Associations of the Environment and Psoriasis Visit Rates

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Background

- **Psoriasis** flares are commonly triggered by stress, infection, or medications[1]
- The role of **environmental exposures** in precipitating disease activity remains unclear[2]
- Studying environmental associations with HS in a Midwestern population (Omaha, NE) may uncover **region-specific environmental influences**

Objective

To evaluate associations between **environmental exposures** and **Psoriasis** related Emergency Department and Dermatology Clinic Visit Dates

Methods

Study period
- January 1, 2022 – December 31, 2023

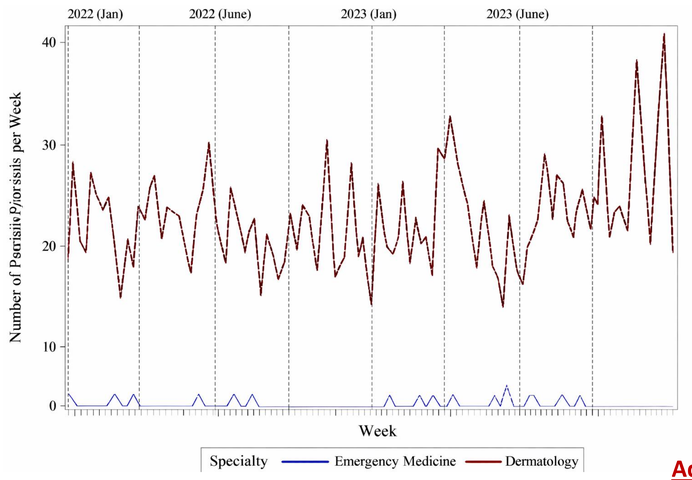
Environmental data for Omaha, NE
- PM2.5, PM10 (EPA)
- Temperature (Omaha Eppley Airport)
- Maximum UV Index (NOAA)

Clinical data
- Emergency Department and Dermatology Clinic Visit Dates with a primary diagnosis of Psoriasis identified at Nebraska Medicine

Analysis
- Optimal visit lag periods (0, 2, 4, 6 weeks) assessed from exposures using
  - Logistic regression (ED visits)
  - Poisson regression (dermatology visits)

Results

Number of Psoriasis Healthcare Visits Per Week at Nebraska Medicine (1/1/2022 – 12/31/2023)



18 ED and **2101 dermatology clinic visits** with a primary diagnosis of psoriasis at Nebraska Medicine identified from 1/1/2022 – 12/31/2023

Emergency Department visits
- Higher UV Index at lag 0 weeks was associated with **increased visits** (p = 0.03)

Dermatology Clinic Visits
- PM10 at lag 0 weeks was associated with **increased visits** (p = 0.02)

Adjusted Odds Ratio for Environmental Variables with ED Visits for Psoriasis

Weekly Environmental Measure	Adjusted Odds Ratio	P-value
Maximum Temperature (F) - 6 week lag	0.969	0.13
Maximum PM 2.5 AQI	1.006	0.72
Maximum PM 10 AQI - 4 week lag	0.977	0.34
Maximum UV	1.320	**0.03**
Week	1.001	0.93

Adjusted Relative Risk Ratios for Environmental Variables with Dermatology Clinic Visits for Psoriasis

Weekly Environmental Measure	Adjusted Relative Risk Ratio	P-value
Maximum Temperature (F) - 2 week lag	0.998	0.51
Maximum PM 2.5 AQI - 4 week lag	0.998	0.15
Maximum PM 10 AQI	1.003	**0.03**
Maximum UV - 2 week lag	0.996	0.78
Week	1.003	0.001

Discussion

Increased UV exposure was associated with **higher ED utilization**, despite UV's therapeutic role in psoriasis. Elevated PM10 correlated with increased dermatology clinic visits, suggesting a potential irritant effect.

Confounders and Limitations:
- **Appointment availability**, **scheduling in advance**, and **access-related** confounders
- Small ED sample size for psoriasis
- Moderate climate variability of Nebraska

Future Directions:
- **Alternative measures** of disease activity instead of visit dates such as **symptom tracking** or **treatment frequency tracking**
- Identifying past environmental extremes and tracking healthcare utilization following those extremes

References

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2. Bellinato F, Adami G, Vaienti S, Benini C, Gatti D, Idolazzi L, Fassio A, Rossini M, Girolomoni G, Gisondi P. Association Between Short-term Exposure to Environmental Air Pollution and Psoriasis Flare. JAMA Dermatol. 2022 Apr 1;158(4):375-381. doi: 10.1001/jamadermatol.2021.6019. PMID: 35171203; PMCID: PMC8851365.