# Utilizing Patient-Reported Data to Improve Understanding of Flare Predictors in Patients with Moderate to Severe Hidradenitis Suppurativa

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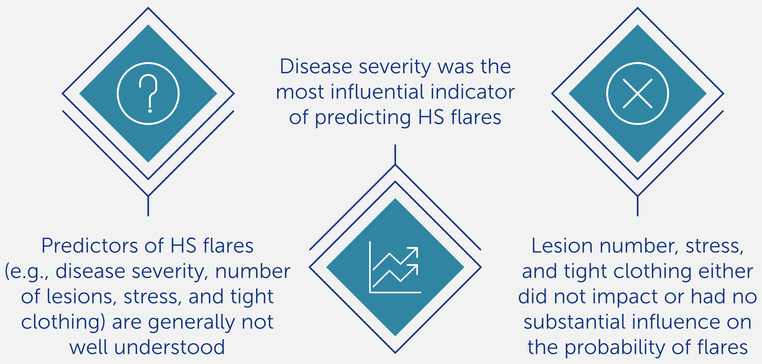
## Summary




## Objective

**To improve the understanding of hidradenitis suppurativa (HS) flare predictors using patient-generated longitudinal data.**

## Introduction

- HS is a chronic, inflammatory skin disease,[1] and most patients experience flares monthly or more frequently.[2]
- The Delphi consensus definition of a HS disease flare is a new or substantial worsening of clinical signs or symptoms.[3] However, this definition is not patient-validated.
- As HS flare presentation, description, and timing vary between patients, utilizing patient-reported data could help to better the understanding of flare predictors.

## Methods

- A survey-based longitudinal cohort study was conducted from June 2021 to August 2023, involving patients with HS who completed electronic questionnaires weekly for 8 weeks or biweekly for 16 weeks.
  - As patients of all Hurley stages experience HS flares, patients with Hurley Stage I disease were included in the analysis.
  - Questions pertained to active lesion count, disease severity, pain, itch, and possible triggers of HS flares such as diet, smoking status, and exercise.
- Flares were defined as an increase in lesion number or patient-reported disease severity from the previous week based on questionnaire responses.
- Weekly flare probability for each patient was estimated by a mixed-effects model within a Bayesian framework.
- Multiple covariates with the most complete data (lesion number, disease severity, stress, and tight clothing) from the questionnaires were included in the model to capture their influence on the observed flare probability.
- Patient-specific variability was accounted for using random effects.

## Results

### Study population and baseline characteristics

- Of 37 enrolled patients, data from 22 patients were analyzed. The remaining patients were excluded due to missing data.
- Baseline characteristics are presented in **Table 1**.

### Influence of covariates on flare probability

- Among all examined covariates, patient-reported disease severity was identified as the most influential indicator for predicting flares and exhibited a strong association (p=0.001) (**Table 2**; **Figure 1A**).
- The coefficient for patient-reported lesion number did not impact flare probability (p=0.39; **Figure 1B**). The remaining two covariates had no substantial influence on flare probability (**Figure 1C–1D**).

## Conclusions

**From this exploratory longitudinal quantitative analysis, disease severity was observed to be the primary determinant influencing HS flare probability.**

**The number of lesions was not observed to be a predictor of flare occurrence, which differs from the Delphi consensus definition of a flare.[3]**

**These initial data suggest a link between disease severity and HS flares; findings may further the understanding of flare predictors and may inform/refine care for patients with HS.**

**Future studies may consider an assessment of a larger population to minimize model overfitting, validate findings, and identify biological changes.**


