

# Association of Hidradenitis Suppurativa Flares and the Menstrual Cycle: A Prospective Cohort Study

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## Summary

Little is known about the relationship between hidradenitis suppurativa (HS) flares and the menstrual cycle

HS symptoms and menses were assessed from survey responses received over 8–16 weeks

Patient perception of change in disease activity correlated to observed lesion number and severity



No association between HS flares and menstrual cycle was found

## Objective

To evaluate the association of HS flares and the menstrual cycle as reported by patients.

## Introduction

- HS disproportionately affects women of childbearing age; a significant number have reported worsening of HS with menses in single-point, cross-sectional studies.<sup>1–4</sup>
- There is a paucity of longitudinal data confirming the relationship between HS flares and menses.

## Methods

- In this prospective, longitudinal cohort study, female and non-binary identifying patients of child-bearing age with mild to severe HS answered weekly or biweekly electronic REDcap surveys assessing menstrual status and HS flares for  $\leq 16$  weeks.
  - In these surveys, patients were asked about their perceived levels of HS disease severity and symptoms, as well as menstruation experiences (Table 1).
- HS flares were defined as an increase in lesion number or disease severity over the previous week. Disease severity was rated on the Visual Analog Scale (VAS, overall severity: 0–10; worst severity: 0–100; average pain: 0–10).
- Responses were assessed by paired Friedman's test.

## Results

### Baseline demographics and characteristics

- Of 46 patients who answered the baseline survey, menstruation data were recorded from 39 patients (full cohort) based on their survey responses and were included in the analysis (Table 2).
- Among the 39 patients with menstruation data recorded, 25 (64.1%) reported a perceived association between HS symptoms and their menstrual cycle (association cohort; Figure 1).
- Overall, patients' perceptions of their lesion changes were closely aligned with their recorded changes approximately 70–80% of the time (Figure 2A). Patients' perceptions of changes in symptom severity were closely aligned with their recorded change approximately 60% of the time (Figure 2B). These findings were irrespective of the patients' menstrual cycles.
- Survey data revealed no changes in patient-reported lesion number and disease severity in the pre-menstrual ( $p=0.3$  and  $p=0.9$ , respectively) and post-menstrual ( $p=0.3$  and  $p=0.5$ , respectively) periods in the full cohort (Figure 3).
  - In the association cohort, no changes were observed in lesion number and disease severity in the pre-menstrual ( $p=0.3$  and  $p=0.9$ , respectively) and post-menstrual ( $p=0.3$  and  $p=0.4$ , respectively) periods.

## Conclusions

Although most patients reported a worsening of HS symptoms during the perimenstrual period, flares defined as an increase in lesion count or worsening of disease severity did not change.

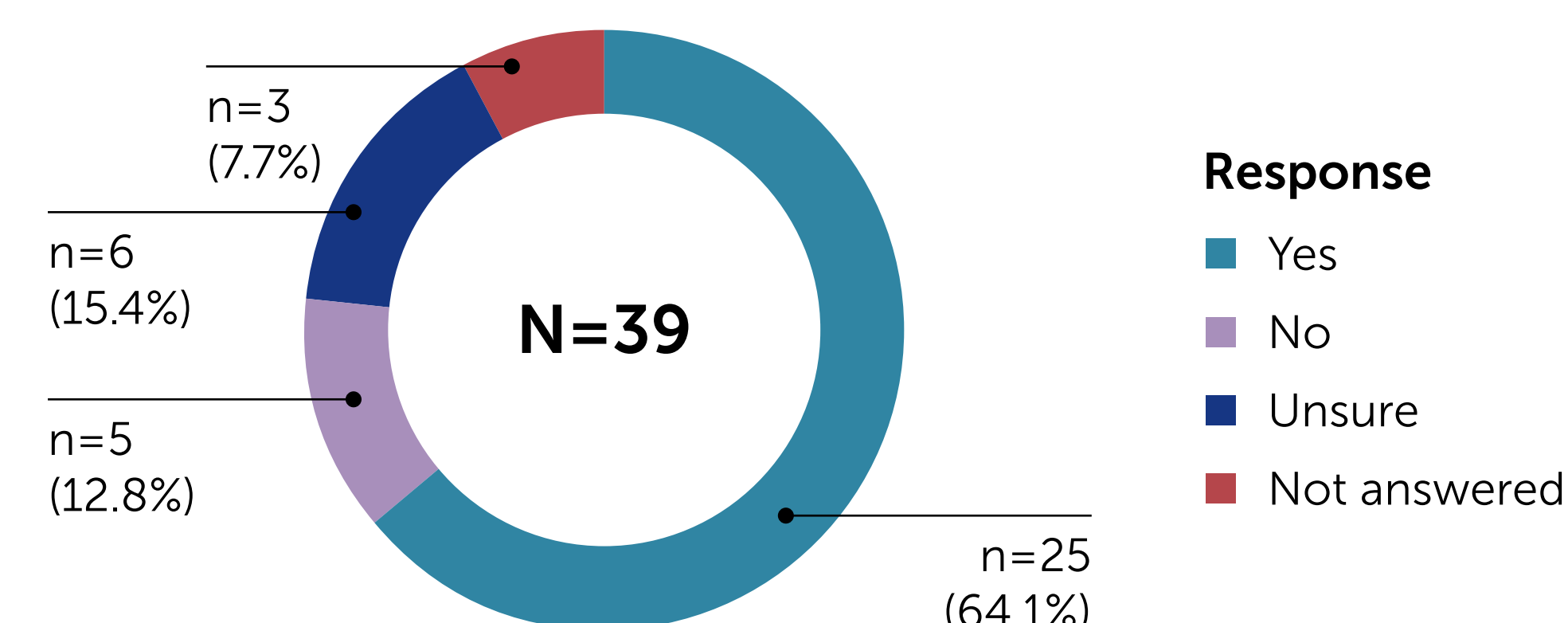
These exploratory data may point to recall bias in cross-sectional studies assessing this association; alternatively, lesion count and symptom severity may not adequately capture the full patient experience. Larger studies are needed to confirm the aforementioned relationship.

