15th Georg RAJKA International Symposium on Atopic Dermatitis 2025 AUSTRALIA

Ecologic patterns of severe atopic dermatitis in France: what regional data reveal

#1131

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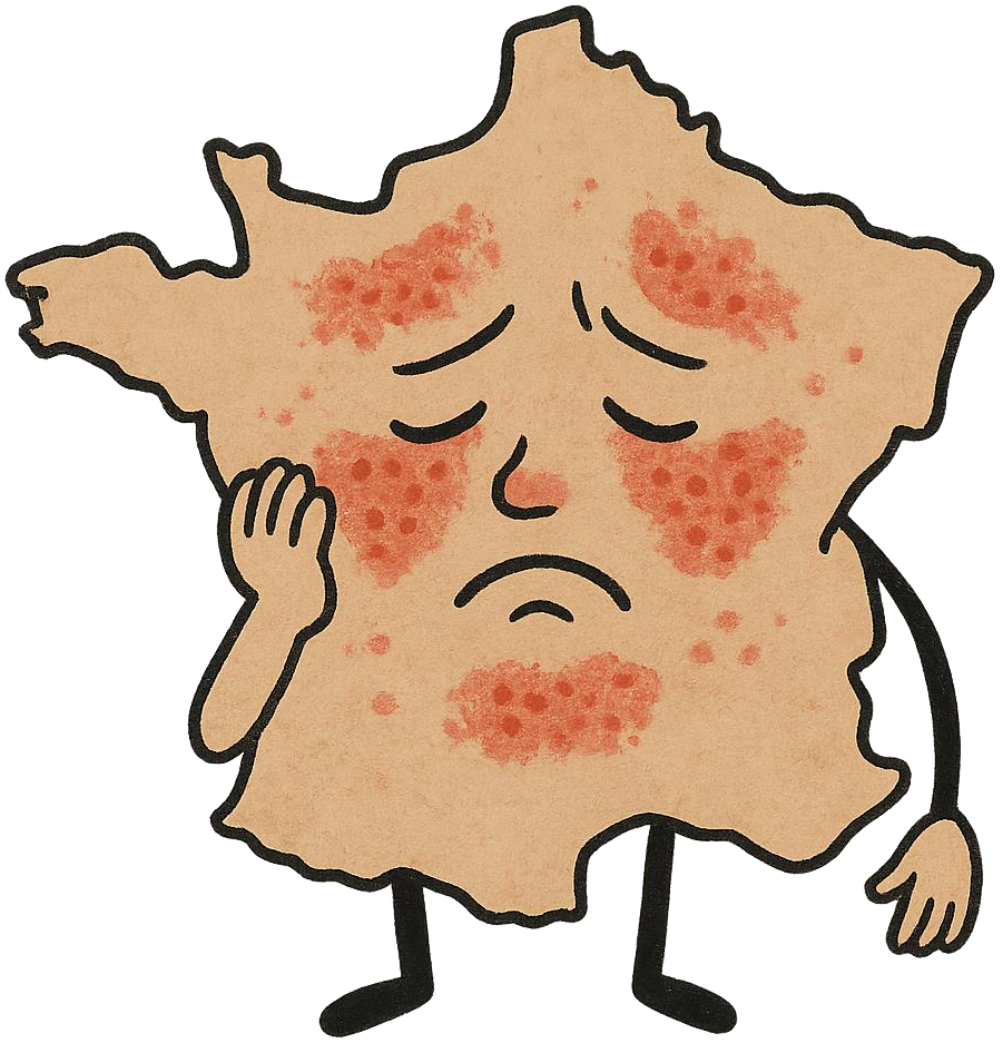
Background

- Severe atopic dermatitis (AD) affects ~12 % of adults with AD and carries major psychosocial and economic burden.
- France lacked nationwide data on severe AD incidence.
- Environmental and behavioral exposures (e.g., water hardness, latitude/UV, smoking) have been suggested as modulators of AD.
- Previous studies were paediatric, regional, or cross-sectional, limiting generalization.



Kiiski V, Salava A, Susitaival P, et al. Atopic dermatitis in adults: a population-based study in Finland. Int J Dermatol. 2022;61:324-330.
Cribier B. Comorbidities of atopic dermatitis. Ann Dermatol Venereol. 2019;146:12S67-12S75.

Objetives

- Quantify the regional incidence of severe AD in French adults.
- Map its geographical variability across the 13 metropolitan regions.
- Evaluate associations between environmental (water hardness, latitude) and behavioral (smoking prevalence) factors and incidence.

