

Pruritus in Europe's Aging Populations: Regional and National Patterns, 1990–2023, and Forecasts to 2050: A Systematic Analysis for the Global Burden of Disease Study 2023

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Purpose: Pruritus is a common and distressing symptom among older adults, yet long-term patterns and regional differences across Europe remain insufficiently characterized. As European populations age rapidly, understanding how the burden of pruritus has evolved and may change is essential for clinical and public health planning.

Methods: Using Global Burden of Disease (GBD) 2023 estimates, we quantified incidence, prevalence, and disability-adjusted life years (DALYs) of pruritus among adults aged over 60 years in Central, Eastern, and Western Europe from 1990 to 2023. Age-standardized rates and case numbers were extracted for 5-year age groups by sex and country. Temporal trends were evaluated using estimated annual percentage change (EAPC) and Joinpoint regression. Future burden to 2050 was projected with Bayesian age-period-cohort models using Integrated Nested Laplace Approximation. All estimates included 95% uncertainty intervals.

Results: From 1990 to 2023, age-standardized incidence, prevalence, and DALY rates increased significantly across all three European regions. In 2023, Central Europe exhibited the highest rates, whereas Western Europe had the largest absolute numbers of affected individuals. Females consistently showed higher rates and earlier peak ages than males. Age-specific curves demonstrated an inverted-U shape, and country rankings were generally aligned with long-term EAPC patterns. Projections suggest continued growth in incident and prevalent cases and DALYs through 2050, especially in Western Europe, with persistent sex- and age-related disparities.

Conclusion: The burden of pruritus among older adults in Europe has risen steadily over the past three decades and is projected to increase further. Integrating routine itch assessment, optimized skin care, medication review, and strengthened referral pathways into primary, geriatric, and long-term care services is urgent to mitigate preventable disability in aging populations.

Keywords: aging population, Europe, Global Burden of Disease Study 2023, pruritus

Introduction

Pruritus (itch) represents a prevalent and burdensome dermatological symptom, defined as an uncomfortable feeling affecting the skin or mucous membranes, which triggers a strong desire to scratch.^{1,2} Although it occurs across all ages, it is especially prevalent among older adults, where it often becomes chronic or recurrent and can impair daily functioning, aggravate comorbid conditions, and markedly reduce quality of life.³ Globally, the burden of pruritus has escalated significantly over the past three decades; in 2021 alone, approximately 80.65 million individuals were affected, with incident cases doubling since 1990. The highest risk is observed in the late-elderly (80–84 age group), and global projections suggest that age-standardized prevalence rates may continue to rise through 2050.⁴ At the regional level, local



studies further underscore this high burden; for instance, a German population-based study reported 12-month and lifetime prevalences of 16.4% and 22.0%, respectively, for chronic pruritus.⁵

The International Forum for the Study of Itch (IFSI) classifies pruritus into dermatologic, systemic, neurologic, and psychogenic causes, with additional mixed or idiopathic forms.² Among older adults, pruritus is frequently observed and typically presents without primary skin lesions, likely reflecting age-related epidermal barrier decline, neurocutaneous changes, and multimorbidity rather than a single identifiable cause.⁶ Xerosis is considered the predominant aggravating factor, influenced by increased skin surface pH, heightened protease activity, reduced estrogen levels, and diminished sebaceous gland function, all contributing to epidermal dehydration and increased itch sensitivity.^{6–8}

Despite its clinical importance, the global and regional epidemiological burden of pruritus in older populations remains poorly defined.¹ Existing studies are limited in scope and rarely examine temporal trends or demographic differences across Europe.⁹ Using the standardized estimates provided by the Global Burden of Disease (GBD) Study 2023, this study quantifies the burden of pruritus among adults aged over 60 across Central, Eastern, and Western Europe from 1990 to 2023, and projects future trends through 2050 to inform clinical prioritization and health system planning.

Materials and Methods

Data Sources and Study Population

This study is an observational, cross-sectional epidemiological analysis using secondary data from the GBD Study 2023. The research time frame spans from January 1, 1990, to December 31, 2023, with projections extending to 2050. Data were extracted using the Global Health Data Exchange (GHDx) query tool provided by the Institute for Health Metrics and Evaluation (IHME). The estimation process for GBD 2023 utilizes the DisMod-MR 2.1 tool, a Bayesian meta-regression framework that ensures consistency across incidence, prevalence, and remission data.^{10,11}

Our analysis focused on adults aged over 60 years, guided by the following criteria:

- Inclusion Criteria: (1) Individuals aged 60 years and older; (2) Data residing within the geographical boundaries of Central, Eastern, and Western Europe as defined by GBD; (3) Diagnoses mapped to ICD-10 codes L29–L29.9 (Pruritus).
- Exclusion Criteria: (1) Individuals aged under 60 years; (2) Data from regions outside the specified European subregions; (3) Skin conditions not mapped to the L29–L29.9 classification.

All data were anonymized and publicly available; therefore, ethical approval was not required. This study followed the GATHER reporting guidelines.

Data Extraction and Stratification

Annual numbers and age-standardized rates (ASRs) of incidence, prevalence, and DALYs were retrieved from 1990 to 2023. Data were stratified by sex, country, and European subregion (Central, Eastern, Western) and grouped into eight 5-year age categories (60–64 to ≥ 95). ASRs (per 100,000 population) were calculated using the GBD world standard population. Point estimates were reported with 95% uncertainty intervals (UIs).

Temporal Trends

Long-term trends were quantified using the estimated annual percentage change (EAPC), derived from log-linear regression of ASRs over time. This was derived by fitting a linear regression model to the natural logarithm of the annual ASRs: $\ln(ASR) = \alpha + \beta \times (\text{year}) + \varepsilon$, where β represents the annual change. The EAPC was then computed as $EAPC = 100 \times (e^{\beta} - 1)$. Positive or negative EAPCs with non-overlapping 95% confidence intervals (CIs) were interpreted as significant increases or decreases.