**Table 1** Survey questions on patients' perception of disease severity, symptoms, and menstruation experience

Survey questions
Are you currently experiencing a flare?
How many active lesions did you have over the last seven days?
How would you rate your overall symptom severity/worst severity/average pain over the last seven days? (VAS, overall severity: 0–10; worst severity: 0–100; average pain: 0–10)
Did your lesions/overall symptoms decrease, increase, or remain unchanged over the last seven days?
During the last seven days, have you had your menstrual period? If yes, how severe was your menstrual pain?

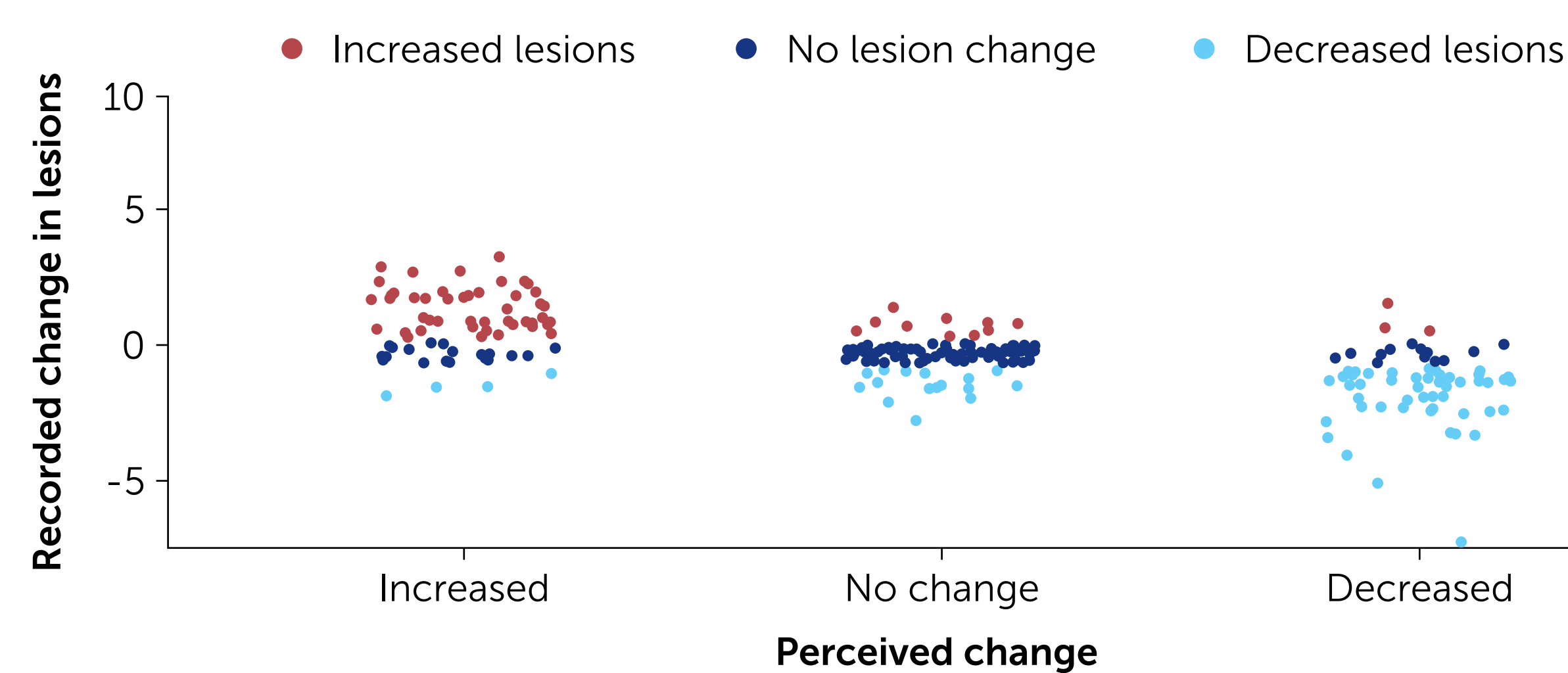
**Figure 1** Patients' perceived association of HS symptoms with their menstrual cycle

