Skin/Joint Symptom Control and Patient-Reported Outcomes in Psoriatic Arthritis with Biologic/Targeted Synthetic Antirheumatic Drugs

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Objective

To evaluate the association between the degree of skin and joint resolution and improvements in patient-reported pain, overall health-related quality of life (HRQoL), and physical function among patients with psoriatic arthritis (PsA) initiating a biologic or targeted disease-modifying antirheumatic drug (b/tsDMARD).

Background

- PsA is a heterogeneous, chronic inflammatory condition that affects the joints, skin, and other regions of the body.[1]
- More severe symptoms, including pain, are associated with overall impairment of HRQoL.[2]
- Despite receiving recommended treatments, many patients achieve suboptimal responses.[3]

Methods

Population

- We conducted a retrospective, cross-sectional study using data from the PPD™ CorEvitas™ PsA/Spondyloarthritis registry, a prospective, observational US registry.
- Included patients were ≥18 years of age, diagnosed with PsA, and:
  - Initiated a b/tsDMARD on or after registry entry (first therapy in registry) between April 2017–March 2025
  - Had body surface area (BSA) affected by psoriasis ≥3% OR a swollen joint count (SJC) ≥1 at initiation (baseline)
  - Were treatment-persistent at 6 months follow-up (range: 5–9 months) post-initiation.

Analysis

- Here we report disease activity and patient-reported outcome (PRO) measures upon b/tsDMARD initiation and after 6 months of b/tsDMARD treatment.
  - Results were summarized with counts, means, and standard deviations (SD) for continuous variables, and counts and percentages for categorical variables.
- We also investigated the association of achievement of different degrees of resolution of skin and/or joint symptoms and improvements in pain (measured using a visual analog scale [VAS]), overall HRQoL (measured using the EuroQoL [EQ]-VAS and EQ-5-Dimension 5-Level [EQ-5D-5L]), and physical function (measured using the Health Assessment Questionnaire Disability Index [HAQ-DI]).
- Changes from initiation to follow-up in pain VAS, EQ-VAS, EQ-5D-5L, and HAQ-DI scores were each fit to multivariable linear regression models (including adjustment for baseline BSA and SJC). Models were run separately, first using BSA and SJC at follow-up as continuous exposure variables with their interaction, and then using a categorical variable combining BSA and SJC with 6 levels:
  - Neither skin clearance nor joint resolution (BSA≥3% and SJC≥1)
  - Some skin clearance without joint resolution (0%<BSA<3% and SJC≥1)
  - Skin clearance without joint resolution (BSA=0% and SJC≥1)
  - No skin clearance with joint resolution (BSA≥3% and SJC=0)
  - Some skin clearance with joint resolution (0%<BSA<3% and SJC=0)
  - Optimal skin clearance and joint resolution (BSA=0% and SJC=0).

Results

Patients

- Among the 994 patients included in this analysis, mean age was 54.1 years; 581 (58.6%) were female, and 877 (89.8%) were white (**Table 1**).
- At treatment initiation, mean (SD) BSA was 7.7% (13.4%) and mean (SD) SJC was 4.3 (6.0) (**Table 2**).

Unadjusted disease activity and PRO measures following six months of treatment

- At follow-up, BSA and SJC decreased to 2.4% (5.2%) and 1.9 (3.7), respectively (**Table 2**).
  - Following initiation, mean pain VAS decreased by 12.9 points; mean EQ-VAS increased by 5.0 points; mean EQ-5D-5L increased by 0.08 points; and mean HAQ-DI decreased by 0.15 points (**Table 2**).
- After 6 months of treatment, just 235 patients (25.2%) achieved optimal response (BSA=0% and SJC=0; **Figure 1**).

Association analysis

- Results of the association analysis are summarized in **Figure 2**.
- Compared with patients achieving optimal response at follow-up, patients who did not achieve optimal response had reductions in improvements in pain VAS, EQ-VAS, EQ-5D-5L and HAQ-DI.
  - Reductions were greatest for patients with neither skin clearance nor joint resolution (pain VAS: –15.8, EQ-VAS: –8.4, EQ-5D-5L: –0.10, HAQ-DI: –0.31)
  - Reductions were lowest for patients with some skin clearance and joint resolution (pain VAS: 0.1, EQ-VAS: –1.0, EQ-5D-5L: –0.001, HAQ-DI: –0.02).
- Using continuous BSA and SJC, patients who had joint resolution without skin clearance, or had skin clearance without joint resolution, had reductions in pain VAS, EQ-VAS, EQ-5D-5L, and HAQ-DI improvement.

