

Current

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Pioneers in Sensitive Skin Research: The Global Sensitive Skincare Faculty by Galderma

Cleo Whiting BA^{a*} Sara Abdel Azim MS^{a,b*} Adam Friedman MD FAAD^a

^aDepartment of Dermatology, George Washington University School of Medicine and Health Sciences, Washington, DC

^bGeorgetown University School of Medicine, Washington, DC

*Authors contributed equally

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Introduction

Sensitive skin (SS) is a syndrome of subjective cutaneous hyperreactivity to otherwise innocuous stimuli, characterized by symptoms of itching, tingling, burning, heat, tightness, pain, stinging, and/or general discomfort; visual changes in the skin are not always observed although accompanying redness may be apparent.¹ SS is not attributable to other skin diseases and should be considered a diagnosis of exclusion.² Affecting all body locations, particularly the face, SS can be incredibly burdensome to individual sufferers and significantly impact their quality of life through altering behaviors and habits, impacting sleep, and instilling stress and anxiety. Frequently exacerbating variables of SS are environmental exposures (eg, UV radiation, wind, temperature changes), lifestyle factors (eg, cosmetic products, diet, alcohol consumption), and physiologic factors (age, hormonal changes, stress).¹ A helpful clinical tool to measure baseline and ongoing severity of SS is the Sensitive-10 Scale (SS-10), a validated 10-item patient-reported scale where a score greater than 13 out of 100 is diagnostic for SS syndrome (Figure 1).³

Figure 1. Sensitive-10 scale. ³

How irritated has your skin been during the past 3 days? Choose a number on a scale of 0-10, where 0 = not irritated/normal.
Have you had any of these skin symptoms during the past 3 days? Choose a number from 0-10 to describe the severity of each symptom, where 0 = no symptom.
<ul style="list-style-type: none"> • Tingling • Burning • Sensations of Heat • Tightness/Tautness • Itching • Pain • General Discomfort • Hot Flashes • Redness

Today, Galderma is addressing the unmet needs of a growing number of individuals suffering from SS by creating the Global Sensitive Skincare Faculty (GSSF) in 2021. While the concept of sensitive skin is not new and skincare products have been developed and marketed with this in mind – including by Galderma and their Cetaphil brand– emerging research concludes SS is a unique medical condition, warranting recognition, further research, and management options.⁴ The impact of addressing SS as a medical condition cannot be understated, as studies have found that approximately 70% of the general population worldwide self-reports having some degree of SS.⁵ Recognizing the substantial burden of SS and its impact on quality of life, the GSSF is committed to advancing the well-being of individuals affected by SS.

The Market Gap

Although many products boast suitability for SS, these claims are rarely substantiated and not regulated by the Food and Drug Administration. There is a deficit in evidence-based products specifically tested in and formulated for individuals with SS who have an altered epidermal barrier function prone to penetration of irritants and allergens and increased trans-epidermal water loss.⁴ While many skincare ingredients are innocuous to a healthy skin barrier, they are poorly tolerated in sensitive skin.⁶ A pre-clinical study testing commercial skin care products in an SS animal model found all of the tested products induced abnormalities in epidermal function, including elevations in trans-epidermal water loss and skin surface pH and reduction in stratum corneum hydration.⁷ These findings were corroborated in a recent pilot survey study demonstrating 56% of respondents with SS experience hyperreactivity to consumer products; however, these patients were 7.5 times more likely to use products marketed for SS than individuals without SS.⁸ Altogether, these findings signal a gap in effective products for individuals with SS.

Bridging the Gap

The GSSF is bridging the existing market gap by committing to scientific innovation and evidence-based product development. In partnership with the Department of Dermatology at the George Washington University School of Medicine and Health Sciences, Galderma established the Translational Research Fellowship Program to support medical students dedicating a minimum of one year to expanding their research skill set with a focus on SS and established the Galderma Skin Research Acceleration Fund, which provides research funding to support aforementioned research into characterizing and addressing SS. The GSSF unites an advisory board of 15 dermatologists from 13 countries to contribute a diverse amalgamation of expertise in skin disease (Table 1).