Hypothesis: Regions with harder water, higher smoking prevalence, and higher latitude show higher severe-AD incidence.

Bonamonte D, Filoni A, Vestita M, et al. The role of environmental risk factors in the pathogenesis and clinical outcome of atopic dermatitis. Biomed Res Int. 2019;2019:2450605.

Study Design

- **Design:** Retrospective population-based ecological cohort (2017 – 2023).
- **Data source:** French National Health Data System (SNDS) ≈ 99 % coverage. (This study is an ancillary study of the JAKTER Project)
- **Population:** Adults ≥ 18 y with
  - ≥ 1 systemic AD therapy (cyclosporine, methotrexate, dupilumab, tralokinumab, or JAK inhibitors).
  - ≥ 1 dermatologist visit.
  - ≥ 2 topical corticosteroid dispensations.

Regional Exposures

- **Water hardness (°f):** from “Centre d’Information sur l’Eau”
  - is expressed in French degrees (°f), which reflects the concentration of calcium and magnesium
- **Smoking prevalence (% daily smokers):** from Santé Publique France GEODES.
- **Latitude (° N):** capital city per region.

- All exposure data were aggregated at the regional level and linked to the corresponding incidence rates
  - Annual severe-AD incidence (per 10 000 inhabitants).

Results: Regional Incidence

- Incidence ranged **1.5 – 3.0 cases / 10 000 inhabitants.**
- **Highest:** Hauts-de-France, Bretagne, Bourgogne–Franche-Comté, Grand Est.
- **Lowest:** Île-de-France, Centre-Val de Loire, Auvergne et Rhône-Alpes.
- Suggests a **north–south gradient.**