Conclusions

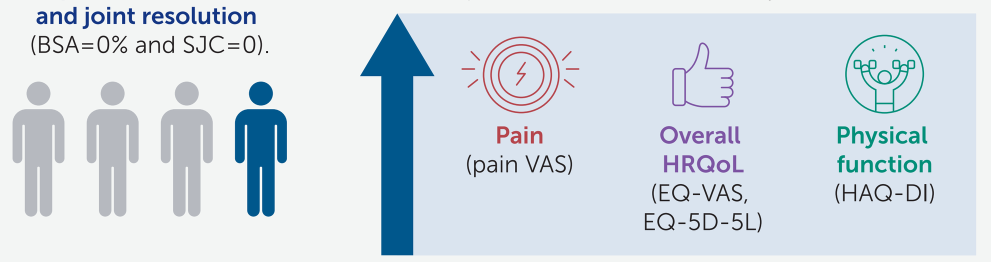
In this real-world cohort, relatively few patients achieved both skin clearance and joint resolution 6 months after initiating b/tsDMARD therapy. Patients who achieved both outcomes experienced greater improvements in PROs than those who achieved only joint resolution, only skin clearance, or neither. These findings highlight the need for treatment strategies and therapies that effectively address both skin and joint symptoms, to achieve greater QoL benefits.

Summary

Using data from the CorEvitas PsA/Spondyloarthritis Registry, we evaluated the **association** between **joint and skin symptom resolution** and **improvements in patient-reported pain, HRQoL, and physical function** in patients with PsA initiating **b/tsDMARD therapy**.

After 6 months of b/tsDMARD treatment: **Only ~1/4 patients achieved complete skin clearance and joint resolution** (BSA=0% and SJC=0).

Complete skin clearance and joint resolution were associated with **greater improvements** in measures of **pain, HRQoL, and physical function** compared with incomplete skin clearance and/or joint resolution.



This highlights the need for developing advanced therapies that address **both skin and joint symptoms**, to achieve greater **QoL benefits**.

Table 1 Baseline characteristics and disease activity measures among patients initiating a b/tsDMARD therapy

	Total patients included (N=994)
Demographic characteristics	
Age, years, means (SD) [N]	54.1 (12.8) [994]
Sex, female, n/N (%)	581/991 (58.6)
Race, white, n/N (%)	877/977 (89.8)
Ethnicity, Non-Hispanic or Latino, n/N (%)	811/893 (90.8)
Lifestyle characteristics	
BMI,[a] n/N (%)	
Underweight/normal (<25 kg/m²)	133/991 (13.4)
Overweight (≥25–<30 kg/m²)	261/991 (26.3)
Obese (≥30 kg/m²)	597/991 (60.2)
Private insurance only, n/N (%)	718/993 (72.3)
Full-time work status, n/N (%)	547/992 (55.1)
Current smoker, n/N (%)	125/987 (12.7)
Disease characteristics	
Duration of PsA (years), median (IQR) [N]	3.0 (1.0, 9.0) [990]
Age at PsA onset (years), mean (SD) [N]	44.1 (14.2) [983]
Family history of SpA, n/N (%)	27/994 (2.7)
Treatment characteristics	
Current PsA therapy by MOA, n/N (%)	
TNFi[b]	419/994 (42.2)
IL-17i[c]	312/994 (31.4)
IL-23i[d]	118/994 (11.9)
JAKi[e]	76/994 (7.6)
IL-12/23i[f]	44/994 (4.4)
CD80/86i[g]	25/994 (2.5)
Comorbidities, n/N (%)	
Cardiovascular disease	102/994 (10.3)
Malignancies	106/993 (10.7)
Depression	199/994 (20.0)
Anxiety	122/994 (12.3)
Diabetes	167/994 (16.8)
Uveitis	10/994 (1.0)
IBD	21/994 (2.1)
Osteoporosis	27/994 (2.7)