Table 1. Galderma Sensitive Skincare Faculty Dermatologists and Collaborators (alphabetical)

Dermatologist's Name	Global Affiliation
Flordeliz Abad-Casintahan	Philippines
Flavia Alvim Sant'Anna Addor	Brazil
Ncoza Dlova	South Africa
Aaron Farberg	United States
Adam Friedman (Co-Chair)	United States
Adelaide Herbert	United States
Martina Kerscher	Germany
Xiang Leong	China
Laurent Misery	France
Giovanni Pellacani	Italy
Anurag Tiwari	India
Belinda Welsh	Australia
Yan Wu	China
Geeta Yadav	Canada
Leona Yip	Australia
Collaborator Name	Galderma Office
Irina Berlin (Research)	Headquarters, Lausanne, Switzerland
Nicolas Joly-Tonetti (Research)	
Nadège Lachmann (Research)	
Caroline Le Jossec (HCP Engagement)	
Nathalie Piccardi (Innovation)	
Krzysztof Piotrowski (Co-Chair)	

The faculty's inaugural meeting was held at the 2022 European Academy of Dermatology and Venereology congress in Milan where members participated in a symposium on SS insights and management approaches. This discussion was further developed at interactive forums hosted at the 2023 World Congress of Dermatology in Singapore and the 2024 American Academy of Dermatology Meeting in San Diego, California. In collaboration with Galderma leadership, the advisory board workshopped initiatives to meet evolving skincare needs, discussed methods to build upon existing SS research initiatives, and identified opportunities to optimize the management of SS, setting the stage for future research and skincare solutions for SS. To date, over 40 posters and 4 scientific papers have been published and/or presented. Current advances in research conducted by the GSSF are described herein.

GSSF Research

Healthcare Professional Education

In a survey study of US dermatology residents, less than 25% of respondents reported being very knowledgeable about SS diagnosis, clinical evaluation, or management. Additionally, almost all residents surveyed (99%) stated it was very or somewhat important for education on SS to be incorporated into their training yet more than half reported not receiving specific education on this topic.⁹ Furthermore, a survey of dermatology providers revealed that SS is a frequently encountered patient complaint yet respondents reported challenges with diagnosing, assessing improvement, counseling, and recommending products or medications for SS.¹⁰ These data highlight SS has historically been overlooked during residency training and continuing medical education, a gap that needs to be addressed given the prevalence of this condition and the desire of dermatology providers to learn about it.

Epidemiology of Sensitive Skin

Several past studies have attempted to accurately estimate the prevalence of SS over the past two decades. A systematic review and meta-analysis of these studies concluded the prevalence of some degree of SS among the general population globally was 71%, with 40% of individuals reporting very or moderate SS.⁵ Unfortunately, these conclusions are limited by the variable diagnostic methods used in each study and the lack of studies in several major continents, specifically Africa and Australia. This gap in the literature inspired the GSSF global profiling study of SS, which aims to assess and characterize SS worldwide by surveying more than 10,000 participants in 12 countries across 6 continents: United States, Brazil, Germany, Africa (South Africa, Tunisia, Egypt, Kenya, Nigeria), India, China, Philippines, and Australia. To evaluate variables associated with self-declared SS, this worldwide epidemiologic study gathers comprehensive data from all participants including demographic information (age, gender, residence, ethnicity, and skin tone), daily activities, history of other skin conditions, location and severity of SS, age of SS onset, triggers of SS (environmental, lifestyle), and symptoms of SS.¹¹

Preliminary analysis of the global profiling study without data from Africa has revealed several significant results. Consistent with previous epidemiological studies, the overall prevalence of SS was found to be 74%, with 40% of those having sensitive or very sensitive skin, and the prevalence of SS without additional comorbid skin disease was also consistent at 38%. New trends discovered with this study include finding temperature changes (41%) rather than skincare products (19%) as the leading environmental trigger, poor sleep and stress to be the leading lifestyle triggers, and itch being the predominant symptom of SS (54%) followed by redness (38%). A final significant discovery was higher rates of very sensitive skin and a main symptom of pain reported by individuals with self-declared darker skin tones. Once published, the final analysis, including data from Africa, will comprehensively improve our understanding and management of SS.

A recently published pilot study conducted by the first GSSF Translational Research Fellow, Dr Erika McCormick, has shed light on the subjective experience of SS in persons of color in the United States.⁸ Results from this study were consistent with larger epidemiological studies where SS was self-reported by 57% of respondents, 27% had SS without primary skin disease, and frequent triggers of SS included extreme temperatures, skincare products, stress, sweat, sun exposure, and diet. Publication of the large global profiling survey study by the GSSF will contextualize

these results, particularly concerning understanding the experience of SS in darker skin tones.

