

Figure 1 (a) Patient at 20 weeks of gestation, with urticarial plaques and bullae on an erythematous base, affecting the abdomen and limbs. (b) Patient at 1 month post-partum. Physical exam shows post-inflammatory hyperpigmentation and no pruritus.

membranes occurred. The baby was born by caesarean delivery, and was healthy without any skin lesions. The patient did not experience recurrence of lesions during the postpartum period and her BP180 antibodies cleared after 3 months (Fig. 1b).

The improvement in pruritus and bullous lesions without relapse during the postpartum period of this patient's second episode of PG proposes dupilumab as a potentially effective novel therapeutic option for PG. Prematurity has been described as a complication of PG.³ According to the FDA label, there are no data supporting the use of dupilumab during pregnancy and clinical experience has been documented in case reports.^{4,5} Further studies are needed to corroborate our findings, and research is required to establish the safety of dupilumab during pregnancy.

Conflict of interest

CR-M has received honoraria as a consultant for Lilly and has received speaker fees from Sanofi, both outside the submitted work. JM has received speaker fees from Academia Española de Dermatología, Bocemtium Consulting, Clover Soluciones Globales de Marketing, Ferrer Internacional, Fundació Clínic per la Recerca Biomèdica, LEO Pharma Spain, Loki & Dimas, Luzan 5 Health Consulting, M. S. D. de España S.A, S&H Medical Science Service and Sanofi-Aventis, all outside the submitted work.

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Evaluating the impact of the COVID-19 pandemic and state restrictions on public interest in tanning: a Google Trends analysis

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Public interest in tanning in the USA typically follows a seasonal pattern.¹ Google Trends search data, which have previously been used to measure interest in dermatological issues,² demonstrate peak annual interest for indoor tanning terms between March and June, and for outdoor tanning terms in July and August.¹ We aimed to describe the impact of the initial COVID-19 pandemic on search trends in tanning and specifically to determine the correlation between indoor tanning interest and the stringency of COVID-19 restrictions.

This study utilized publicly available online datasets and did not qualify as human subject research; therefore, institutional review board approval was not required by the University of Connecticut Health Center.

We first summarized national Google Trends search volume index (SVI) results for indoor and outdoor tanning terms over several years to evaluate for any disruptions in seasonal patterns associated with the