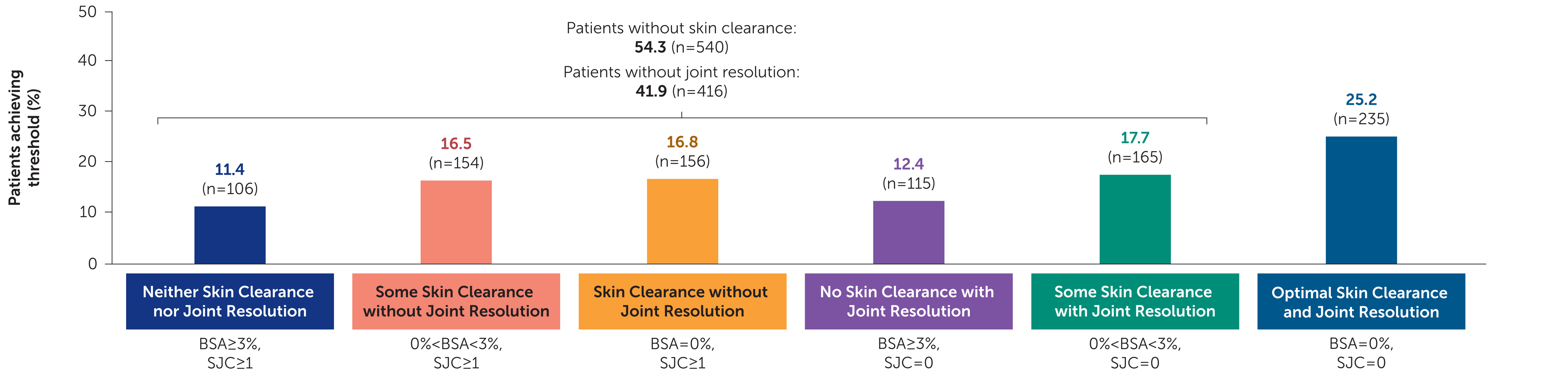
[a] CDC BMI categories for adults ≥20 years of age; [b] Adalimumab, certolizumab pegol, etanercept, golimumab, and infliximab and its biosimilars; [c] Bimekizumab, ixekizumab, and secukinumab; [d] Guselkumab and risankizumab; [e] Tofacitinib and upadacitinib; [f] Ustekinumab; [g] Abatacept.

Table 2 Disease activity and PRO measures at baseline and 6 months follow-up[a]

Mean (SD) [N], unless otherwise specified	Baseline visit at b/tsDMARD initiation (N=994)	Follow-up visit 6 months post-initiation (N=994)
Disease activity measures		
PGA of arthritis (VAS-100)	37.5 (24.0) [991]	18.7 (20.3) [974]
PGA of arthritis and psoriasis (VAS-100)	42.9 (24.5) [993]	21.1 (21.6) [973]
BSA (% involvement)	7.7 (13.4) [980]	2.4 (5.2) [950]
BSA category, n/N (%)		
Mild disease (≥0–<3%)	464/980 (47.3)	721/950 (75.9)
Moderate disease (≥3–<10%)	277/980 (28.3)	163/950 (17.2)
Severe disease (10–100%)	239/980 (24.4)	66/950 (6.9)
Nail psoriasis (VAS-100)	10.8 (20.9) [978]	5.8 (14.4) [952]
TJC (of 68 joints)	8.3 (10.4) [992]	4.6 (8.4) [946]
SJC (of 66 joints)	4.3 (6.0) [992]	1.9 (3.7) [946]
cDAPSA (Score: 0–154)	22.7 (16.7) [977]	14.2 (13.8) [929]
cDAPSA category, n/N (%)		
Remission (>0–≤4)	58/977 (5.9)	229/929 (24.7)
Low (>4–≤13)	218/977 (22.3)	297/929 (32.0)
Moderate (>13–≤27)	437/977 (44.7)	289/929 (31.1)
High (>27–≤154)	264/977 (27.0)	114/929 (12.3)
IGA of psoriasis, n/N (%)		
Clear (Score: 0)	219/984 (22.3)	412/963 (42.8)
Almost clear (Score: 1)	147/984 (14.9)	252/963 (26.2)
Mild disease (Score: 2)	275/984 (27.9)	183/963 (19.0)
Moderate disease (Score: 3)	263/984 (26.7)	102/963 (10.6)
Severe disease (Score: 4)	80/984 (8.1)	14/963 (1.5)
mPASDAS (Score: 0–10)	4.8 (1.3) [699]	3.5 (1.6) [565]
Dactylitis count (Score: 0–20)	0.5 (1.5) [994]	0.2 (0.9) [994]
SPARCC enthesitis index (Score: 0–16)	1.1 (2.4) [994]	0.6 (1.7) [994]
LEI (Score: 0–6)	0.5 (1.1) [911]	0.3 (0.9) [892]
MDA, n (%) [N]	124 (12.5) [992]	371 (38.1) [974]
VLDA, n (%) [N]	15 (1.5) [993]	138 (14.0) [986]
mACR50 at index visit, n/N (%)	–	233/969 (24.2)
PRO measures		
PtGA of PsA (VAS-100)	46.1 (26.5) [983]	36.0 (28.0) [978]
PtGA of PsA and psoriasis (VAS-100)	46.7 (26.8) [984]	35.8 (28.0) [975]
HAQ-DI (Score: 0–3)	0.89 (0.65) [990]	0.74 (0.66) [983]
Pain (VAS-100)	53.5 (27.5) [987]	40.6 (28.5) [986]
Fatigue (VAS-100)	51.5 (28.3) [990]	42.6 (29.2) [986]
Spine pain (VAS-100)	34.9 (31.2) [986]	28.9 (29.6) [982]
Morning stiffness (VAS-100)	55.8 (28.8) [990]	41.9 (30.4) [984]
EQ-VAS (Score: 0–100)	62.0 (20.9) [990]	67.0 (20.7) [987]
EQ-5D-5L (Score: 0–1)	0.60 (0.29) [988]	0.68 (0.28) [982]
BASDAI (VAS-10)	5.1 (2.4) [982]	4.0 (2.5) [976]
WPAI: currently employed, n/N (%)	594/989 (60.1)	583/986 (59.1)
WPAI (Score: 0–100%)		
Absenteeism	9.7 (22.8) [551]	5.2 (16.5) [525]
Presenteeism	30.7 (27.8) [587]	23.0 (24.6) [569]
Work impairment	35.8 (30.5) [548]	26.4 (26.8) [522]
Activity impairment	43.0 (29.6) [979]	32.3 (28.8) [971]