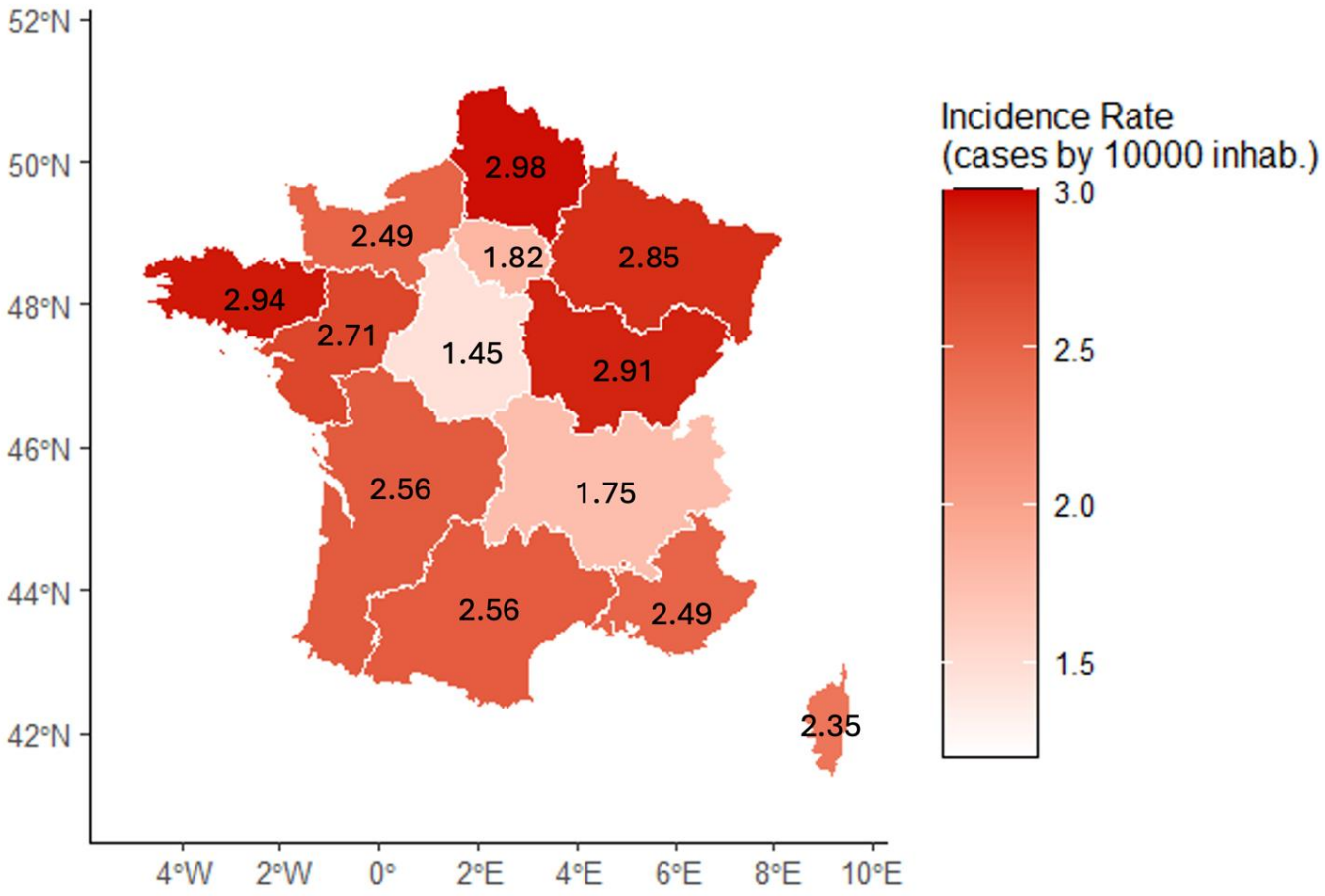
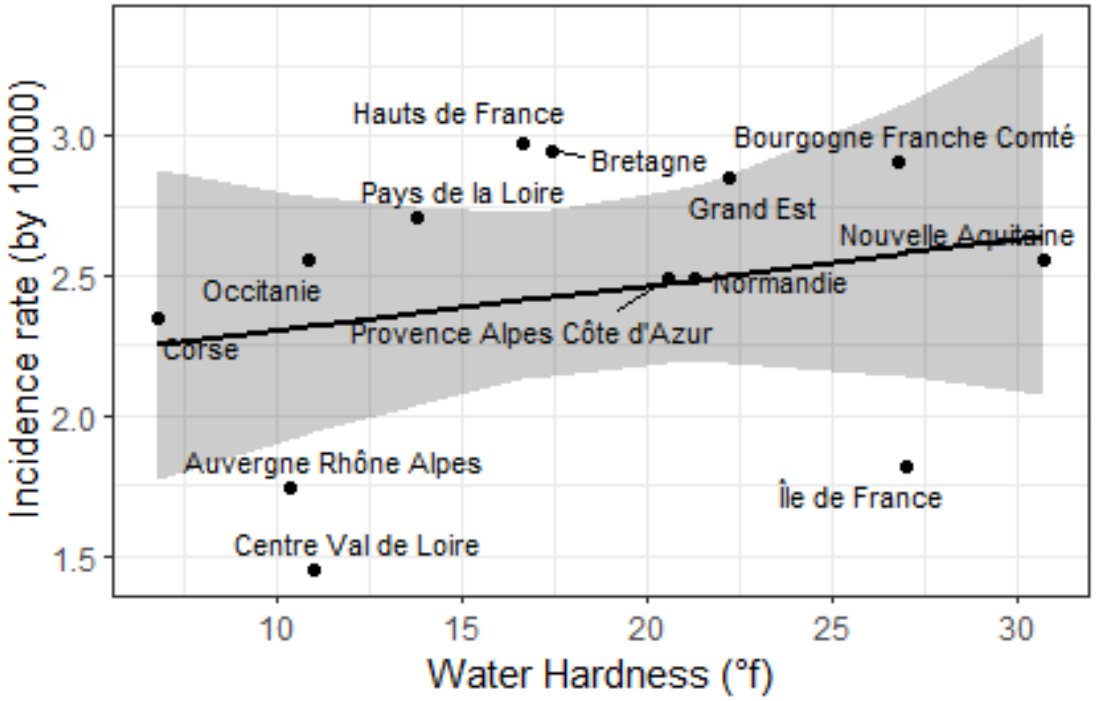