Joinpoint Regression

Joinpoint regression was used to identify periods of changing trend magnitude and to calculate segment-specific annual percentage changes (APCs) and the average annual percentage change (AAPC). This approach uses segmented linear regression to identify calendar years in which the trend slope changes significantly, allowing the detection of distinct phases of increase or decrease that may reflect changes in health systems, diagnostic practices, or surveillance (Joinpoint Trend Analysis Software, version 5.2.0). For each segment, we estimated the APC with 95% confidence intervals (CIs) to quantify the magnitude and direction of the trend. The AAPC was then calculated as a summary measure of the overall trend across the entire study period. The statistical significance of trends was assessed using the 95% CIs for both APC and AAPC estimates.

Projection Modelling

Future ASRs were forecast using Bayesian age–period–cohort (BAPC) models. The model decomposes temporal variation into age, period, and cohort components, and generates posterior estimates via the Integrated Nested Laplace Approximation (INLA). Predictive validity was assessed through back-testing. Projections were reported with 95% UIs.

Statistical Analysis

Analyses and visualization were performed in R (version 4.4.1). Statistical significance was defined as two-sided $p < 0.05$; see Supplementary Methods for additional model details.

Results

European Regional Burden and Temporal Trends from 1990 to 2023

Overall, all three European regions experienced a synchronized and sustained increase in the epidemiological burden of pruritus between 1990 and 2023. In 2023, the absolute number of new cases reached 246 thousand (201 to 295) in Western Europe, 186 thousand (149 to 229) in Eastern Europe, and 113 thousand (94 to 134) in Central Europe (Figure 1A and Table S1). Correspondingly, the age-standardized incidence rate (ASIR) of pruritus in adults over 60 was highest in Central Europe (371.3 per 100,000 [309.5 to 441.5]), followed by Eastern Europe (364.4 per 100,000 [290.9 to 448.1]) and Western Europe (201.9 per 100,000 [164.5 to 242.1]) (Figure 1B and Table S1). Compared with 1990, the ASIRs increased by 24.8%, 18.2%, and 11.0% in Central, Western, and Eastern Europe, respectively. The estimated annual percentage change (EAPC) was positive in all regions (Central Europe: 0.78, 95% CI: 0.72–0.84; Eastern Europe: 0.46, 95% CI: 0.36–0.55; Western Europe: 0.35, 95% CI: 0.29–0.42), indicating a statistically significant increase throughout the study period (Table S2).

In 2023, the number of prevalent cases was approximately 325 thousand (265 to 390) in Western Europe, 245 thousand (199 to 301) in Eastern Europe, and 146 thousand (125 to 170) in Central Europe (Figure 1C and Table S1). The corresponding age-standardized prevalence rate (ASPR) of pruritus in adults over 60 was highest in Central Europe (481.3 per 100,000 [411.2 to 560.0]), followed by Eastern Europe (479.6 per 100,000 [389.8 to 588.4]) and Western Europe (266.4 per 100,000 [217.6 to 319.9]) (Figure 1D and Table S1). Compared with 1990, the ASPRs increased by 27.5%, 19.5%, and 12.0% in Central, Western, and Eastern Europe, respectively. The EAPC was positive in all regions (Central Europe: 0.91, 95% CI: 0.83–0.98; Eastern Europe: 0.54, 95% CI: 0.43–0.66; Western Europe: 0.38, 95% CI: 0.32–0.45), demonstrating a sustained upward trend during the study period (Table S3).

In 2023, the total number of DALYs reached 3.28 thousand (1.56 to 6.34) in Western Europe, 2.44 thousand (1.18 to 4.73) in Eastern Europe, and 1.45 thousand (0.71 to 2.84) in Central Europe (Figure 1E and Table S1). The corresponding age-standardized disability-adjusted life year (ASDR) rate of pruritus in adults over 60 was identical in Central and Eastern Europe (4.8 per 100,000 [2.3 to 9.3]), while Western Europe had a lower rate (2.7 per 100,000 [1.3 to 5.2]) (Figure 1F and Table S1). Compared with 1990, the ASDRs increased by 26.3%, 17.4%, and 11.6% in Central, Western, and Eastern Europe, respectively. The EAPC remained positive across all regions (Central Europe: 0.90, 95% CI: 0.83–0.97; Eastern Europe: 0.54, 95% CI: 0.42–0.65; Western Europe: 0.37, 95% CI: 0.30–0.43), indicating a consistent rise in disease burden (Table S4).

