their traditional habits (in-person consultation), as evidenced by the low number of LI TD and the little difference between the in-person consultation and in person + LI TD, curves (Fig. 1).

In the post-lockdown period (from mid to may), number of consultations almost got back to the predicted activity (low range of the confidence interval), while for DEU, the average number of visits did not reach those predicted by the ARIMA or causal inference model, for example, 1103 visits in July vs. 1446 predicted by the ARIMA model. While remaining in the low range, the predicted activity of in-person activity was less impacted by the second lockdown. Although an exponential increase in its use in primary care was noted, telemedicine failed to compensate the decrease in number of patients consulting during the COVID-19 period.⁵ Whereas SF expertise usage seemed not affected by the pandemic, patient and physician preferred in person consultation to LI when possible. COVID-19 pandemic has delayed diagnosis and care for

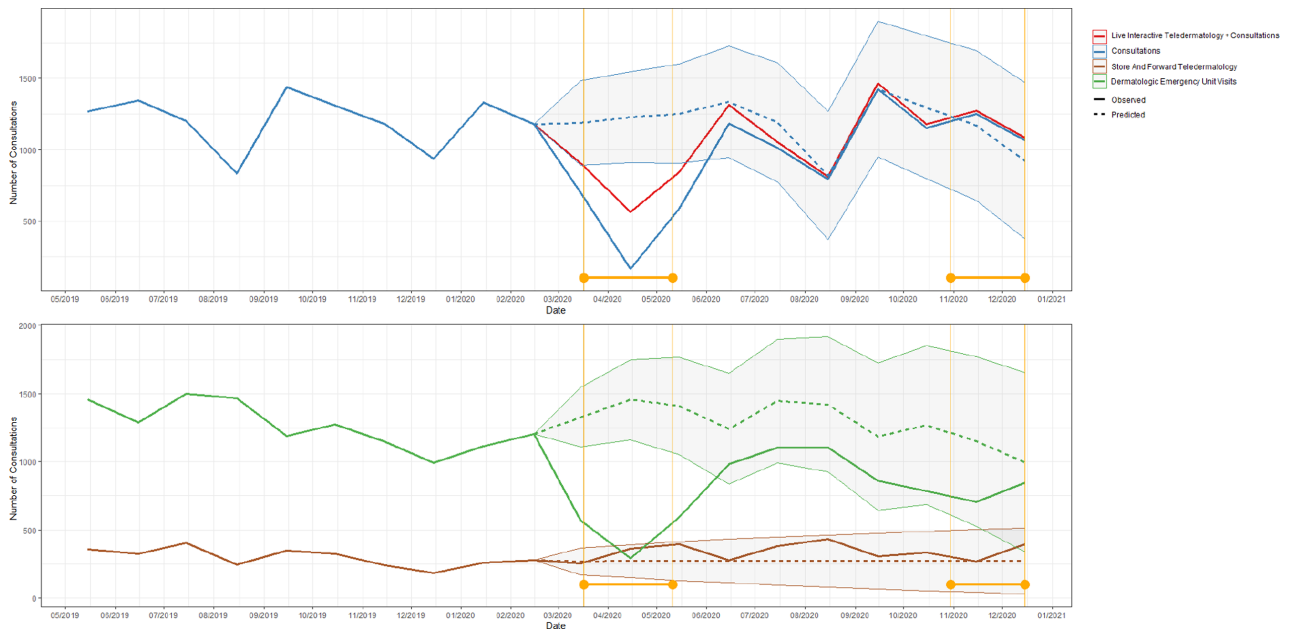


Figure 1 Observed and predicted activity of a dermatology department, between May 2019 and December 2020. Orange is lockdown period in France (March 17 to May 5 for the first one & October 30 to December 15 for the second one).

Table 1 Differences between observed and predicted dermatological unit visits and consultations, ARIMA and Causal inference model

	Observed (n)	ARIMA model		Causal inference model	
		Predicted (IC 95%)	Difference	Predicted (IC 95%)	Difference
Dermatological emergency visits	6225	10,757 [6395; 13083]	4472	10920 [9569; 12,164]	4635
Consultations	7019	9739 [6546; 12931]	2720	9188 [8133; 10,236]	2169

patients with skin cancer, while reducing access to care for all.³ The decrease in DEU activity suggests a change in the ways of general population, perhaps due to fear of long waiting times or crowd. Determining if this loss was either due to patients fears in healthcare facilities or to other factors needs to be investigated. Unfamiliarity and lack of trust with technology tools for consultations are also possible reasons. In conclusion, while it helped substitute many in-person consultations when necessary, TD did not to take off during the COVID-19 pandemic. Development of TD usage remains essential to exploit its full capacities.

Acknowledgement





We thank Mrs Nathalie Casaert, Narimane Zeghib, Mégane Doni and Dr François Hemery.

Conflicts of interest

None of the authors have conflict of interest to declare (you will find for each authors the Conflict of Interest forms completed).

