

A Novel Assessment of Cardiovascular Health in People with Psoriasis in the United States: A Cross Sectional Study

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Objectives

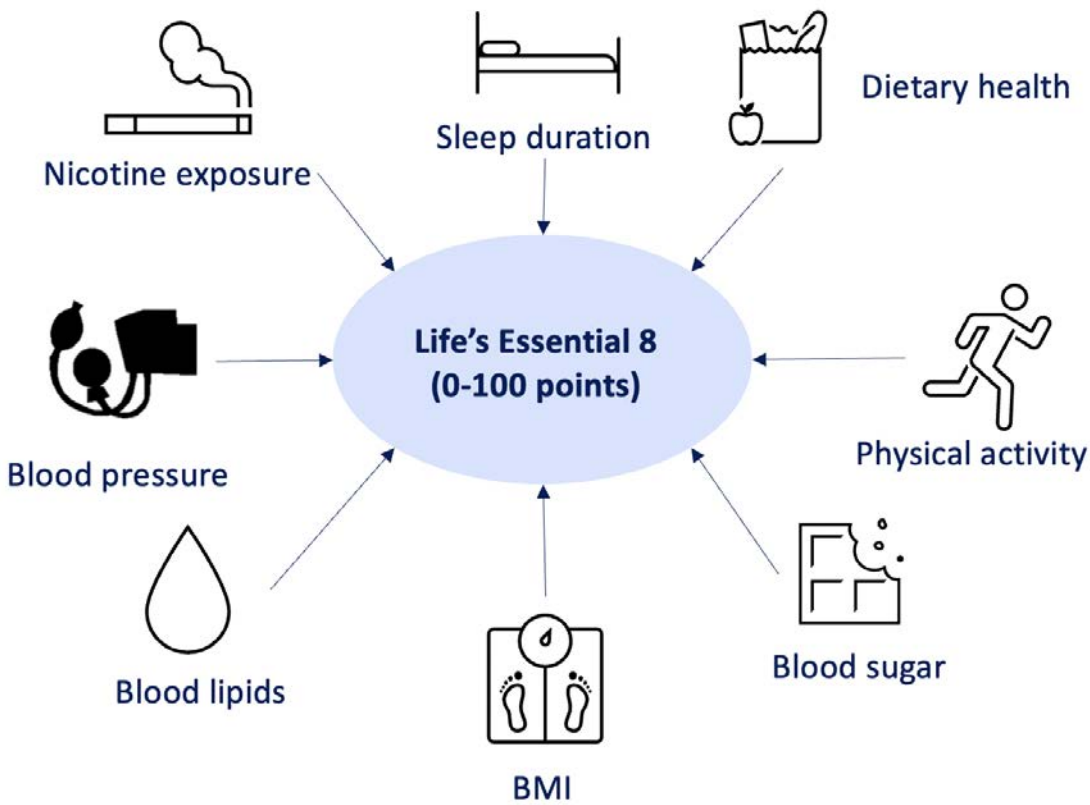
- Analyze a new aggregate metric of holistic cardiovascular health in people with psoriasis incorporating both physician-measured values and patient-driven behaviors
- Analyze main drivers of poor cardiovascular health in those with psoriasis

Introduction

- Psoriasis is associated with an increased risk of traditional cardiovascular (CV) risk factors, major CV events and mortality but many psoriasis patients are undertreated for CV risk.¹
- Few studies measure aggregate cardiovascular health (CVH) in psoriasis patients including patient reported behaviors.
- Life's Essential 8 (LE8), developed by the American Heart Association, aggregates health metric control for: diet, physical activity, nicotine exposure, sleep duration, BMI, lipids, blood glucose, and blood pressure.²
- Lower LE8 scores are associated with incident major adverse CV events, especially heart failure.³

Methods

- **Study design:** Cross-sectional analysis of 2005-2006 and 2009-2014 National Health and Nutrition Examination Survey
- **Study population:** 20-79 years old with self-reported psoriasis
- **Outcomes of interest:** Life's Essential 8. Dietary health scored based on Dietary Approaches to Stop Hypertension diet.
- **Statistical analysis:** Survey-weighted analysis using STATA 17. Multivariate logistic regressions for dichotomous variables; multivariable linear regressions for continuous variables. Adjusted for age, self-reported gender, race/ethnicity, poverty.
- **Missing data:** Multiple imputation by chained equations