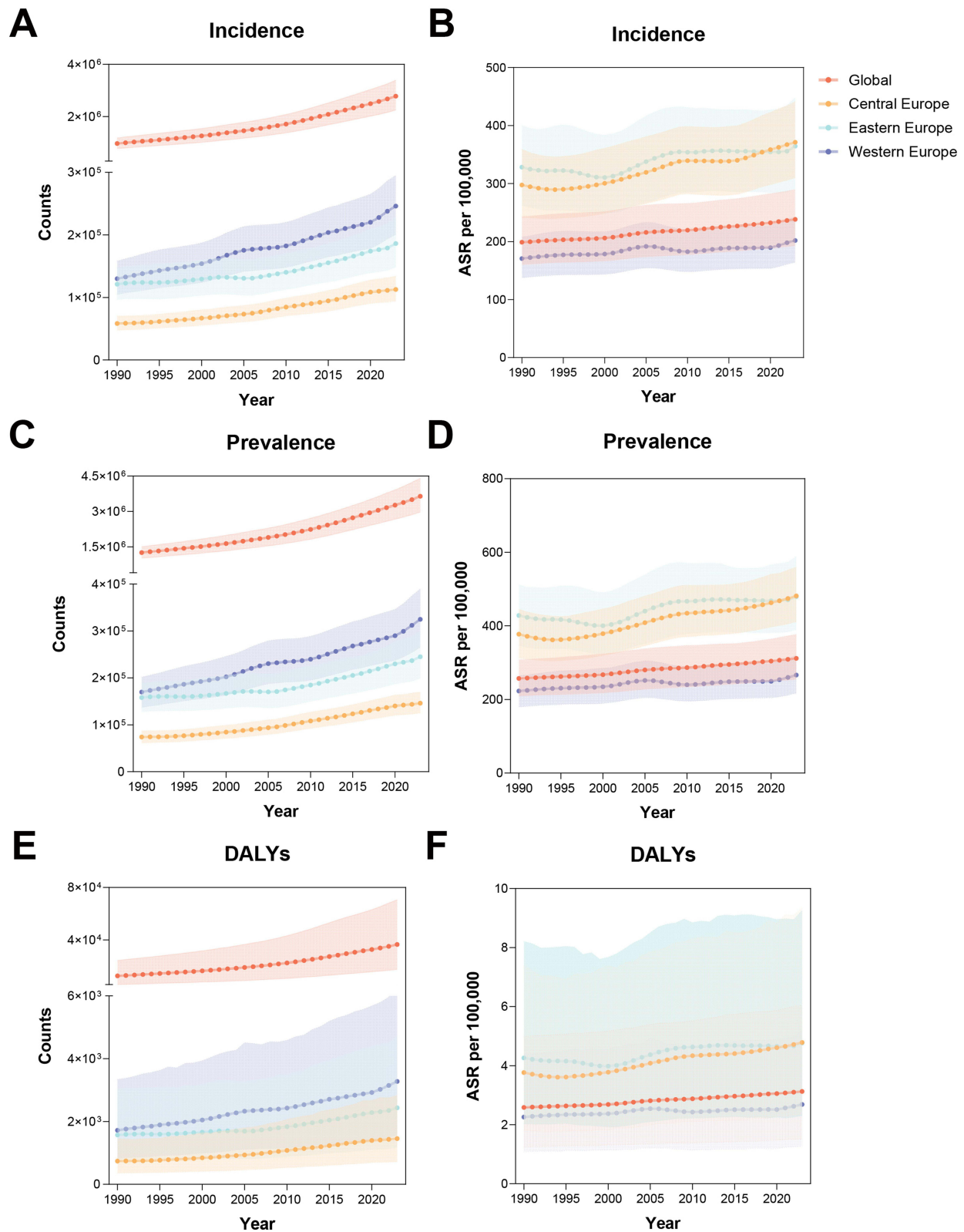


Figure 1 Counts and age-standardized rates of incidence, prevalence and DALY for pruritus in adults aged over 60 by European region, 1990–2023. **(A)** Incident cases. **(B)** Age-standardized rates of incidence. **(C)** Prevalent cases. **(D)** Age-standardized rates of prevalence. **(E)** DALY counts. **(F)** Age-standardized rates of DALY. **Abbreviations:** ASR, age-standardized rate; DALY, disability-adjusted life year.

Joinpoint Regression Analysis of Trends in Age-Standardized Rates

Joinpoint regression demonstrated an overall increasing trend in ASIR among adults aged over 60 across all three European regions from 1990 to 2023 (Figure S1A–C). In Central Europe, a short early decline (1990–1993) and a non-significant interval (1993–1996) were followed by sustained increases through subsequent periods, yielding a positive AAPC (0.68; 95% CI: 0.64–0.72). Eastern Europe experienced declines until 2000, then a marked rise from 2000 to 2008, followed by a plateau and a recent renewed increase; overall, the AAPC remained positive (0.32; 95% CI: 0.23–0.42). In Western Europe, ASIR increased through 2005, declined in 2005–2010, then rose again with a recent acceleration after 2020, resulting in a positive long-term trend (AAPC 0.49; 95% CI: 0.36–0.61).

For ASPR and ASDR, long-run AAPCs were also positive in all regions, though segment-specific APCs did not align perfectly with incidence trends (Figure S1A–C). Central Europe exhibited earlier increases in ASDR relative to ASIR, indicating a preceding rise in disability burden. In Eastern Europe, ASPR and ASDR increased during 2008–2014 despite stable incidence, then flattened in 2014–2021. In Western Europe, prevalence and DALY trends paralleled incidence, showing the same pattern of increase, temporary dip, and later resurgence. These differences reflect indicator-specific timing shifts, although the overall direction of pruritus burden in older adults remained upward throughout 1990–2023.

National Burden in 2023 and Temporal Trends (1990–2023)

In 2023, the ASIR of pruritus in adults over 60 varied substantially across Central European countries, ranging from 328.9 (264.1–399.3) to 390.7 (317.3–478.0) per 100,000. Czechia consistently occupied the upper ranks, whereas Albania remained at the lower end of the distribution (Figure 2A and Table S1). Six countries were above average when benchmarked against the regional mean (371.3 [309.5–441.5] per 100,000), while seven countries fell below the mean. In Eastern Europe, the 2023 ASIR spanned 323.4 (262.4–394.3) to 381.7 (309.6–466.0) per 100,000, with Estonia recording the highest values and the Republic of Moldova the lowest (Figure 2A and Table S1). In Western Europe, 2023 ASIR values ranged from 190.5 (150.5–229.7) to 232.5 (189.0–283.1) per 100,000; Monaco ranked highest, whereas Cyprus ranked lowest (Figure 2A and Table S1).