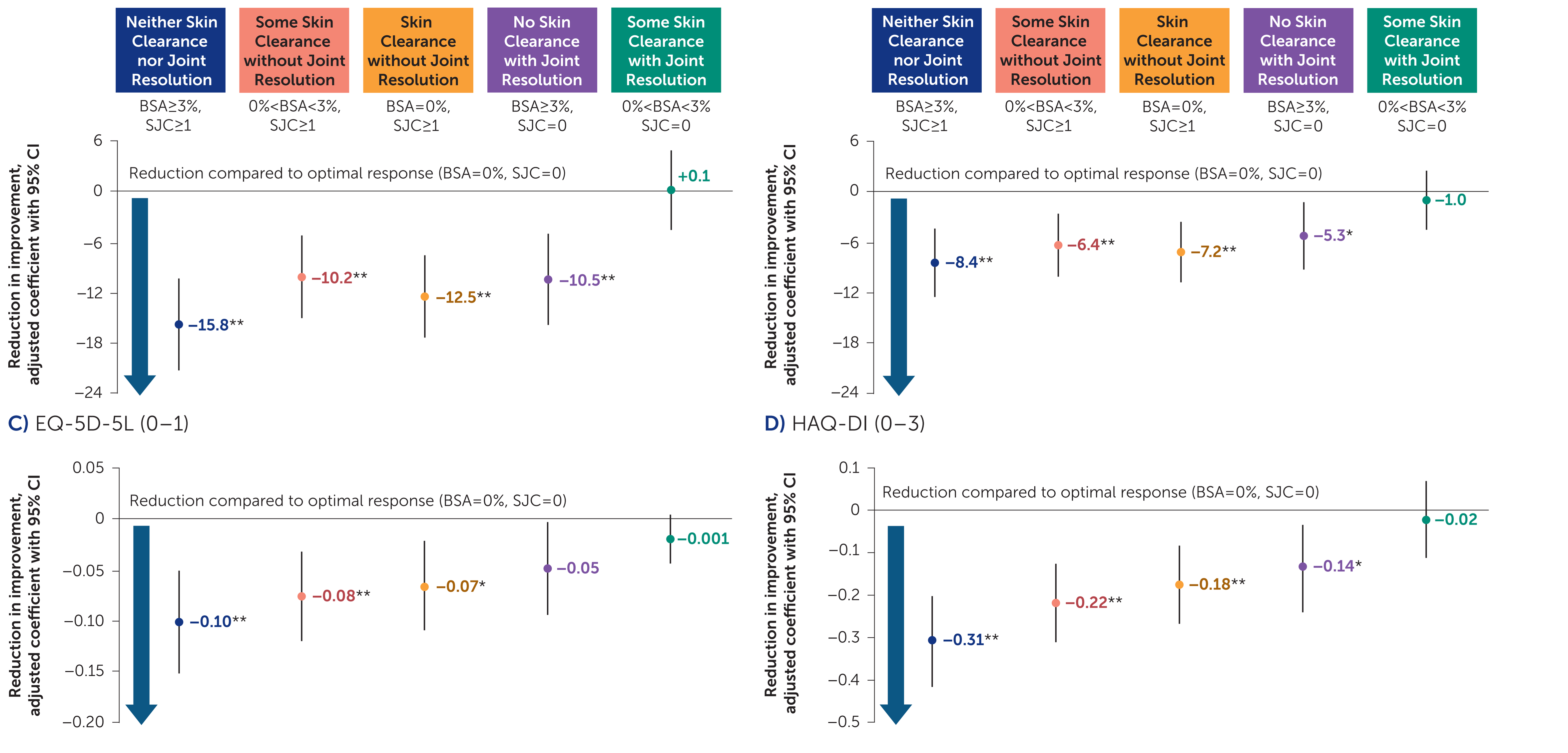
[a] Follow-up was 6 months (range: 5–9 months) post-initiation.