**Table 1** Baseline characteristics

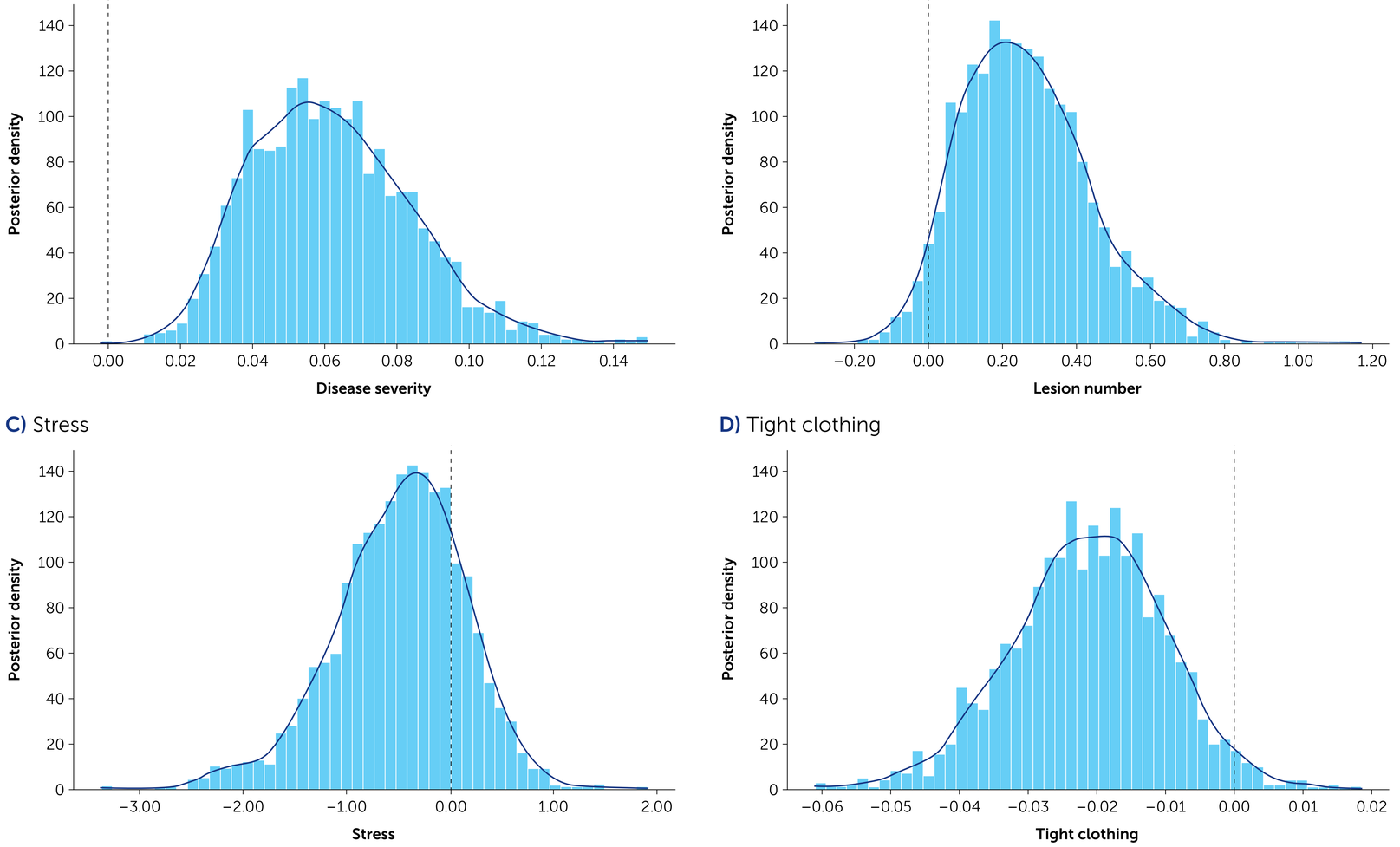
| | Patients with HS and complete data (N=22) |
|---|---|
| **Gender**, n (%) | |
| Male | 5 (22.7%) |
| Female | 16 (72.7%) |
| Other | 1 (4.5%) |
| **Race and ethnicity**, n (%) | |
| White | 9 (40.9%) |
| Black | 3 (13.6%) |
| Asian | 4 (18.2%) |
| Hispanic/Latino | 6 (27.3%) |
| **Age range**, years, n (%) | |
| 18–30 | 5 (22.7%) |
| 31–45 | 12 (54.5%) |
| 46–60 | 3 (13.6%) |
| 61–74 | 2 (9.1%) |
| ≥75 | 0 (0.0%) |
| **Hurley Stage**, n (%) | |
| I | 3 (13.6%) |
| II | 11 (50.0%) |
| III | 8 (36.4%) |

**Table 2** Coefficient values of covariates that were assessed as potential predictors of flare probability

| Covariate | Coefficient value | Standard error | p-value | t-value |
|---|---|---|---|---|
| Disease severity | 0.51 | 0.32 | **0.001** | 14.95 |
| Lesion number | 0.12 | 0.28 | 0.39 | 4.02 |
| Stress | −0.24 | 0.29 | 0.10 | −7.76 |
| Tight clothing | −0.06 | 0.24 | 0.61 | −2.35 |

P-values in bold indicate a statistically significant association.

**Figure 1** Posterior distributions of coefficients for (A) disease severity, (B) lesion number, (C) stress, and (D) tight clothing




Posterior distributions of coefficients for disease severity, lesion number, stress, and tight clothing correspond to the model fitted to indicate the probability of a patient flare. The distribution represents the uncertainty in the estimated coefficient value, taking into account both fixed and random effects in the model.

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**References:** [1]Zouboulis CC et al. J Eur Acad Dermatol Venereol. 2015;(4)619–644; [2]Garg A et al. J Am Acad Dermatol. 2020;82(2):366–376; [3]LeWitt TM et al. Br J Dermatol. 2022;187(5):785–787. **Author Contributions:** Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: **MAA**, **HAT**, **TT**, **IP**, **VH**, **JK**, **JR**, **LZ**, **MNN**, **KYS**; drafting of publication, or reviewing it critically for important intellectual content: **MAA**, **HAT**, **TT**, **IP**, **VH**, **JK**, **JR**, **LZ**, **MNN**, **KYS**; final approval of the publication: **MAA**, **HAT**, **TT**, **IP**, **VH**, **JK**, **JR**, **LZ**, **MNN**, **KYS**. **Author Disclosures: MAA:** Consulting fees from AbbVie and Santa Ana Bio; advisory board for Novartis; research funding from UCB Pharma; **HAT**, **TT**, **IP**, **MNN:** Employee and shareholder of UCB Pharma; **VH**, **JK**, **JR**, **LZ:** None; **KYS:** Research funding from UCB Pharma. **Acknowledgments:** This study was funded by UCB Pharma. The authors acknowledge Susanne Wiegratz, MSc, UCB Pharma, Monheim am Rhein, Germany for publication coordination, Jonathan Loh, BSc, Costello Medical, Singapore for medical writing and editorial assistance, and the Costello Medical Creative team for design support. All costs associated with development of this poster were funded by UCB Pharma.