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34745 US and EU sunscreens: A review of ultraviolet (UV) filters and safety data

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The Sarcoidosis app: A mobile app study of impact of disease on quality of life and physical activity

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Background: Sarcoidosis, a multisystem granulomatous disease affecting lungs and skin, often causes substantial functional morbidity. Clinical and epidemiologic knowledge is incomplete given its rarity and variable presentation. As 85% of American adults own smartphones, we developed the Sarcoidosis App (SA), a mobile app to study quality of life (QoL) and physical activity (PA).

Methods: SA was developed for Apple and Android smartphones. Patients ≥18 y in the USA were recruited through clinics and the Foundation for Sarcoidosis Research. Participants were consented through SA and surveyed on sarcoidosis history, PA, and QoL based on the validated Sarcoidosis Assessment Tool (SAT). When available, exercise data were collected from Apple HealthKit-enabled devices.

Results: 629 participants were enrolled since 2018. 67% were female, 82% white, and 14% black. 60% were diagnosed ≤5 y ago. 44% reported being greatly or severely affected by sarcoidosis. 597 patients participated in SAT components; mean skin symptoms score (itch, tenderness, rash), skin stigma score (embarrassment of appearance), and lungs score (breathing, coughing) were 30.4 (scale: 10-50), 8.9 (5-25), and 21.3 (10-50), respectively, where lower scores represent higher QoL. Average daily steps were correlated with SAT activity ($P < .001$) and fatigue scores ($P < .01$).

Conclusions: We demonstrate feasible recruitment, consenting, and prospective studying of QoL and activity of a large sarcoidosis cohort entirely through smartphones. Participants rated skin symptoms worse than lung symptoms; however, skin stigma was relatively low. Exercise data were associated with survey responses of exercise capabilities, validating data collection quality. Limitations include low recruitment of black patients and retention rate.

Commercial Disclosure: None identified.

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A broad range of UV filters are available for use in sunscreen products. Knowledge of UV filters available both domestically and abroad remains important, since these products can be found in the online marketplace and may be included in future FDA monographs as a shift is made to an administrative order process. We reviewed the mechanism and safety data of all US and EU approved UV filters. Currently, there are 17 US FDA approved UV filters while the EU possesses an additional 16 UV filters. Of the US filters, 88.2% (15/17) are organic and 11.8% (2/17) are inorganic filters, with 35.3% (6/17) broad-spectrum, 52.9% (9/17) UVB only, and 11.8% (2/17) UVA only. Notably, 94.1% (16/17) have available human data. Of the EU exclusive filters, all (100%, 16/16) are organic filters. 50% (8/16) have human data while the remaining 50% (8/16) have data primarily related to physiochemical or toxicology profiles. Of these EU exclusive UV filters, 43.75% (7/16) are broad-spectrum, 50% (8/16) cover UVB only, and 6.25% (1/16) cover UVA only. Our review demonstrates that the EU possesses an exciting pool of novel UV filters with expanded options for coverage of all forms of UV radiation. Critically, the majority of sunscreens, both in the US and EU, have limited human data available due to prior limited requirements for such information. This information is likely forthcoming in the US as the FDA updates data requirement guidelines for sunscreens to be generally recognized as safe and effective.

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