Variability in patient-reported impacts of seborrheic dermatitis: physician-rated disease severity measures may not tell the whole story

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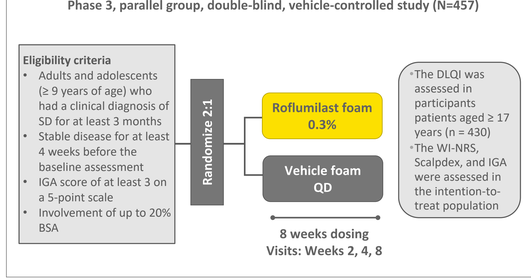
INTRODUCTION

- Seborrheic dermatitis (SD) is a common chronic, inflammatory dermatologic condition with erythematous, pruritic patches that affect areas of the body with sebaceous glands including the scalp, face, ears, upper chest, and back[1]
- Although SD is a relatively common condition, its clinical presentation and related impacts are underrepresented in the literature due in part to the limited development of new treatments for SD
- Specifically, there is a paucity of published evidence to describe the patient-reported effects of SD on health-related quality of life (QOL). In addition, physician-rated clinical measures may not fully capture important patient considerations
- This analysis aimed to describe the patient-reported perceptions of the impact of SD on QOL, and to explore the relationships among physician- and patient-rated disease measures in patients with moderate-to-severe SD

METHODS

- The analyses were performed on patient- and physician-assessed endpoints from STRATUM, a Phase III clinical trial evaluating the safety and efficacy of roflumilast foam 0.3% in patients with moderate-to-severe SD (**Figure 1**)
- Patient-reported impacts of SD were evaluated using the Dermatology Life Quality Index (DLQI), the Worst Itch Numerical Rating Scale (WI-NRS), and the Scalpdex questionnaire (**Table 1**). Disease severity was assessed using a 5-point physician-administered investigator global assessment (IGA), a common primary clinical endpoint used in dermatology clinical trials (**Table 1**)
- A Kruskal–Wallis rank sum test was performed to test for differences in DLQI scores at baseline by IGA severity groups. Box plots were produced to qualitatively compare the distribution of baseline DLQI scores across moderate and severe IGA groups
- The correlation of baseline DLQI scores with baseline WI-NRS and Scalpdex scores (total and emotion, functioning and symptoms subscales) was evaluated using Pearson's correlation coefficient to assess construct and criterion validity of the DLQI to common clinical and patient-reported endpoints

Figure 1. STRATUM study design



[a] Based on the roflumilast foam 0.3% group.
Key: BSA, body surface area; DLQI, Dermatology Life Quality Index; IGA, Investigator Global Assessment; QD, once daily; SD, seborrheic dermatitis; WI-NRS, Worst Itch Numeric Rating Scale.

Table 1. STRATUM patient- and physician-rated outcomes

Outcome	Patient- vs physician-rated	Target disease	Measure	Number of items	Scoring
DLQI	Patient-rated	Skin diseases	Overall QOL over the past week	10-items	0–30; higher scores indicate greater impairment
WI-NRS	Patient-rated	Skin diseases	Intensity of the worst itching over the past 24 hours	1-item	0–10; higher scores indicate greater intensity
Scalpdex	Patient-rated	Scalp dermatitis	QOL related to emotion, functioning, and symptom subscales	23-items	0–100; higher scores indicate greater impairment
IGA	Physician-rated	Skin diseases	Disease severity	5-point scale	0–4; higher scores indicate greater severity

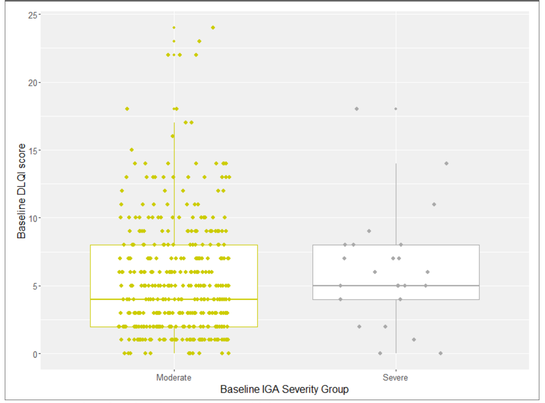
Key: DLQI, Dermatology Life Quality Index; IGA, Investigator Global Assessment; WI-NRS, worst itch numerical rating scale; QOL, quality of life.