Across Central, Eastern, and Western Europe, the country-level patterns for prevalence (ASPR) and DALY (ASDR) in 2023 largely mirrored those observed for incidence, with broadly consistent cross-sectional rankings across the three metrics (Figure 2B, C, Tables S1, S3 and S4). The notable exception was in Western Europe, where Greece recorded the lowest values for both ASPR and ASDR in 2023, diverging from the incidence ordering.

Over 1990–2023, all countries in the three European regions exhibited statistically significant increases in ASIR, ASPR, and ASDR, with positive EAPCs and 95% CIs above zero (Figures 3A–F, S2A–C and Tables S2–S4). The fastest long-term increase in ASIR was observed in Bosnia and Herzegovina (EAPC: 1.29 [1.16–1.42]) in Central Europe, Lithuania (EAPC: 0.71 [0.61–0.81]) in Eastern Europe, and Monaco (EAPC: 0.57 [0.51–0.62]) in Western Europe (Tables S2–S4). These findings indicate that while absolute burden levels varied by country, the upward trajectory of pruritus metrics was a near-universal phenomenon across the European landscape.

Age and Sex Disparities

The burden of pruritus was characterized by a clear demographic signature: a consistent female predominance and a strong association with advanced age across all regions. In all three European regions, males exhibited systematically lower absolute numbers of incident cases, prevalent cases, and DALYs than females across all eight age groups (60–64 to 95+ years) (Figure 4A–I).

For rates, all three indicators displayed a characteristic inverted-U with age, rising from 60–64 to a late-elderly peak and then declining. Together, these patterns indicate earlier peaks in females than males in each region, with Western Europe showing the latest male peaks across metrics (Figure 4A–I). To formally assess sex differences beyond visual inspection, we compared the entire age-specific incidence curves between females and males using a weighted spline model on the log scale and tested the joint age \times sex interaction terms. The age-incidence pattern differed significantly by sex across all three subregions (Central Europe: $p = 4.97 \times 10^{-7}$; Eastern Europe: $p = 2.97 \times 10^{-7}$; Western Europe: $p = 1.14 \times 10^{-5}$), supporting a statistically significant sex difference in the age pattern of incidence (Table S5).

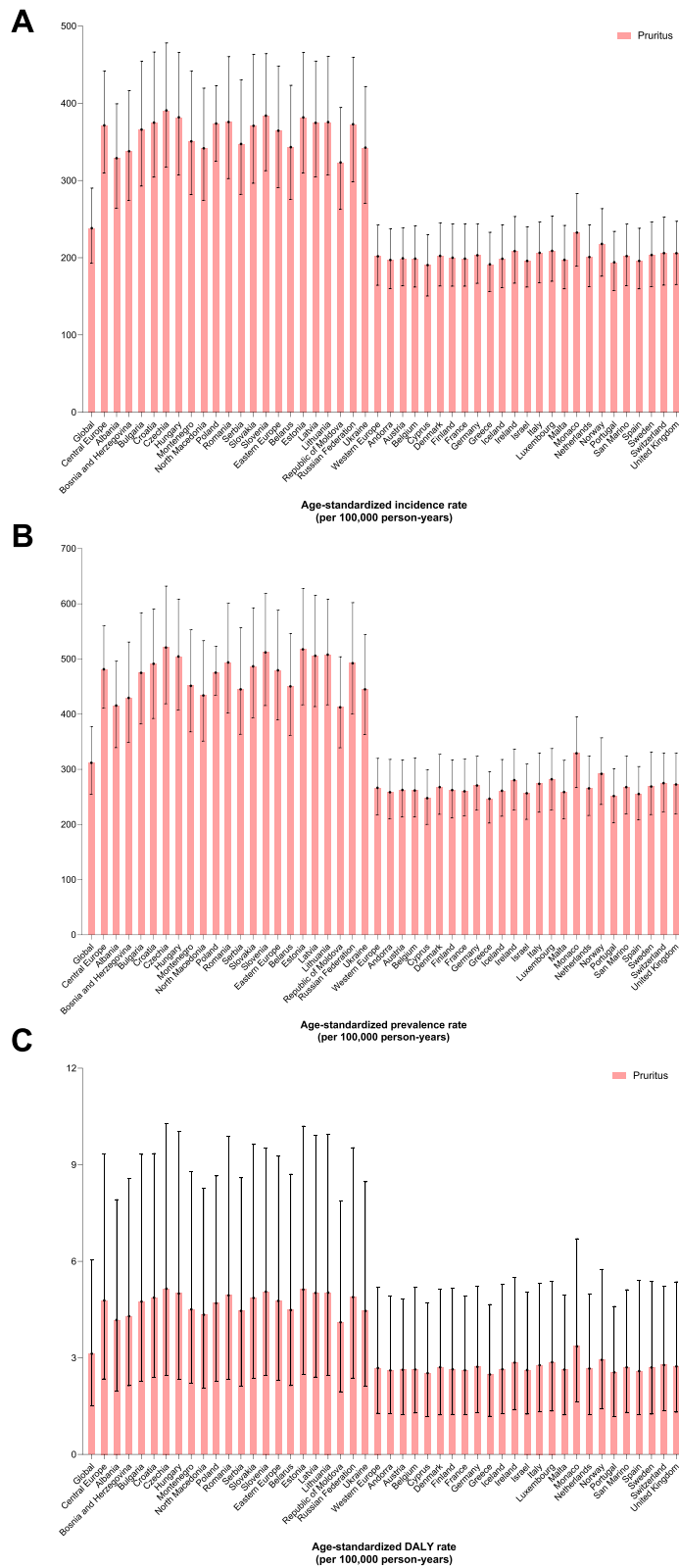


Figure 2 Age-standardized rates of incidence, prevalence and DALY for pruritus among adults aged over 60 in 2023, by European region and country. **(A)** Age-standardized rates of incidence. **(B)** Age-standardized rates of prevalence. **(C)** Age-standardized rates of DALY. **Abbreviation:** DALY, disability-adjusted life year.