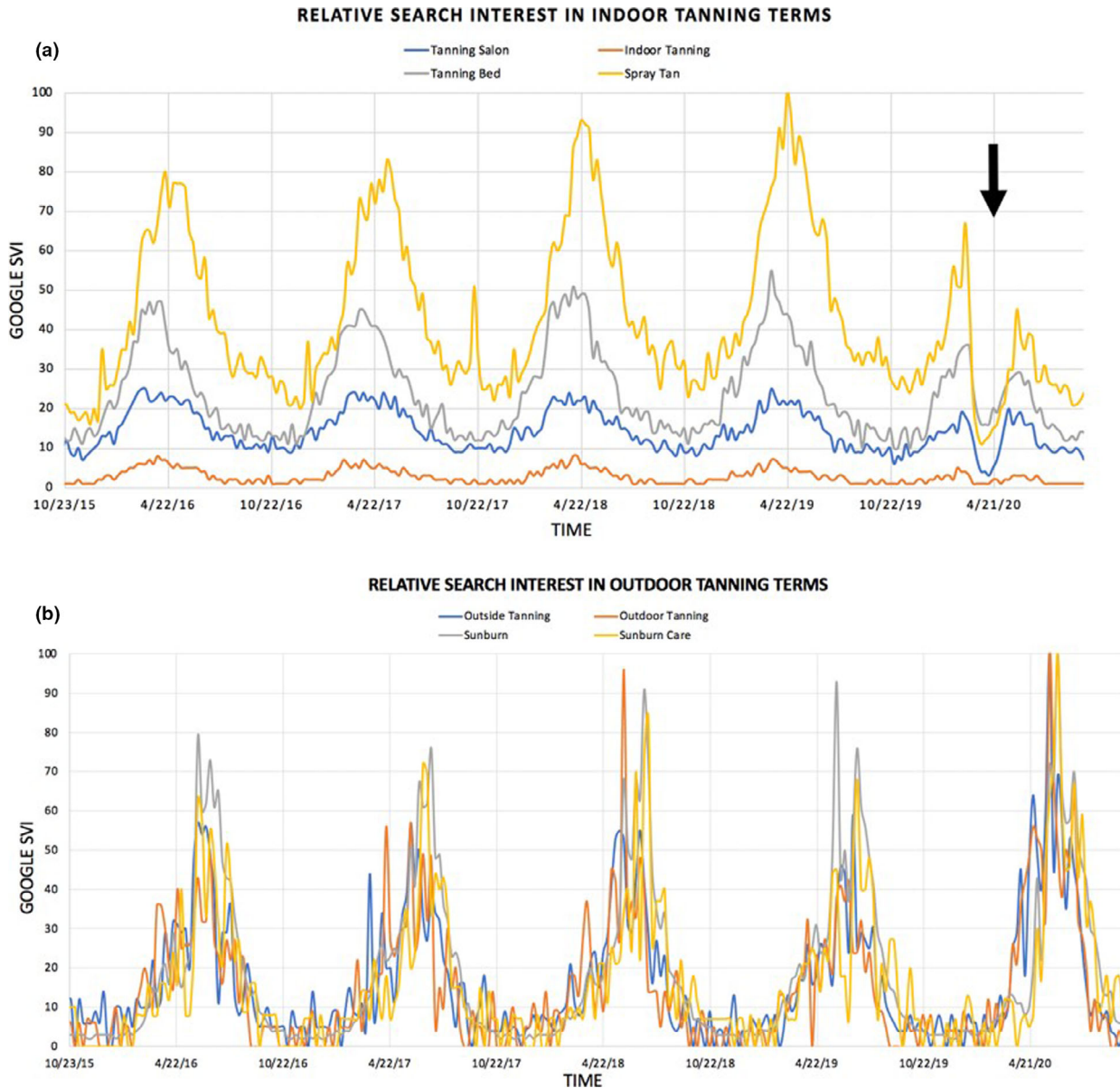


Figure 1 (a,b) Overview of national search volume index (SVI) for indoor and outdoor tanning terms, 2015–2020, showing seasonal variation in Google Trends SVI results for (a) indoor and (b) outdoor tanning terms from October 2015 to October 2020. Indoor search terms included ‘tanning salon’, ‘indoor tanning’, ‘tanning bed’ and ‘spray tan’, while outdoor search terms included ‘outside tanning’, ‘outdoor tanning’, ‘sunburn’ and ‘sunburn care’. The black arrow highlights the uncharacteristic SVI trough in April 2020. SVI ranged from 0 (no interest) to 100 (peak interest) for the chosen terms in the specified time period.

onset of the pandemic. We further utilized the Oxford COVID-19 Government Response Tracker stringency index (SI) to establish a rank ordering of each state’s COVID-19 restriction severity between March and June 2020. Given that growth in SVI for indoor tanning proved highly variable between specific states during this time, we compared the percentage change in state-specific SVIs for those with the greatest and

least stringent restrictions. Statistical analysis was performed using, two-sided, unpaired *t*-test with STATA 15.0. $P < 0.05$ was considered statistically significant.