Table 2. Baseline DLQI score by IGA severity group

	IGA severity group	N	Mean (95% CI)*	Median	p-value*
DLQI at baseline	Moderate	405	5.40 (4.99, 5.80)	4	0.35570
	Severe	25	5.96 (4.52, 7.64)	5	

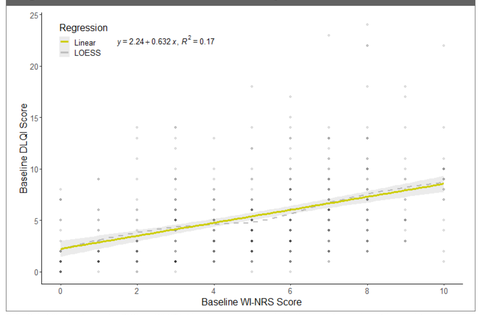
* p-values are based on the results obtained from the Kruskal-Wallis rank sum test, which was selected over ANOVA due to a violation of the normality assumption (assessed using the Shapiro–Wilk normality test and quantile–quantile plots). Bootstrapping was used to estimate the mean DLQI and 95% CIs.
Key: ANOVA – analysis of variance; CI, confidence interval; DLQI, Dermatology Life Quality Index; IGA, Investigator Global Assessment.

Figure 2. Mean baseline DLQI score by IGA severity group



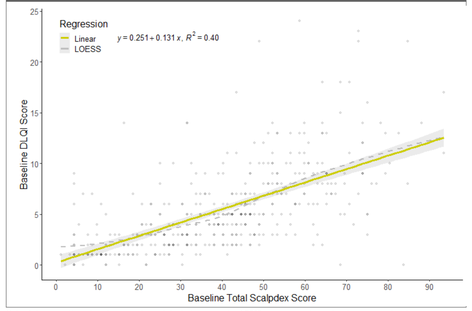
Key: DLQI, Dermatology Life Quality Index; IGA, Investigator Global Assessment.

Figure 3. Baseline DLQI scores by WI-NRS scores



Note: Only 422 patients reported DLQI and WI-NRS at baseline and were included in the correlation analysis. A linear relationship between variables is indicated where the LOESS curve closely tracks the linear regression line.
Key: DLQI, Dermatology Life Quality Index; LOESS, locally estimated scatterplot smoothing; WI-NRS, worst-itch numerical rating scale.

Figure 4. Baseline DLQI scores by total Scalpdex scores

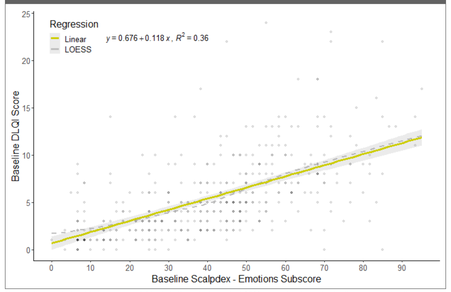


Note: A linear relationship between variables is indicated where the LOESS curve closely tracks the linear regression line.
Key: DLQI, Dermatology Life Quality Index; LOESS, locally estimated scatterplot smoothing.

RESULTS

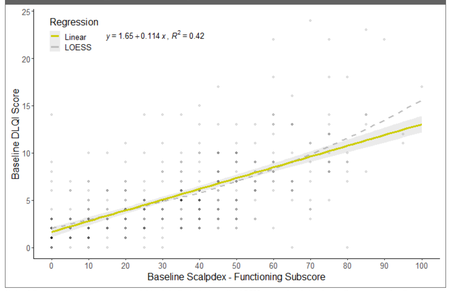
- 430 patients were included in the analyses. Mean baseline DLQI scores for patients with moderate IGA severity was 5.40 (95% CI: 4.99, 5.80), compared with 5.96 (95% CI: 4.52, 7.64) for patients categorized as having severe SD (p = 0.356) (**Table 2**)
- The box plots indicated substantial variability in patient-reported impacts (DLQI) of SD; in particular, the DLQI baseline scores in the moderate severity group had a large variance, with some patients reporting DLQI scores up to 24 (extremely large effect on QOL) (**Figure 2**)
  - DLQI scores in the severe IGA severity group ranged from 0 (no effect on QOL) to 18 (very large effect on QOL)
- A positive, moderate correlation was observed between DLQI and WI-NRS at baseline (r = 0.408; p < 0.001) (**Figure 3**)
- A moderate-to-strong positive correlation was observed between DLQI and Scalpdex at baseline for total (r = 0.634; p < 0.001), emotion (r = 0.598; p < 0.001), functioning (r = 0.651; p < 0.001), and symptom (r = 0.418; p < 0.001) scales (**Figures 4–7**)