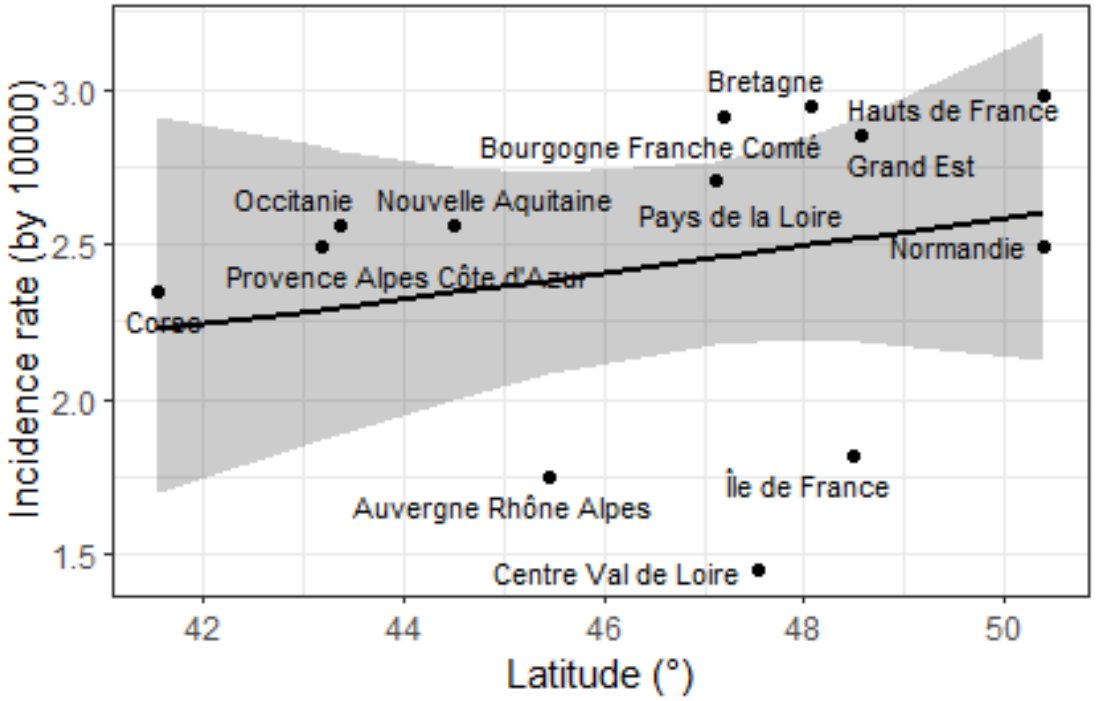
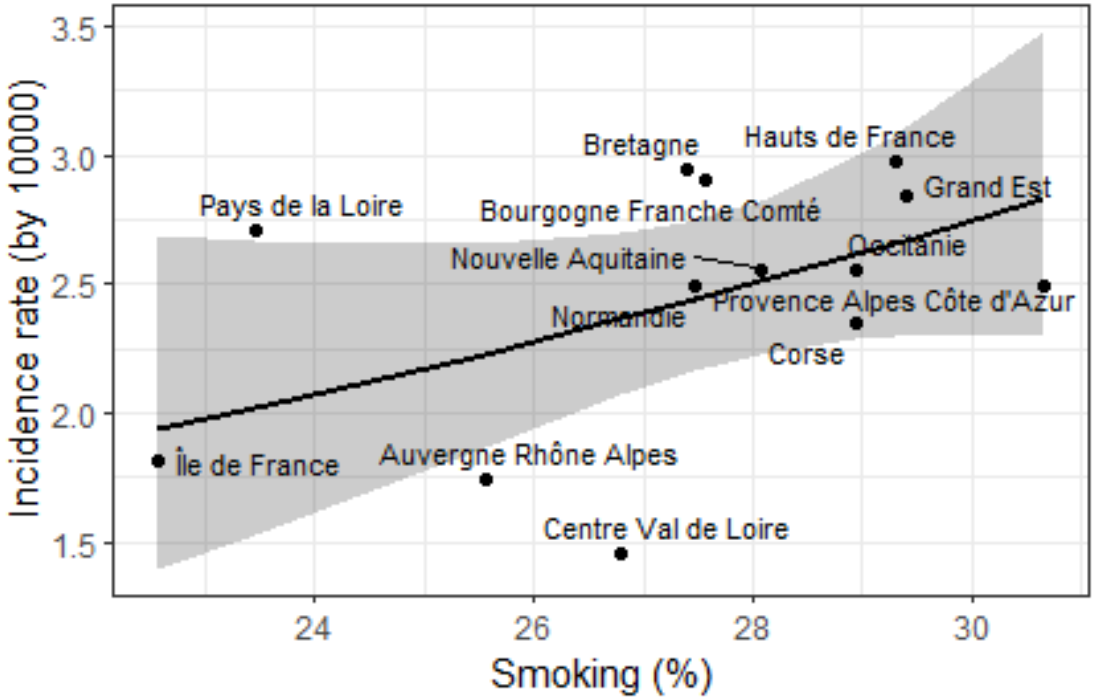