Does your menstrual cycle associate with your HS symptoms?

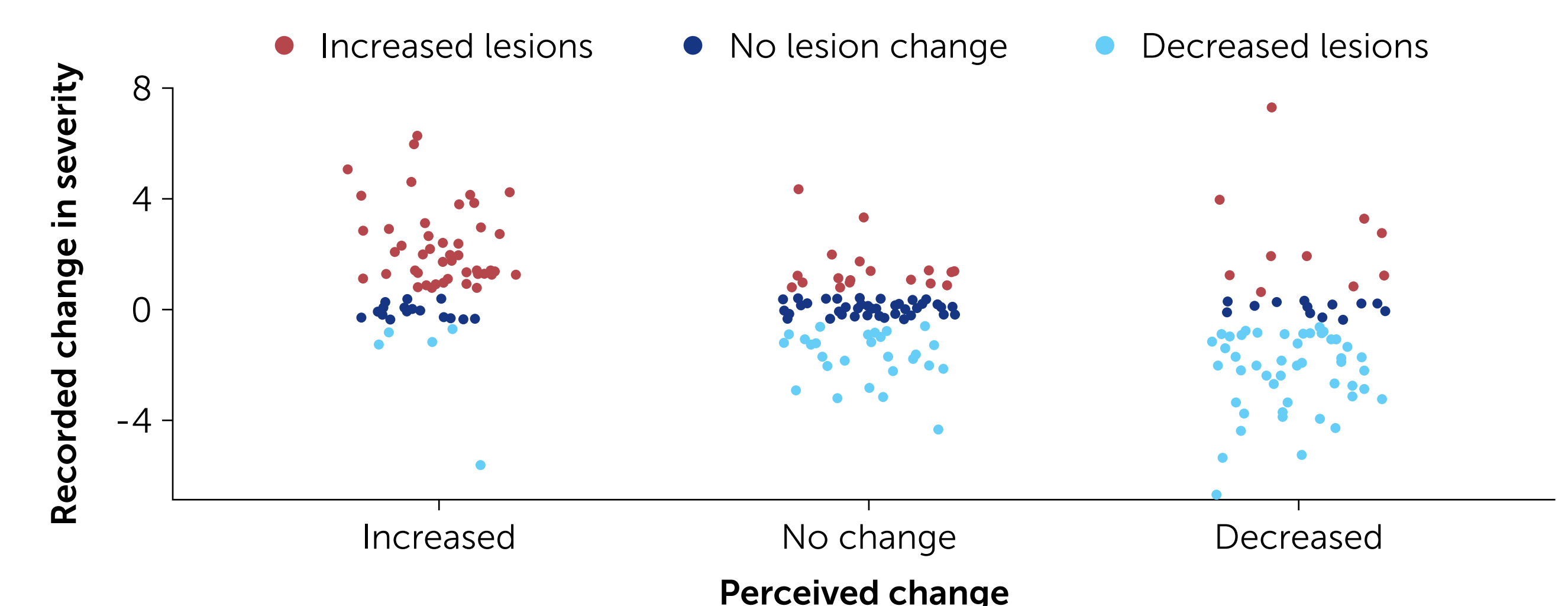


**Figure 2** Patients' perceptions of lesion change correlated with recorded lesion and overall symptom severity changes irrespective of menstrual cycles