Figure 5. Baseline DLQI scores by Scalpdex scores (emotion subscale)



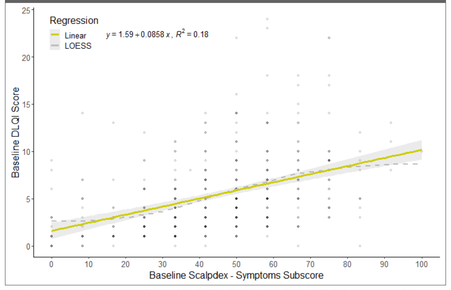
Note: A linear relationship between variables is indicated where the LOESS curve closely tracks the linear regression line.
Key: DLQI, Dermatology Life Quality Index; LOESS, locally estimated scatterplot smoothing.

Figure 6. Baseline DLQI scores by Scalpdex scores (functioning subscale)



Note: A linear relationship between variables is indicated where the LOESS curve closely tracks the linear regression line.
Key: DLQI, Dermatology Life Quality Index; LOESS, locally estimated scatterplot smoothing.

Figure 7. Baseline DLQI scores by Scalpdex scores (symptom subscale)



Note: A linear relationship between variables is indicated where the LOESS curve closely tracks the linear regression line.
Key: DLQI, Dermatology Life Quality Index; IGA, Investigator Global Assessment; LOESS, locally estimated scatterplot smoothing; WI-NRS, worst-itch numerical rating scale.

LIMITATIONS

- Although the DLQI, IGA, and WI-NRS are commonly used endpoints in dermatology clinical trials, they are not specific to SD and may not reflect the full impact of SD on patient QOL
- Compared to the moderate IGA severity group, the sample size for those with a severe IGA score was limited and may not fully reflect the respective patient population
- Patients with IGA scores below 3 (moderate severity) were not included in the analysis; therefore, conclusions may not be applicable to those with SD classified as clear (0), almost clear (1), or mild (2)
- This analysis excluded participants from STRATUM aged 9 to < 17 years. Therefore, results would need to be confirmed in younger patients

CONCLUSIONS

- Patient-reported impacts of the effect of moderate-to-severe SD on QOL varied significantly within IGA groups. Many patients in the STRATUM trial reported DLQI scores indicative of an extremely large effect on QOL; in particular, those with a moderate IGA score reported DLQI scores up to 24
- Mean baseline DLQI scores from the STRATUM trial were similar across moderate and severe IGA groups, with substantial variability within severity strata. This suggests that patient impacts are not fully captured by common physician-rated disease severity endpoints
- The moderate correlation between DLQI and WI-NRS suggests that itch severity and patient-reported QOL are related and provides evidence of construct validity of the DLQI in assessing SD patient burden. The moderate-to-strong correlation between DLQI and Scalpdex (total and subscales) provides additional evidence of criterion validity of the DLQI for dermatologic conditions that commonly affect the scalp
- As disease measures may not always reflect the full patient impact, assessment of patient-centered endpoints alongside standard clinical assessments should be considered as a necessary component of new drug evaluations

DISCLOSURES
This study was funded by Arcutis Biotherapeutics, Inc. DC and BS are employees of Arcutis Biotherapeutics, Inc. JL, BB, CH, RB and TW are employees of Lumanity, Inc., a consulting company that provides paid consulting services to Arcutis Biotherapeutics, Inc. MZ is an employee of DOCS Dermatology.

REFERENCES

1. Dall'Oglio et al. *Clin Cosmet Investig Dermatol*. 2022; 15:1537-1548.