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A cross-sectional study of psoriasis triggers among different ethnoracial groups

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Psoriasis is a common inflammatory skin condition that affects 1.5–3% of the US population.¹ While the prevalence and genetic risk factors of psoriasis differ by ethnicity,^{1,2} it is unknown how exacerbating factors of psoriasis compare across ethnoracial groups. The genetic risk factors specific to ethnoracial groups may predispose individuals to variations in skin responses when exposed to certain environmental insults. The aim of this study is to identify whether exacerbating factors for psoriasis vary between ethnoracial groups.

We used cross-sectional survey data from 897 adult and pediatric psoriasis patients seen from 2006 to 2016 at the University of California, San Francisco Department of Dermatology. Patients were classified into four ethnoracial groups (61% self-identified as Caucasian, 25% Asian, 8% Hispanic/Latino, and 5% as “Other”). To compare the distribution of six common patient-reported exacerbating factors (stress, infection, skin injury, strep throat, winter season, medications) between ethnoracial groups, we conducted multivariable logistic and ANCOVA regression analyses in R using BMI, age, age of onset, and gender as covariates. Fisher’s exact test was used to compare the distribution of medication types.

Analysis of baseline demographics revealed Asians were significantly younger at the time of presentation than Caucasians. Hispanics/Latinos had higher BMI’s than Caucasians. Age of onset and gender distribution did not differ significantly between ethnoracial groups.

Logistic regression models [Table 1] revealed that Asians had more than twice the odds of reporting stress as an exacerbating factor compared to Caucasians (OR=2.05 [95% CI: 1.18–3.70], p=0.0135). Similarly, there was a trend among Hispanics/Latinos towards a high odds of reporting stress as an exacerbating factor compared to Caucasians (OR=2.27, p=0.073).

There was also a trend towards lower odds of medications as an exacerbating factor among Asians compared to Caucasians (OR=0.137; p=0.056). Among the 47 respondents who listed medication as an exacerbating factor, the most commonly reported offenders were

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topical/systemic corticosteroids (23.4%), beta-blockers/other anti-hypertensives (17.0%), and antibiotics/antifungals (10.6%). Interestingly, 7 of the 8 subjects who reported beta-blockers/anti-hypertensives as exacerbating factors were Caucasian, although the distribution was not significantly different from non-Caucasians ($p=0.1605$). Supplemental analyses using an ANCOVA model showed similar results [Supplementary Table 1]

These findings suggest that environmental factors such as stress and medication may play different roles in exacerbating psoriasis in different ethnoracial groups. The higher frequency of stress as an exacerbating factor in Asians could reflect biologic differences in response to stress³ or a higher perception of stress among Asians. Medication side-effects may be ethnicity dependent, as observed with differences due to HLA alleles⁴. Limitations of our study include the exclusion of the “Other” ethnic group due to small sample size. Pediatric and adult patients could not be directly compared due to the small number of pediatric patients in our cohort. The role of medications as an exacerbating factor versus the disease for which they are being used is difficult to determine. Despite these limitations, our findings suggest that the impact of environmental factors may differ by ethnoracial group and long-term monitoring of exacerbating factors and multidisciplinary stress management may enhance patient-centered care for psoriasis.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations

ANCOVA	Analysis of covariance
BMI	body mass index
HLA	human leukocyte antigen
OR	odds ratio
95% CI	95% confidence interval

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Demographic features and prevalence of common exacerbating factors of psoriasis in a multi-ethnic patient cohort compared using multivariable logistic regression.

Table 1

Ethnicity and demographic characteristics					
	Caucasian n = 549	Asian n = 227	Hispanic n = 75	p-value	OR _{adj} [†] , 95% CI
Age Mean (SD)	48.49 (16.62)	44.23 (17.09)	46.16 (17.34)	0.006 ^{**}	----
Gender	45.8% (F)	42.7% (F)	45.3% (F)	0.773	----
BMI (SD)	26.28 (6.04)	26.80 (5.27)	29.42 (6.92)	0.013 [*]	----
Age at onset Mean (SD)	28.25 (17.38)	28.68 (17.36)	32.73 (19.52)	0.414	----
Exacerbating factors					
Stress Y/Total (%Y)	368/549 (67%)	172/227 (76%)	55/75 (73%)	A vs. C: p= 0.014 [*] H vs. C: p= 0.073 [†]	2.05 (1.18–3.70) 2.27 (0.97–5.97)
Infection	42/549 (7.7%)	8/227 (3.5%)	9/75 (12%)	A vs. C: p= 0.118 H vs. C: p= 0.625	----
Skin injury	155/549 (28.2%)	55/227 (24.2%)	14/75 (18.7%)	A vs. C: p= 0.536 H vs. C: p= 0.131	----
Strep throat	71/549 (12.9%)	17/227 (7.49%)	4/75 (5.33%)	A vs. C: p= 0.721 H vs. C: p= 0.405	----
Winter season	304/549 (55.4%)	119/227 (52.4%)	31/75 (41.3%)	A vs. C: p= 0.540 H vs. C: p= 0.625	----
Medications	36/549 (6.55%)	8/227 (3.52%)	3/75 (4%)	A vs. C: p= 0.057 [†] H vs. C: p= 0.531	0.14 (0.01–0.69) ----

[†] Trend towards significance (p<0.1)

^{*} Significant at $\alpha = 0.05$;

^{**} Significant at $\alpha = 0.01$

[†]OR from logistic regression model adjusted for age, age of onset, BMI, and gender

A vs. C = p-value for Asians compared to Caucasians

H vs. C = p-value for Hispanics compared to Caucasians