Conclusions

- People with psoriasis have lower overall cardiovascular health compared to those without psoriasis.
- Despite trending toward better adherence to the DASH diet, people with psoriasis continued to have worse cardiovascular health driven by BMI and blood pressure.
- Existing studies report worse sleep quality in patients with psoriasis; while our study shows trend toward worse sleep health, the LE8 score focuses on sleep duration so our results may not have reached statistical significance.⁴
- Prior NHANES data showed lower sugar intake which may explain trends of improved DASH adherence with psoriasis.⁵
- Data on physical activity and psoriasis has been mixed. Our study may not capture trends of worse physical activity with moderate or severe psoriasis due to small sample size.⁶
- Our study is limited by small sample size, particularly for moderate/severe psoriasis, which may have led to insufficient statistical power for some of our comparisons.
- **In conclusion, obesity and hypertension may be important mediators of poor cardiovascular health in patients with psoriasis.**

Results

Baseline Characteristics:

- A total of 18,662 people were included in the analysis, including 523 people with psoriasis (representing 6,041,306 US individuals with psoriasis) and 18,139 people without psoriasis (representing 191,589,019 US individuals without psoriasis).
- Older age, non-Hispanic white, and higher income groups were more prevalent among those with psoriasis compared to non-psoriasis.

Table 1: Relative Cardiovascular Health among Psoriasis vs. Non-Psoriasis

	Unadjusted estimates for psoriasis (95% CI)	Adjusted** estimates for psoriasis (95% CI)
Low CVH (Dichotomized)	OR 1.32 (1.05 to 1.66), p=0.02	OR 1.30 (1.00 to 1.68), p=0.05
High CVH (Dichotomized)	OR 0.68 (0.49 to 0.95), p=0.02	OR 0.68 (0.48 to 0.96), p=0.03
CVH score (continuous)	Coeff -2.28 (-3.76 to 0.80), p=0.003	Coeff -1.99 (-3.50 to -0.47), p=0.01
LE8 Components		
BMI	-4.71 (-8.38 to -1.04), p=0.01	-4.72 (-8.27 to -1.17), p=0.01
Blood pressure	-5.24 (-8.82 to -1.66), p=0.005	-3.15 (-6.41 to 0.12), p=0.06
Cholesterol	-2.09 (-5.4 to 1.29), p=0.22	-0.34 (-3.73 to 3.05), p=0.84
Blood sugar	-2.46 (-5.19 to 0.27), p=0.08	-1.62 (-4.24 to 1.01), p=0.22
Physical activity	-3.66 (-9.28 to 1.96), p=0.20	-3.32 (-8.76 to 2.12), p=0.23
Sleep health	-1.03 (-3.73 to 1.67), p=0.45	-1.77 (-4.47 to 0.92), p=0.19
Smoking status	-2.32 (-5.99 to 1.340), p=0.21	-2.04 (-5.81 to 1.72), p=0.28
Dietary health	3.28 (-0.24 to 6.80), p=0.07	1.06 (-2.38 to 4.50), p=0.54

**Adjusted for age, self-reported gender, race/ethnicity, poverty index

Life's Essential 8 Scores in People with or without Psoriasis:

- People with psoriasis had a lower proportion of people with better cardiovascular health (OR 0.68, p=0.03).
- The difference in scores between people with psoriasis and those without was approximately 2 points (Coeff -1.99, p=0.01) and is driven by mainly BMI (Coeff -4.72, p=0.01) and hypertension (Coeff -3.15, p=0.06)
- Blood pressure was worse in people with psoriasis in unadjusted analysis but was borderline significant after adjustment (p=0.06)
- People with psoriasis had worse scores in 5 other components (cholesterol, blood sugar, physical activity, sleep health, smoking status) though these differences were not statistically significant.
- There was also a trend toward better dietary scores in the psoriasis cohort which was not statistically significant.
- The greatest difference in scores between those with mild and those with moderate/severe psoriasis was in physical activity, but did not attain statistical significance. (data not shown)

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