Funding source

None.

A. Brehon,¹  J. Shourick,² C. Hua,¹ C. Skayem,¹ 
P. Wolkenstein,^{1,†} O. Chosidow,^{1,†}  T.A. Duong^{1,3} 

¹Department of Dermatology, AP-HP, Groupe Hospitalier Henri Mondor, Créteil, France, ²Department of Epidemiology and Public Health Analysis et Analyses, USMR, Toulouse, France, ³Chaire Avenir Santé Numérique, Équipe 8 IMRB U955, INSERM, Créteil, France

Correspondence: T.-A. Duong. E-mail: tu-anh.duong@aphp.fr

[†]Equally contributors.

IRB approval status: IRB# 00011558 approved January 2021 n° 2021-105.

References

- Litchman GH, Rigel DS. The immediate impact of COVID-19 on US dermatology practices. *J Am Acad Dermatol* 2020; **83**: 685–686. <https://doi.org/10.1016/j.jaad.2020.05.048>.
- Perkins S, Cohen JM, Nelson CA, Bunick CG. Teledermatology in the era of COVID-19: Experience of an academic department of dermatology. *J Am Acad Dermatol* 2020; **83**: e43–e44. <https://doi.org/10.1016/j.jaad.2020.04.048>.
- Skayem C, Cassius C, Ben Kahla M *et al*. Teledermatology for COVID-19 cutaneous lesions: substitute or supplement? *J Eur Acad Dermatol Venereol JEADV* 2020; **34**: e532–e533. <https://doi.org/10.1111/jdv.16630>.
- Fattah J, Ezzine L, Aman Z, El Moussami H, Lachhab A. Forecasting of demand using ARIMA model. *Int J Eng Bus Manag* 2018; **10**: 1847979018808673. <https://doi.org/10.1177/1847979018808673>.
- Alexander GC, Tajanlangit M, Heyward J, Mansour O, Qato DM, Stafford RS. Use and content of primary care office-based vs telemedicine care visits during the COVID-19 pandemic in the US. *JAMA Netw Open* 2020; **3**: e2021476. <https://doi.org/10.1001/jamanetworkopen.2020.21476>.

DOI: 10.1111/jdv.17811

Lack of association between seborrheic dermatitis and SARS-CoV-2 outcomes

To the Editor,

Seborrheic dermatitis (SD) is a common form of dermatitis. Immune dysregulation is presumed to play a role in SD pathogenesis, with increased prevalence of SD in patients with older age, immunosuppression, and neuropsychiatric disease.^{1,2} These characteristics have also been found to be associated with worse SARS-CoV-2 outcomes. Several pro-inflammatory cytokines associated with greater SARS-CoV-2 morbidity, e.g. interleukin-1, 6, and tumor necrosis factor-alpha, contribute to SD pathogenesis.¹ A recent report of a severely ill SARS-CoV-2 patient developing SD suggests possible associations between these two conditions.³ However, few studies examined potential associations between SD and SARS-CoV-2 outcomes. We investigated the relationship between SD and SARS-CoV-2 outcomes among adults with dermatologic disease.

The study was approved by the George Washington University institutional review board. We retrospectively analyzed medical records for patients treated at George Washington University Hospital and Medical Faculty Associates for SARS-CoV-2. Patients received standard-of-care dermatologic examination. Socio-demographics were compared between those with vs. without diagnosed SD and severe-critical vs. mild-moderate COVID-19 using chi-square and student's t-test for categorical and continuous variables, respectively. Binary logistic regression models were constructed with SARS-CoV-2 outcomes as dependent variables and SD as the binary independent variable. Multivariable models adjusted for socio-demographics and comorbidities. Crude and adjusted odds ratios (OR) and 95% confidence intervals (CI) were estimated. P-values were corrected using the approach of Benjamini-Hochberg.

Among 430 SARS-CoV-2 positive adults with skin disease, 39 (9.10%) had diagnosed SD, similar to the prevalence of SD in Turkish SARS-CoV-2 patients (11.8%).⁴ Most (76.9%) SD patients were non-white. There were no significant differences between patients with vs. without SD with regard to sex, race, insurance status, history of smoking, cancer, immunosuppressant use, acquired immunodeficiency syndrome, diabetes mellitus (DM), congestive heart failure, obstructive lung disease, hypertension or chronic kidney disease ($P \geq 0.49$ for all). SARS-CoV-2 severity was associated with older age ($P < 0.0001$) and DM ($P < 0.0001$).

In multivariable models adjusting for the abovementioned covariables, SD was not associated with hospitalization (adjusted odds ratio [95% confidence interval]: 0.26 [0.08–0.86], corrected P -value = 0.1686), acute level of care at initial medical care (0.68 [0.33–1.42], $P = 0.5840$), severe-critical SARS-CoV-2 (0.80 [0.27–2.33], $P = 0.8618$), requirement of supplemental