Figure 1 Proportion of patients achieving different thresholds of BSA and SJC response at 6 months follow-up



N=994, 63 patients were missing BSA/SJC values at follow up.

Figure 2 Reductions in improvement in measures of pain, HRQoL, and physical function compared with patients who achieved optimal response stratified by combined BSA and SJC categorical exposure variable



*p≤0.01, **p<0.001. Negative values indicate a reduction in improvement compared with patients who achieved optimal response. Values were adjusted for covariates. Covariates included in the model for change in pain VAS-100 were PGA of arthritis and psoriasis, BSA and SJC at b/tsDMARD initiation and at follow-up 6 months post-initiation, pain, fatigue, spine pain, WPAI, current employed status, prior use of b/tsDMARDs, current use of NSAIDs, and current use of opioids. Covariates included in the model for change in EQ-VAS were age, BSA and SJC at b/tsDMARD initiation and at follow-up 6 months post-initiation, fatigue, stiffness severity, EQ-VAS, PtGA of PsA and Psoriasis, and current use of opioids. Covariates included in the model for change in EQ-5D-5L were age, sex, race, smoking history, BSA and SJC at b/tsDMARD initiation and at follow-up 6 months post-initiation, TJC, pain, fatigue, spine pain, EQ-5D-5L, current employed status, PtGA of PsA and psoriasis, prior use of cDMARDs, prior use of b/tsDMARDs, and current opioid use. Covariates included in the model for change in HAQ-DI were age, sex, race, obesity, history of diabetes, family history of SpA, BSA and SJC at b/tsDMARD initiation and at follow-up 6 months post-initiation, TJC, fatigue, current employed status, HAQ-DI, prior use of b/tsDMARDs, and current opioid use.

BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; **BSA:** body surface area; **b/tsDMARD:** biologic or targeted synthetic disease-modifying antirheumatic drug; **BMI:** body mass index; **cDAPSA:** Clinical Disease Activity Index for PsA; **CD:** cluster of differentiation; **CDC:** Centers for Disease Control and Prevention; **CI:** confidence interval; **EQ-5D-5L:** EuroQoL 5-Dimension 5-Level; **EQ-VAS:** EuroQoL VAS; **HAQ-DI:** Health Assessment Questionnaire Disability Index; **HRQoL:** health-related quality of life; **i:** inhibitor; **IBD:** inflammatory bowel disease; **IGA:** Investigator Global Assessment; **IL:** interleukin; **IQR:** interquartile range; **JAK:** Janus kinase; **LEI:** Leeds Enthesitis Index; **mACR50:** 50% improvement in modified American College of Rheumatology response; **MDA:** minimal disease activity; **MOA:** mechanism of action; **mPASDAS:** modified Psoriatic Disease Activity Score; **NSAID:** nonsteroidal anti-inflammatory drug; **PGA:** Physician Global Assessment; **PRO:** patient-reported outcome; **PsA:** psoriatic arthritis; **PtGA:** Patient Global Assessment; **SD:** standard deviation; **SJC:** swollen joint count in 66 joints; **SpA:** Spondyloarthritis; **SPARCC:** Spondyloarthritis Research Consortium of Canada; **TJC:** tender joint count in 68 joints; **TNF:** tumor necrosis factor; **VAS:** Visual Analog Scale; **VLDA:** very low disease activity; **WPAI:** Work Productivity and Activity Impairment.

References: [1]Gottlieb A. J Dermatolog Treat 2020;31:662–79; [2]Merola JF. Rheumatol Ther 2019;6:33–45; [3]Sundanum S. Int J Mol Sci 2023;24:6384.
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