Pathophysiology of SS

The potential pathophysiologic mechanisms of SS are still being elucidated, but research has pointed to a disrupted epidermal barrier, neurosensory dysfunction, and immune dysregulation as likely key players.^{1,11} Using reflectance confocal microscopy and optical coherence tomography, GSSF expert Dr Giovanni Pellacani demonstrated morphological changes unique to SS versus non-SS skin: altered stratum corneum, epidermal hyperplasia, fragmented collagen fibers, and a reduced dermal vascular network.¹³

Through survey-based research, the GSSF has also revealed an intriguing connection between SS and primary focal hyperhidrosis (HH), a condition of excessive sweating due to sympathetic nervous system dysfunction.¹⁴ A large survey study of individuals with HH demonstrated a higher proportion of respondents self-reporting SS, correlated with appropriate SS-10 scores, compared to the general population, and subjective and objective increased severity of SS with greater severity of HH. Notably, this study also investigated the bodily locations of each skin condition in those having both HH and SS and found SS existed in areas that HH did not, implicating sweat is not the sole causative factor of SS in these patients.

Skincare Solutions

As the data supporting SS as a distinct condition with unique pathophysiological mechanisms continues to evolve, scientific advancement must be matched with sustainable solutions for minimizing disease burden and mitigating symptoms. Although there is no consensus on the management of SS, active ingredients in skincare products may be combined and tailored to target symptoms of SS as well as improve the tolerability of common categories of cosmeceuticals.² Frequently used ingredients in skincare products marketed as tolerated by SS are described in Table 2.

Table 2. Common Active Ingredients Found in Sensitive Skin Products^{2,16,17}

Ingredient	
Niacinamide/Nicotinamide (vitamin B3)	Glycyrrhetic acid (and derivatives)
Acetyl dipeptide-1 cetyl ester	4-t-butylcyclohexanol
Panthenol/Pantothenic Acid (vitamin B5)	Allantoin
Palmitoyl tripeptide-8	<i>Laminaria ochroleuca</i>
Ceramides	<i>Centella asiatica</i> (Gotu kola)
Bakuchiol	<i>Bifidobacterium longum</i> extract
Coriander	Flax seed oil supplementation
<i>Rhodiola rosea</i> extract	Grifolin derivatives (<i>Albatrellus ovinus</i>)
Neurosensine	<i>Ophiopogon japonicus</i> extract

(adapted from PMID: 36745379)

Itch

A predominant symptom of SS is itch as well as a feature of dermatoses associated with a disrupted skin barrier. Over-the-counter topical products are often used to ameliorate itch yet those with SS may be intolerant of certain products. To address this issue, a meta-analysis of 8 clinical studies evaluating the itch-relief efficacy of 4 skincare products designed for SS was conducted (total n=305, 100% with SS).¹⁵ Utilizing the SS-10 scale, the average baseline score of participants was 23.86/100. After 28 days of using an individual or combination of 2 cleansers and/or 2 moisturizing

lotions, the average score decreased by 79.5% to 4.89 ($P<0.05$). The average itch score also decreased post-intervention, from 3.93/10 at baseline to 0.52/10 (-86.8%, $P<0.05$). All products also achieved very good safety and tolerability ratings by participants, overall showing the beneficial effects of these tailored skincare products for alleviating itch in SS.

Eczema

Addressing eczema in patients with comorbid SS is complicated as eczema is associated with disruption of the skin barrier and increased cutaneous hypersensitivity. Consequently, there are limited products designed to control eczema symptoms that simultaneously do not exacerbate SS. More recently, the Restoraderm line of products from Cetaphil which include *Ophiopogon japonicus* extract have been clinically evaluated in patients with validated SS and comorbid eczema. The Restoraderm Itch Relief Gel promoted SS remission, decreased itch and time to achieve itch relief, and improved the appearance and tactile quality of moderate eczema following one month of use.¹⁶ Additionally, the Restoraderm Flare-up Relief Cream containing this extract and colloidal oatmeal was evaluated for its impact on the skin microbiome and found to increase bacterial species richness without creating dysbiotic shifts in the overall composition of species.¹⁷

Future Directions

The GSSF is a first-of-its-kind initiative to enhance the health of those living with SS, a common yet undertreated condition. These efforts establish a foundation for recognizing SS as a distinct condition, initiating further measures to expand our comprehension of its global impact, and developing innovative and evidence-based solutions for management. Galderma's Scientific Division is currently developing products to counteract the effects of modern lifestyle and environmental factors on SS, alongside formulating a solution compatible with daily exfoliation in SS. Collectively, these initiatives continue to significantly enhance patient care and provide much-needed solutions for patients suffering from SS.

Disclosure

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Author Correspondence

Adam Friedman MD FAAD: ajfriedman@mfa.gwu.edu

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