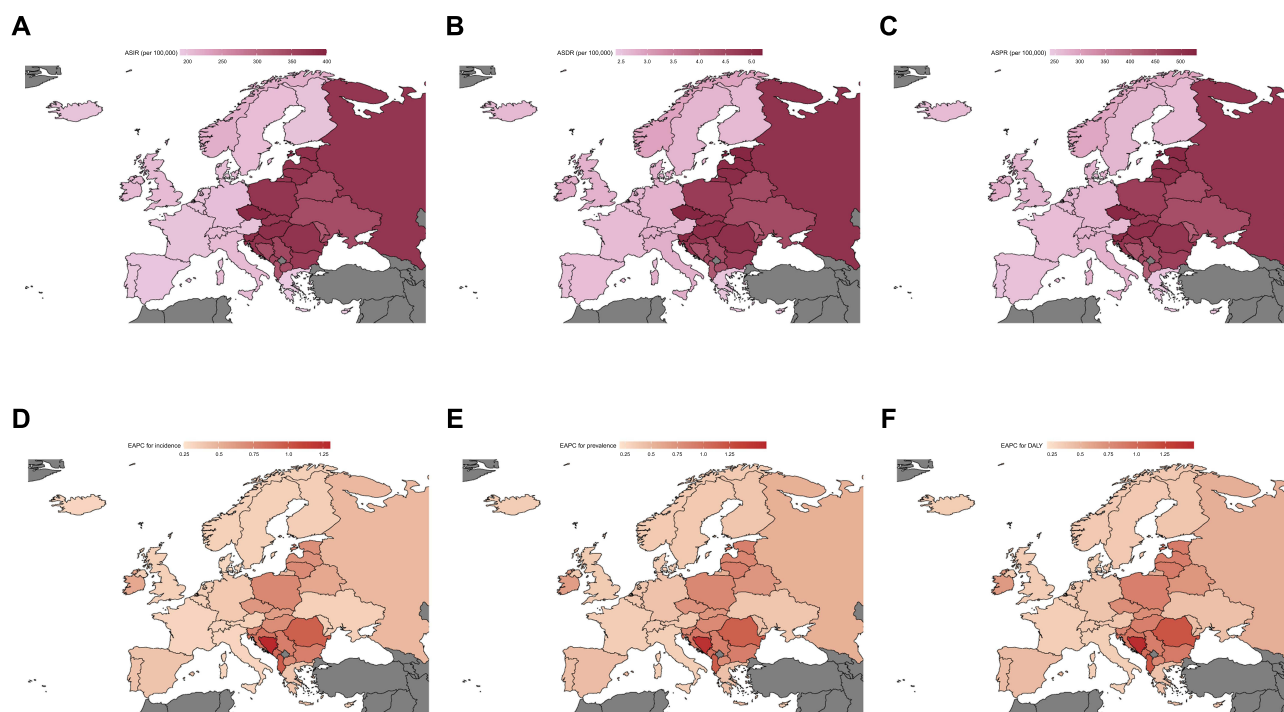


Figure 3 National age-standardized rates and long-term trends for pruritus among adults aged over 60 in 2023 and 1990–2023, by European country. **(A)** Age-standardized rates of incidence. **(B)** Age-standardized rates of prevalence. **(C)** Age-standardized rates of DALY. **(D)** EAPC for incidence. **(E)** EAPC for prevalence. **(F)** EAPC for DALY. **Abbreviations:** ASIR, age-standardized rates of incidence; ASPR, age-standardized rates of prevalence; ASDR, age-standardized rates of DALY; EAPC, estimated annual percentage change.

Age-specific percentage changes (1990–2023) in incidence, prevalence, and DALY rates were generally positive across the same age groups, reinforcing the overall upward temporal pattern observed in older adults (Figure S3A–I).

Projections of the Burden of Pruritus

By 2050, the projected absolute burden is expected to be highest in Western Europe, intermediate in Eastern Europe, and lowest in Central Europe across all indicators. Specifically, Central Europe is projected to reach 183 thousand incident cases, 253 thousand prevalent cases, and 2900 DALYs; Eastern Europe to 305 thousand incident cases, 405 thousand prevalent cases, and 4210 DALYs; and Western Europe to 776 thousand incident cases, 1120 thousand prevalent cases, and 6950 DALYs by 2050.

Across regions, the age–sex panels visualize persistent late-elderly predominance in rates and a continuation of previously observed age gradients, while the regional ordering of absolute burden converges across incidence, prevalence, and DALYs (Western > Eastern > Central) (Figure 5). Moreover, the projections for prevalence and DALYs are broadly consistent with those for incidence across regions, sexes, and age strata, exhibiting the same late-elderly peaking pattern and sustained upward trajectories over time (Figures S4 and 5).

Discussion

When positioned within the broader landscape of age-related morbidity, the burden of pruritus warrants specific attention. While the ASDR of pruritus is expectedly lower than that of major chronic systemic diseases such as heart failure or dementia, its contribution to non-fatal disability (YLDs) in the elderly is significant. In Europe, pruritus is a common and burdensome symptom in older adults and contributes meaningfully to non-fatal health loss through impaired daily functioning, sleep disturbance, and reduced quality of life.¹² Unlike acute conditions, the sustained rise in pruritus metrics reflects a cumulative impact of age-related skin barrier decline and systemic multimorbidity, positioning it as a key indicator of the “quality of life” gap in Europe’s aging populations.