A) Perceived lesion change versus recorded change<sup>a</sup>

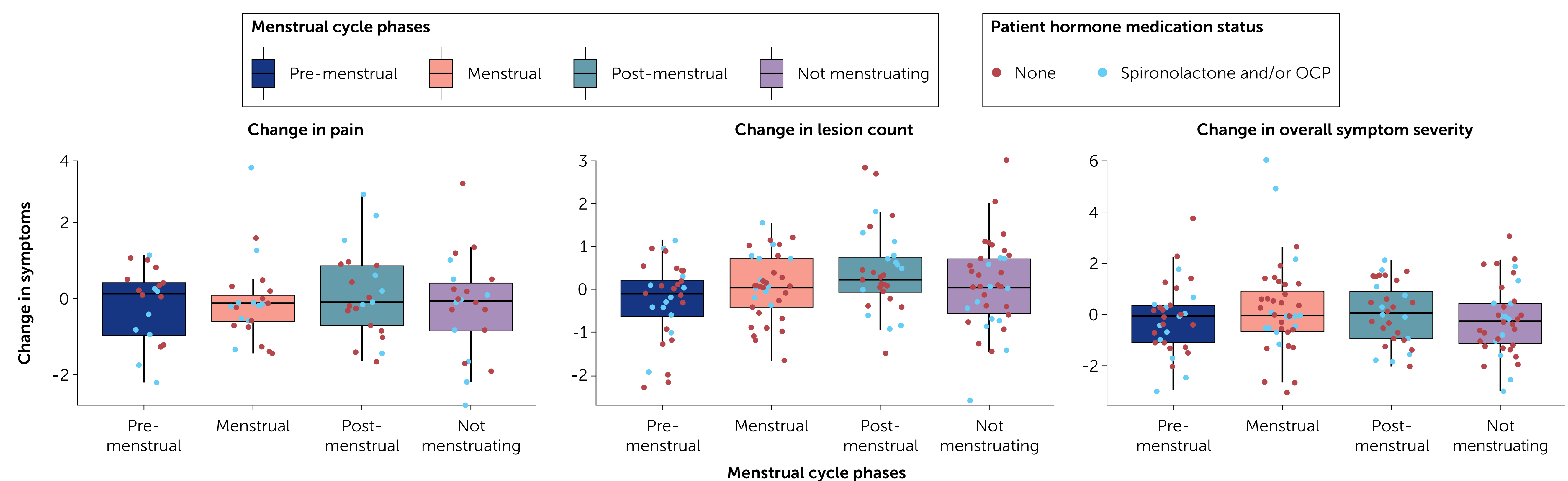


B) Perceived overall symptom severity change versus recorded change<sup>b</sup>



<sup>a</sup>Perceived change in active lesions was assessed as a result to the question 'Has your overall severity or lesion number changed in the past week as compared to the week before?'; recorded change of active lesions was calculated using:  $\text{Change in lesions}_{\text{Survey Week}} - \text{Lesion}_{\text{Survey Week - 1}}$ . <sup>b</sup>Perceived change in overall symptoms was assessed as a result to the question 'Over the last seven days, how would you rate your overall HS symptoms (0–10), with 10 being the most severe?'; recorded change of overall symptoms was calculated using the following formula:  $\text{Change in severity}_{\text{Survey Week}} - \text{Severity}_{\text{Survey Week - 1}}$ .

**Figure 3** Pain, lesion count, and overall symptom severity did not fluctuate during menstrual cycle



Across the full cohort (n=39 patients), 54 pre-menstrual weeks, 75 menstrual weeks, and 59 post-menstrual weeks were recorded. Across the association cohort (n=25 patients), 31 pre-menstrual weeks, 47 menstrual weeks, and 36 post-menstrual weeks were recorded.

HS: hidradenitis suppurativa; IQR: interquartile range; OCP: oral contraceptive pill; Q1: 1<sup>st</sup> quartile; Q3: 3<sup>rd</sup> quartile; SD: standard deviation; VAS: Visual Analog Scale.

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Author Contributions: Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: VT, HAT, MAA, JR, JK, KY, LZ, TT, IP, MNN, KYS. Drafting of publication, or reviewing it critically for important intellectual content: VT, HAT, MAA, JR, JK, KY, LZ, TT, IP, MNN, KYS. Final approval of the publication: VT, HAT, MAA, JR, JK, KY, LZ, TT, IP, MNN, KYS. Author Disclosures: VH, JR, KY, LZ: None; HAT, TT, IP, MNN: Employees and shareholders of UCB Pharma; MAA: Consulting fees from AbbVie and Santa Ana Bio; advisory board for Novartis; research funding from UCB Pharma; KYS: Research funding from UCB Pharma. Acknowledgments: This study was funded by UCB Pharma. The authors acknowledge Susanne Wiegatz, 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. Shufeng Li, Stanford University School of Medicine, California, USA, contributed to this publication through high level statistical guidance. All costs associated with the development of this poster were funded by UCB Pharma.