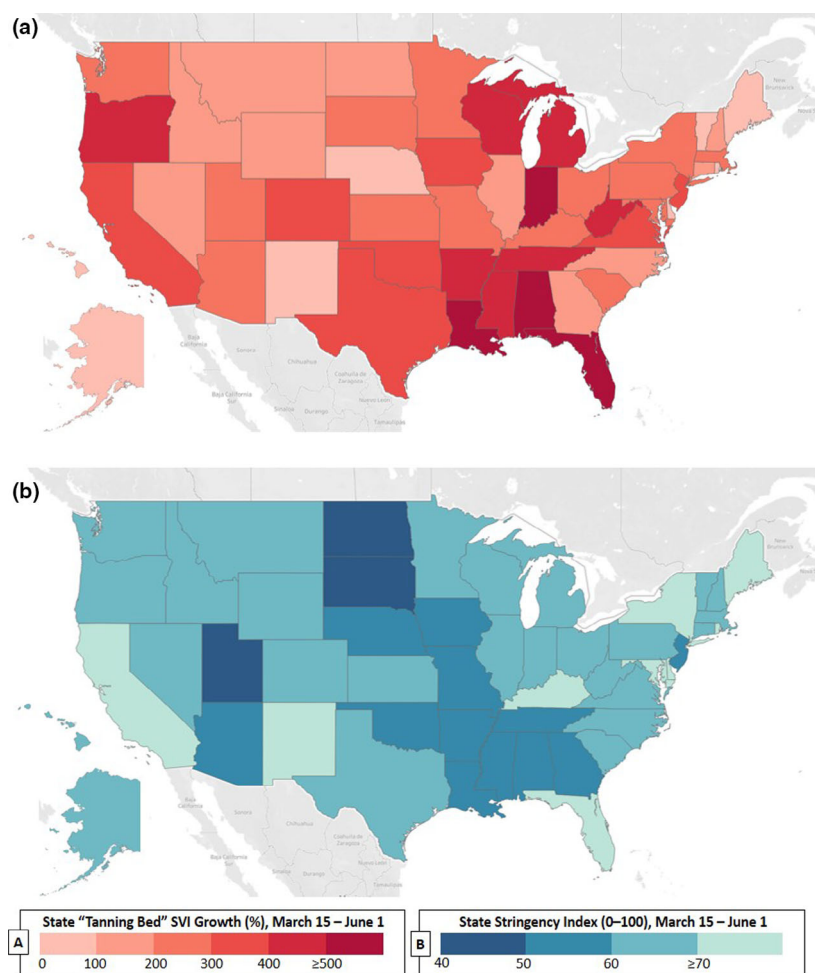
Overall, nationwide SVI for indoor tanning terms declined abruptly by 57–84% in March 2020, whereas those for outdoor tanning peaked at 8–138% higher in summer 2020 compared with the same period in 2019

Table 1 Comparison of the growth in state-specific Google Trends search volume index by state and the overall stringency of COVID-19 restrictions by state during the period 15 March 2020 to 1 June 2020.^a

Comparison group	SVI ^b for 'tanning bed' by state		SVI growth rate ^{b,c}	OxCGRT SI	P
	15 March	1 June			
Top 25 states ^{d,e}	29.6 ± 21.0	65.0 ± 24.4	188.2 ± 159.9 ^b	69.9 ± 4.7	0.01
Bottom 25 states	21.9 ± 9.5	79.4 ± 16.8	321.3 ± 193.2	56.4 ± 6.3	
Top 15 states	31.3 ± 21.0	60.2 ± 22.3	155.2 ± 161.0	72.7 ± 5.7	< 0.01
Bottom 15 states	22.2 ± 8.7	83.5 ± 15.6	320.8 ± 141.2	52.9 ± 5.7	

OxCGRT, Oxford COVID-19 Government Response Tracker; SI, stringency index; SVI, search volume index. ^aData are mean ± SD; ^bSVI results and SVI growth rates for 'tanning bed' classified by overall stringency of state COVID-19 restrictions. SVIs range from 0 (no interest) to 100 (peak interest) during the study period; ^cSVI growth rate between these two values was calculated for each individual state, averaged across all states in each group, and the growth rate difference between groups was assessed for significance; ^dStates were grouped into categories based on their mean OxCGRT SI during the study period, with 'top' states indicating those with the greatest mean SI; ^eRanking of states from greatest to lowest SI: MD, NM, NY, KY, DE, ME, RI, FL, CA, CO, AK, NH, IL, VT, MT, ID, MN, CT, OH, PA, WV, HI, MI, NC, OR, MA, VA, WA, TX, KS, SC, NV, WY, WI, IN, NJ, TN, NE, MO, LA, GA, MS, OK, AL, IA, AZ, AR, UT, ND, SD.