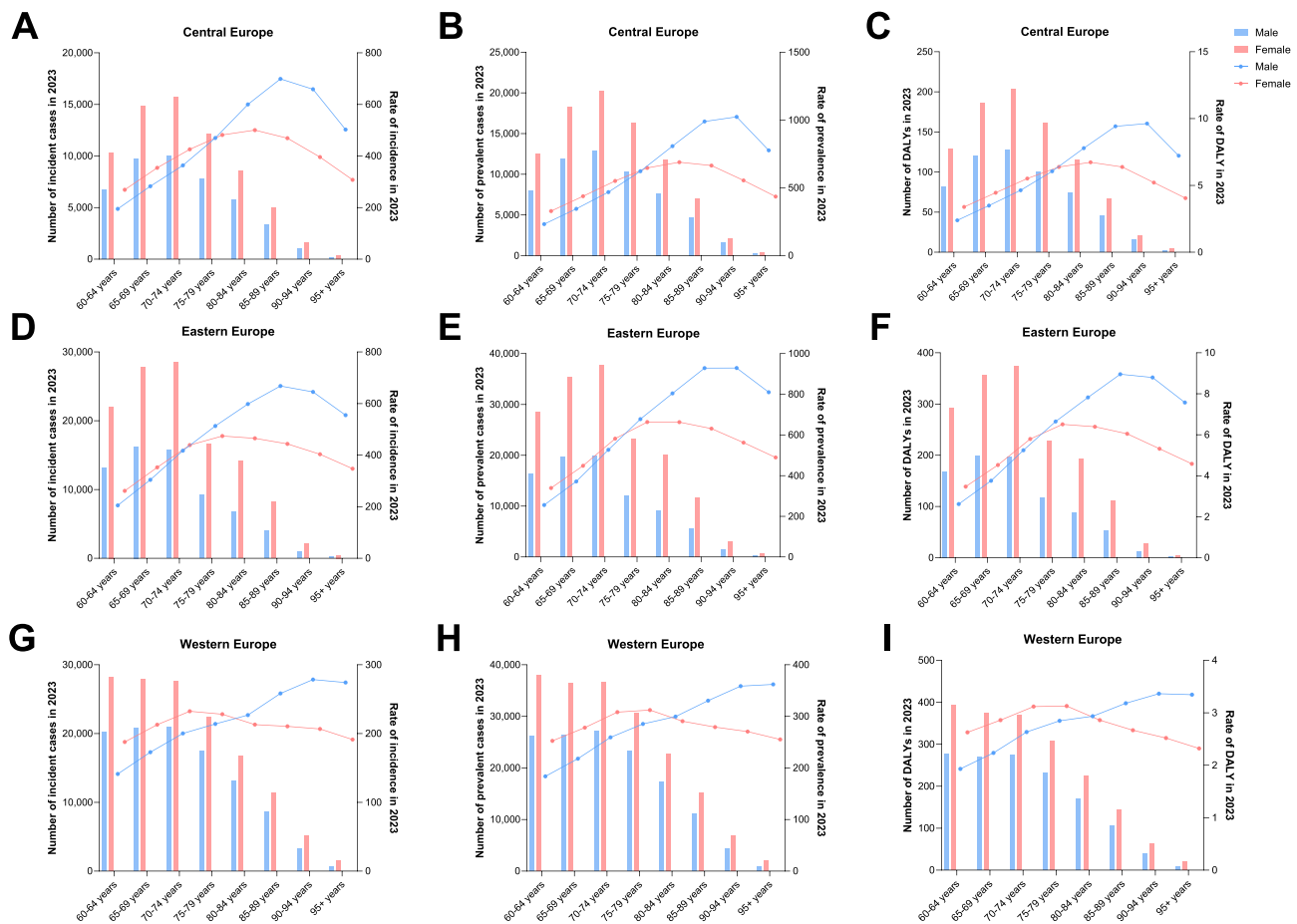


Figure 4 Age-specific counts and rates of pruritus among adults aged over 60 across 5-year age groups in 2023, by European region. (A) Number and rate of incidence in Central Europe. (B) Number and rate of prevalence in Central Europe. (C) Number and rate of DALY in Central Europe. (D) Number and rate of incidence in Eastern Europe. (E) Number and rate of prevalence in Eastern Europe. (F) Number and rate of DALY in Eastern Europe. (G) Number and rate of incidence in Western Europe. (H) Number and rate of prevalence in Western Europe. (I) Number and rate of DALY in Western Europe. **Abbreviation:** DALY, disability-adjusted life year.

From 1990 to 2023, all three European subregions showed sustained increases in the age-standardized incidence, prevalence, and DALY rates of pruritus among adults aged over 60, with the greatest rise in Central Europe. Women consistently exhibited higher burden and earlier peak ages than men, and all indicators followed an inverted-U trajectory with the highest rates in the late-elderly. Projections indicate continued growth in absolute burden to 2050, especially in Western Europe, aligning with demographic aging and rising long-term care demands.¹³

Two key factors underlying the sustained, region-wide rise in age-standardized pruritus metrics among older adults are the aging population structure and the increasing burden of chronic pruritus in advanced age.⁴ As cohorts age, absolute numbers expand while persistent or recurrent symptoms allow prevalence and disability to grow at least as fast as incidence, consistent with our higher or comparable long-term changes in ASPR/ASDR versus ASIR.¹⁴ At the clinical level, age-related skin barrier dysfunction, xerosis, and multimorbidity and polypharmacy in older adults, may lower the itch threshold and prolong disease courses.^{8,15} The earlier peaks observed in women across regions could reflect sex-specific biology, differential comorbidity or treatment patterns, and health-care seeking, although alternative explanations cannot be excluded.¹⁶ The inverted-U shape of age-specific rates, which rises from 60–64 to a late-elderly apex and declining thereafter, may additionally reflect survivor selection and under-ascertainment at the oldest ages.¹⁷ Segment-specific accelerations and slowdowns identified by Joinpoint analysis likely correspond to period effects such as changes in awareness, diagnostic coding, or access to care rather than abrupt shifts in underlying risk.¹⁸