Figure 1. Colorimetric map of severe atopic dermatitis incidence in metropolitan France, 2017–2023.
Color shading conveys the annual incidence rate (cases per 10 000 inhabitants) by administrative region: darkest red ≥ 3.0, palest tint ≤ 1.5. AD, atopic dermatitis.

Nielsen ML, Thyssen JP, Silverberg JI, et al. Characterization of patients with atopic dermatitis based on flare patterns. J Eur Acad Dermatol Venereol. 2025;39:301-307.





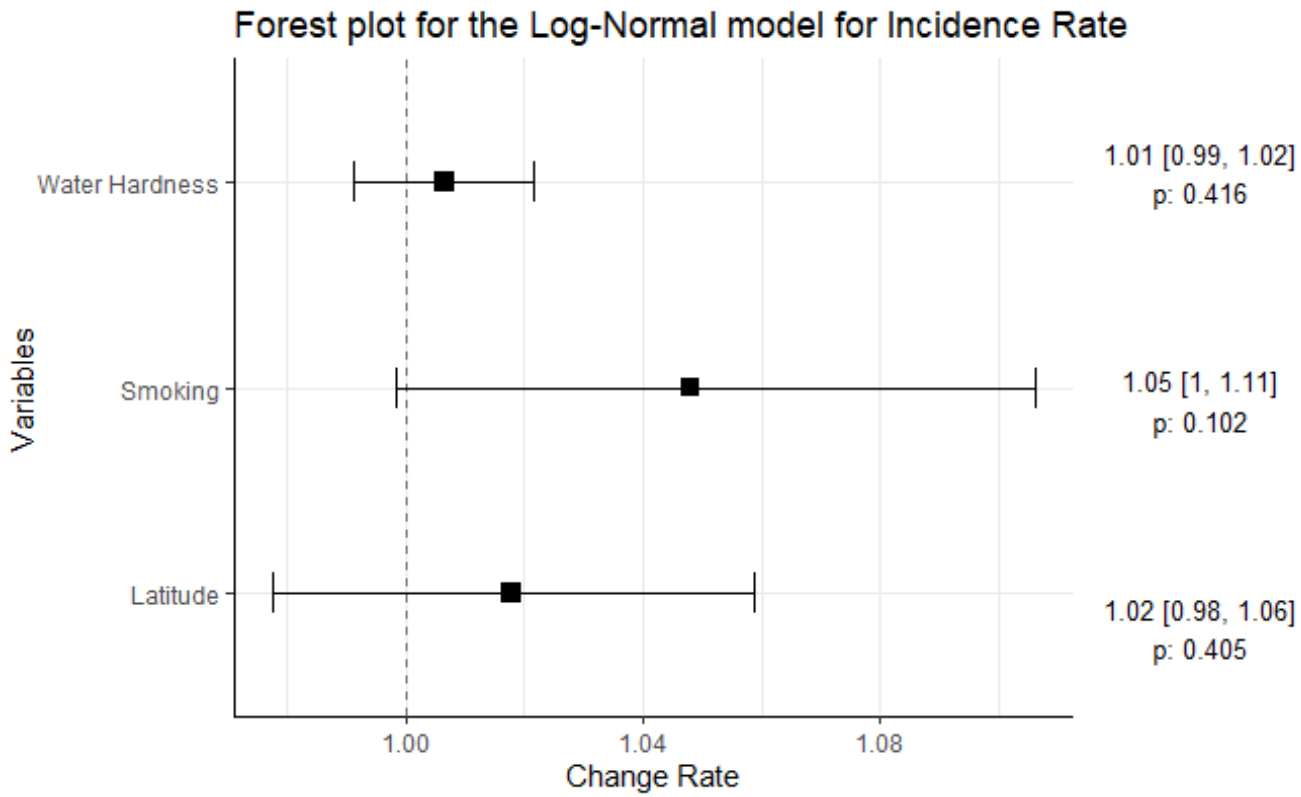


Results: Bivariate Associations

- **Water hardness:** slight upward trend with incidence.
- **Latitude:** modest positive correlation (northern > southern regions).
- **Smoking prevalence:** strongest gradient—regions with more smokers had higher AD incidence.

Results: Regression Models

- **Water hardness:**
  - CR 1.01 (95% CI 0.99–1.02, p=0.416).
- **Smoking prevalence:**
  - CR 1.05 (95% CI 1.00–1.11, p=0.102).
- **Latitude:**
  - CR 1.02 (95% CI 0.98–1.06, p=0.405).
- Direction consistent; none significant.



Conclusions

- Regional severe-AD incidence in France varies two-fold, peaking in northern regions.
- Positive (though non-significant) trends link incidence with hard water, smoking, and latitude.
- Supports environmental and behavioral contributions to AD pathogenesis.
- Limitations: ecological design → no individual-level causality.
- Next steps: individual-level, multivariable studies incorporating pollution, SES, and healthcare access.

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