Figure 2 (a,b) Relationship between (a) the growth in state-specific Google Trends search volume index (SVI) for the term 'tanning bed' by state and (b) the overall stringency of COVID-19 restrictions by state, March–June 2020. SVIs ranged from 0 (no interest) to 100 for the chosen terms in the specified time period, and were acquired from Google Trends data on 'tanning bed' search frequency between 15 March 2020 and 1 June 2020. The growth rate between March 15 and June 1, 2020 was subsequently calculated for each state. The degree of COVID-19 restrictions represents a mean of the Oxford COVID-19 Government Response Tracker Stringency Index during this same time period. The stringency index provides a quantitative estimate (range 0–100, higher values indicate more stringency) of state restrictions classified by the number of containment and closure policies for each state.



(Fig. 1). State SVI growth rates for the term 'tanning bed' between March and June 2020 ranged from 0.0 (Hawaii, Rhode Island) to 1011.1 (Indiana) (Fig. 2), with mean SVI growth being notably greater in the 25 states with the lowest SI than in those with the highest (321.3 vs. 188.2, $P = 0.01$) (Table 1).

The data indicate an overall national decrease in indoor tanning searches during the initial surge in COVID-19 cases. By contrast, outdoor tanning terms experienced record peak interest in the summer of 2020, which may indicate high outdoor engagement despite the ongoing pandemic. This reinforces the important and established role of public health messaging in promoting sun-safe outdoor practices, even during periods of quarantine.

Interest in indoor tanning varied dramatically depending on the stringency of state-imposed COVID-19 restrictions. Although restrictions cannot be directly linked to indoor tanning interest, aggressive states ordered tanning salons closed for months (e.g. Connecticut) whereas others allowed salons to remain open (e.g. South Dakota).^{3,4} Restrictive tanning legislation was previously found to be most effective at modulating public interest in indoor tanning.⁵ States with more stringent restrictions also demonstrated greater encouragement of social distancing and had more expansive public information campaigns, which may also have contributed to the lower interest in indoor tanning.

The study has several limitations. First, tanning interest is driven by personal, societal and environmental factors, making it difficult to directly attribute the exhibited trend to the pandemic (e.g. fear of exposure to COVID-19) or the associated restrictions (e.g. closure of tanning salons). In addition, the SI relies on metrics that may not appreciably impact tanning behaviour (e.g. public event cancellations). Despite these shortcomings, this study is the first to characterize public interest in tanning during COVID-19, and further supports a role for public policy and legislation in influencing tanning practices.

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Radiation recall dermatitis triggered by inactivated COVID-19 vaccine

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Dear Editor,

Radiation recall dermatitis (RRD) is an acute inflammatory reaction that is localized to an area of skin previously exposed to radiation and is known to be triggered by various systemic drugs. It can be observed weeks to years after cessation of radiotherapy, and the time interval between administration of the reaction-triggering drug to the onset of lesions varies from minutes to days.¹ RRD is characterized by erythema, oedema, urticaria-like lesions, desquamation, vesiculation and, in severe cases, necrosis and ulceration.² RRD is mainly triggered by cytotoxic chemotherapeutics, but there are also several reports with antibiotics, monoclonal antibodies and immunomodulators.^{1–3} We report a patient with melanoma who developed RRD following the first dose of COVID-19 vaccine.

A 60-year-old woman with a history of melanoma presented with a sudden-onset painful lesion on the medial side of her right leg. The patient's medical history revealed that she had received hypofractionated radiotherapy of 30 Gy over 10 days to four separate regions on her right leg 2 years and 3 months previously. She was still on the dabrafenib/trametinib combination therapy that had been started just over 2 years before her presentation.

Physical examination revealed a well-demarcated, erythematous, indurated plaque confined to an area of previous irradiation (Fig. 1). There were no active lesions on other irradiated parts of her right leg. The patient reported no trauma or application of any topical agent in the area where the existing erythematous lesion was located. She also had not started any new systemic medication, but she had received her first dose of a COVID-19