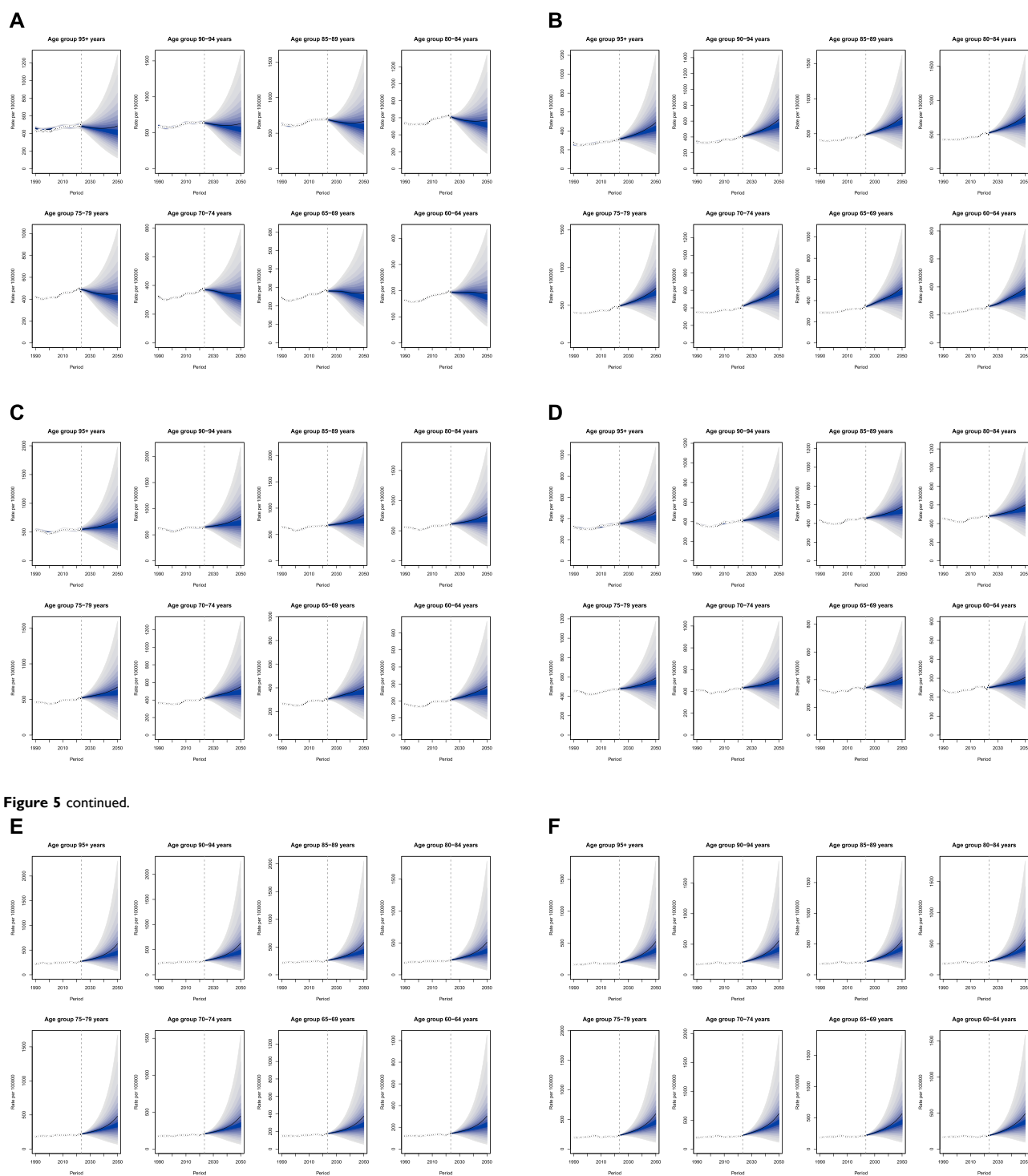


Figure 5 continued.

Figure 5 Projected age-standardized incidence rates of pruritus among adults aged over 60 by age group, 2024–2050, using the Bayesian age–period–cohort model. **(A)** For males in Central Europe. **(B)** For females in Central Europe. **(C)** For males in Eastern Europe. **(D)** For females in Eastern Europe. **(E)** For males in Western Europe. **(F)** For females in Western Europe.

Marked between-region and between-country heterogeneity underlies the aggregate trends we report: Central Europe exhibited the fastest increases in age-standardized rates, Western Europe combined comparatively lower rates with the most enormous absolute numbers, and the country-level ranking in 2023 broadly tracked long-term EAPCs within regions, with Greece standing out as the lowest for both ASPR and ASDR in Western Europe (Figures 3–5). These

patterns are compatible with differences in population size and age structure, helping explain the greater absolute burden in Western Europe despite lower rates, and with variation in health-system capacity, including per-capita spending, primary-care access, dermatology and geriatric workforce, and the coverage and quality of long-term care.^{19,20} In such settings, earlier detection, referral pathways, and adherence to stepwise management may raise recorded prevalence and shift disability trajectories, whereas constrained capacity may suppress ascertainment and delay treatment.²¹ Period effects, such as changes in awareness, diagnostic coding, or care access, could also contribute to the segment-specific accelerations and slowdowns identified by Joinpoint analysis, indicating that observed slopes reflect epidemiology and measurement.^{22,23} Country contrasts in our data (for example, higher positions for Czechia versus lower positions for Albania in Central Europe, or Monaco versus Cyprus within Western Europe) are consistent with this interpretation, pointing to potentially modifiable system factors rather than immutable risk alone. Projections suggest that by 2050, the absolute burden of pruritus will be most substantial in Western Europe, with incident cases reaching 776 thousand. This regional predominance in absolute numbers is primarily attributed to the vast size of its aging population and the anticipated expansion of the “oldest-old” cohorts.¹³ Furthermore, robust health-system capacity in Western Europe facilitates higher rates of detection and clinical coding, which, when combined with the higher prevalence of age-related multimorbidity, results in a significantly larger volume of affected individuals than in other European subregions.^{8,19}

