Poor correlation between clinician-reported outcomes and patient-reported outcomes is observed in non-white patients with atopic dermatitis

Jourdan Hydol Smith, BA[1], Jonathan I. Silverberg, MD, PhD, MPH[2]

1. Texas A&M School of Medicine, College Station, TX USA
2. Department of Dermatology, The George Washington University School of Medicine and Health Sciences, Washington, DC USA

Introduction

- Atopic dermatitis (AD) manifests differently across diverse patient populations, potentially leading to challenges in its assessment and management.[1]
- Additionally, pigment masking may obscure erythema and other AD signs leading to misclassification of AD severity in patients with darker phototypes.[2, 3]

Objectives

- We hypothesized that clinician-reported outcome measures may not perform as well in non-white vs. white patients.
- To test this, we examined whether clinician-reported outcome measures have weaker correlations with established patient-reported outcome measures across different races or ethnicities.

Methods

- A prospective, dermatology practice-based study was performed in children and adults with AD as defined by the Hanifin-Rajka diagnostic criteria.
- Patients were enrolled sequentially between January 2014 and September 2019.
- Electronic surveys were completed by patients/caregivers, including self-identified race and Hispanic ethnicity, Numerical Rating Scale (NRS) for average-itch in the past 7 days, and Patient-Oriented Eczema Measure (POEM).
- Investigator assessments of AD severity were performed by a dermatologist (J.I.S.) and included the Eczema Area and Severity Index (EASI), and the objective component of SCORAD (oSCORAD).
- Spearman correlations were performed for POEM and NRS-itch vs. oSCORAD and EASI.
- Correlation coefficients were interpreted as: ≥0.70 or ≤-0.70=very strong, 0.50 to 0.69 or -0.69 to -0.50=strong, 0.30 to 0.49 or -0.49 to -0.30=moderate, and 0.10 to 0.29 or -0.29 to -0.10=weak.[4]

Results

- Overall, 1987 patients were included in the study (age <18yr: 101 [5.08%], ≥18yr: 1886 [94.92%]), including 198 (9.96%) Black, 360 (18.12%) Asian, 8 (0.40%) Multiracial/Other, 1313 (66.08%) White race, and 108 (5.44%) Hispanic ethnicity.
- In white patients, POEM and NRS average-itch had strong correlations with oSCORAD and EASI. Whereas in black patients, POEM had only moderate correlations with oSCORAD and EASI NRS average-itch had weak-moderate correlations with oSCORAD and EASI.
- Asian/Pacific Islander patients also had numerically weaker correlations of POEM with oSCORAD and EASI compared to white patients, but strong or very strong correlations of NRS average-itch with oSCORAD and EASI.
- Patients with Hispanic ethnicity also showed weaker correlations for POEM with oSCORAD and EASI compared to whites, as well as weaker correlations of NRS average-itch with EASI.

Figure 1. Patient Demographics

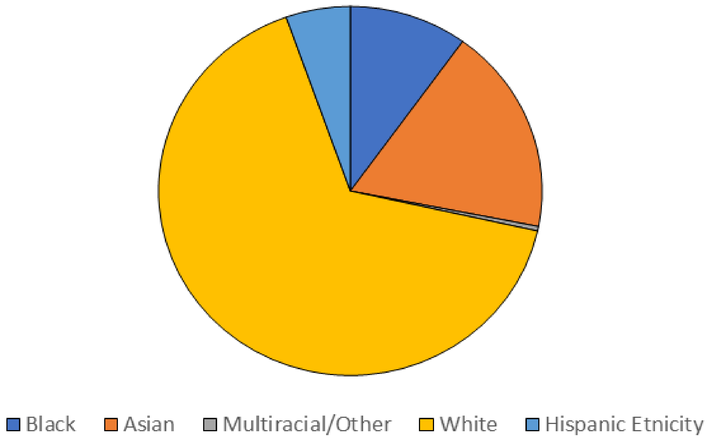

Table I: Spearman correlation of physician-reported outcomes with patient reported outcomes in atopic dermatitis by race.

	POEM**		NRS average-itch**	
Race	oSCORAD	EASI	oSCORAD	EASI
White	0.52	0.50	0.60	0.57
Black	0.40	0.46	0.26	0.36
Asian/Pacific Islander	0.38	0.41	0.65	0.70
Hispanic ethnicity	0.38	0.26	0.56	0.26

Conclusion

- The modest correlation observed between PROMs and clinician-reported outcome measures in general highlights the importance of measuring both signs and symptoms to fully describe severity of AD.
- This is particularly important in non-white patients who had notably weaker correlations between PROMs and clinician-reported outcome measures.
- The poor correlation between patient-reported outcome measures and clinician-reported outcome measures may be multifactorial, including pigment masking limiting assessment of erythema and other AD signs in patients with darker phototypes[3], more severe pruritus and morphologic variants occurring in blacks and Asians/Pacific Islanders that may not adequately be represented in oSCORAD and EASI.
- AD severity is often underestimated in in patients with darker phototypes.[3]
- Future efforts are needed to optimize clinician assessments of AD severity in diverse patient populations.

References

1. Zhao CY, Hao EY, Oh DD, et al. A comparison study of clinician-rated atopic dermatitis outcome measures for intermediate- to dark-skinned patients. British Journal of Dermatology. 2017;176(4):985-992.

2. Charman CR, Venn AJ, Williams H, et al. Measuring Atopic Eczema Severity Visually. Archives of Dermatology. 2005;141(9).

3. Chansky PB, Mittal L, Werth VP. Dermatological evaluation in patients with skin of colour: the effect of erythema on outcome measures in atopic dermatitis. British Journal of Dermatology. 2017;176(4):853-854.

4. Dancey CP, Reidy J. Statistics without maths for psychology. New York: Pearson 2017.