These findings support integrating pruritus assessment and management into routine care for older adults. Practical strategies include incorporating itch screening into geriatric evaluations and long-term care (LTC) intake, prioritizing skin barrier repair and emollient use, and conducting medication reviews to limit drugs that exacerbate pruritus.^{24–26} In parallel, caregiver and patient education (skin care routines, emollient use, avoidance of irritants) and simple patient-reported measures for itch and sleep can be incorporated into follow-up to guide intensification or de-escalation of treatment.^{27,28} At the health system level, care pathways linking primary care with dermatology and teledermatology can facilitate timely referral while optimizing specialist capacity.^{29,30} Given earlier peaks in women and the late-elderly predominance, programs should prioritize the oldest-old and women in resource-constrained settings, and include LTC quality indicators for itch assessment and skin-care provision. Aligning these actions with workforce planning and coverage of core topical therapies can translate rising detection into better outcomes; critically, acting now offers the best chance to bend the projected 2050 burden curves.

The sustained rise in rates and the projected growth in absolute burden by 2050 indicate a narrow window to prevent avoidable disability and service crowding in older adults. It is recommended that health-benefit packages explicitly cover pruritus screening in geriatric and LTC settings, reimburse barrier-repair basics for seniors, and require periodic medication reviews with reducing or substituting pruritogenic drugs when feasible.^{31–33} On the delivery side, region-adapted care pathways that embed routine itch assessment and stepwise management in primary care and LTC, paired with teledermatology triage and time-bound referral targets for severe or refractory cases, can shorten time-to-treatment while preserving specialist capacity.³⁴ To drive improvement, itch assessment and skin-care provision should be incorporated into national LTC quality indicators, with electronic records capturing standardized pruritus codes and patient-reported outcomes (itch intensity and sleep), and annual public reporting by region, age, and sex.³⁵ Equity-oriented investment is warranted for women, the oldest-old, and underserved rural or resource-constrained areas, including community and home-based supports and digital-inclusion measures to ensure access to remote care.³⁶ Finally, targeted funding for implementation research and quasi-experimental evaluations of care bundles, teletriage, and medication-review pathways, together with cross-country benchmarking and cost-effectiveness analyses, can align incentives and sustain scale-up.³⁷ Acting on these levers and aligning them with European healthy-aging strategies offers the best chance to bend the 2050 burden trajectory.

The findings of this study should be interpreted in light of several limitations. GBD estimates reflect modeled data, and pruritus is a symptom with heterogeneous etiologies and severity, which we could not disaggregate.^{38,39} Furthermore, the quality and completeness of primary data inputs for individual countries vary; although GBD 2023 employs advanced statistical adjustments to minimize bias from under-reporting or inconsistent diagnostic coding, these regional differences in data sensitivity should be considered when interpreting our findings. Ascertainment may vary across care settings and age groups, and trends represent fitted slopes rather than causal effects.⁴⁰ Projections assume continuity of past dynamics

and may shift with future coding or service reforms.⁴¹ Therefore, forecasts should be regarded as indicative ranges rather than point predictions. These constraints argue for future work that stratifies pruritus by etiology and severity, with a particular focus on investigating the specific comorbidity factors—such as chronic kidney disease, diabetes mellitus, and neurological disorders—that frequently exacerbate itch in the elderly population. Furthermore, future research should link GBD estimates with country-level clinical/claims data for validation, incorporate patient-reported outcomes (itch intensity, sleep) and quality-of-life measures, and develop scenario-based projections that test policy and treatment diffusion assumptions.

Conclusion

Across Central, Eastern, and Western Europe, the burden of pruritus in adults over 60 years of age has risen steadily since 1990, with consistent increases in incidence, prevalence, and disability and earlier age-specific peaks in women than in men. Country rankings broadly aligned with long-term trends, and projections indicate continued growth in absolute cases to 2050—most significant in Western Europe, substantial in Eastern Europe, and smaller but rising in Central Europe. These patterns are compatible with demographic ageing and persistence of symptoms and, together with observed regional heterogeneity, point to modifiable system factors. Embedding itch assessment and stepwise management in primary care, geriatrics and long-term care, strengthening referral pathways (including tele dermatology), and addressing polypharmacy could mitigate future disability. Acting on these levers within Europe's healthy-ageing agenda offers a credible path to bending the projected burden.

Data Sharing Statement

The data utilized and analyzed in this study can be obtained from the corresponding author.

Ethics Approval and Informed Consent

This study is a secondary analysis of publicly available, anonymized, aggregate-level estimates from the Global Burden of Disease Study 2023 (GBD 2023). No individual-level data, personal identifiers, or patient contact information were accessed; therefore, informed consent was not applicable. According to Article 32 (Items 1 and 2) of the *Measures for Ethical Review of Life Science and Medical Research Involving Human Subjects* issued by the National Health Commission of the People's Republic of China (February 18, 2023), research using legally obtained public data that does not involve identifiable personal information is exempt from institutional ethical review. Therefore, ethics committee approval from our institution was not required for this study. The corresponding author is a GBD Collaborator and is authorized to access GBD results and publish analyses based on these data. This study was conducted in accordance with the GATHER reporting guidelines.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work. Lei Qin and Ziyuan Xu contributed equally to this work and share first authorship.

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Disclosure

The authors have no conflicts of interest to declare for this work.

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