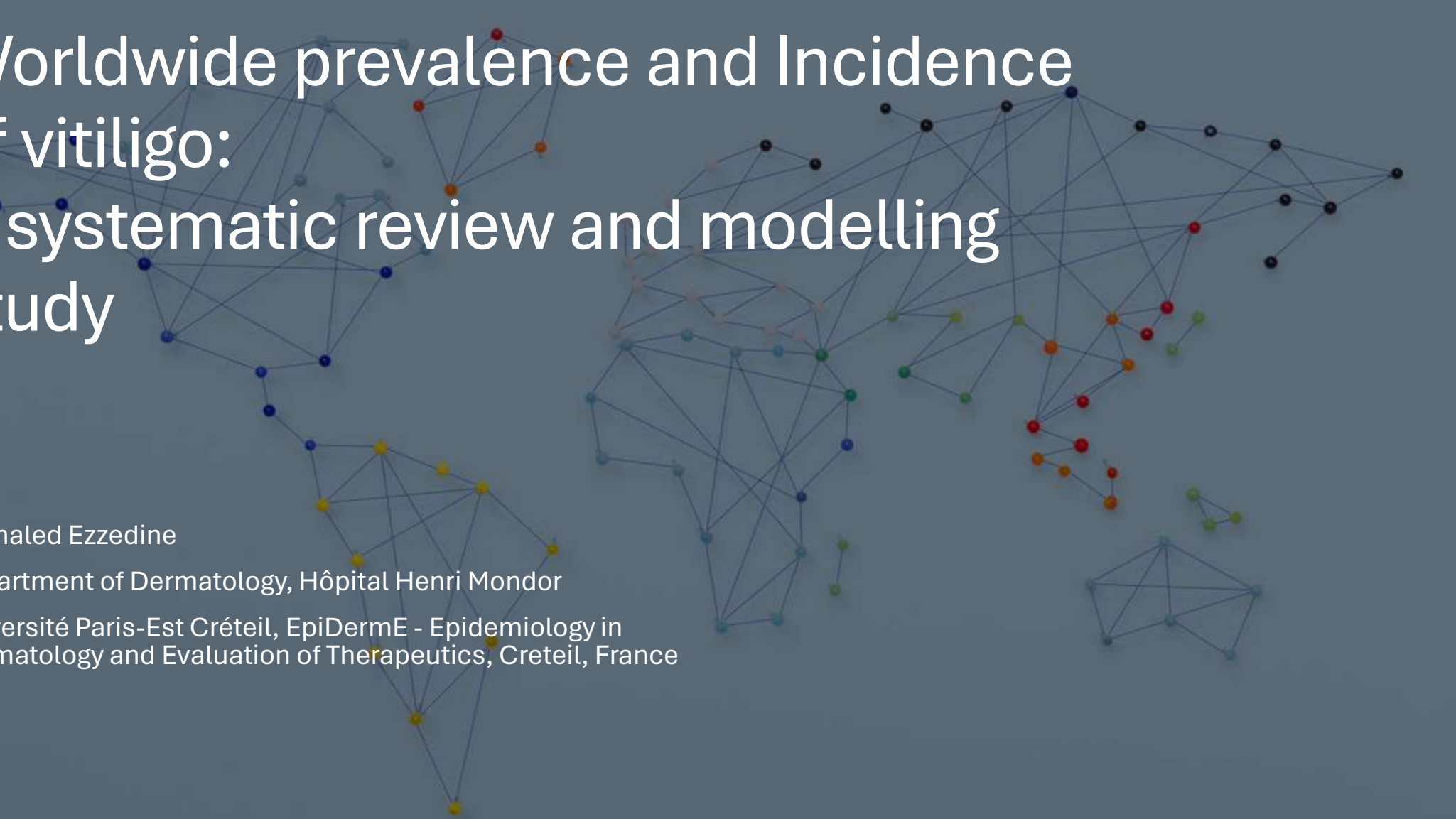

Worldwide prevalence and Incidence of vitiligo: A systematic review and modelling study



Pr Khaled Ezzedine

Department of Dermatology, Hôpital Henri Mondor

Université Paris-Est Créteil, EpiDermE - Epidemiology in
Dermatology and Evaluation of Therapeutics, Creteil, France



The **GLO**bal **V**itiligo **A**tlas (**GLOVA**)





How everything started

- Early 2022 meeting with Dr Venkataharam Mysore, Prof Somesh Gupta (and Dr Iltefat Hamzavi)
- Several meetings to delineate the aims of GLOVA
- Contact with Pr Julien Seneschal (chair of VETF) and Gaone Mattewa (president of VIPOC)
- September 2022, official letter of intent submitted to the ILDS Board & Executive Committee
- December 2022, during the VIS, in-person meeting and approval of the steering committee members
- March 2023, official approval of the project by the ILDS and allocation of a funding to start



Steering committee Members

Pr Khaled EZZEDINE (Project Lead)

Pr Somesh GUPTA

Dr Iltefat HAMZAVI

Ms Gaone MATTEWA

Pr Julien SENESCHAL

Dr Viktoria ELEFTHERIADOU

Pr Jung Min BAE

What is GLOVA

GLOVA is an extensive initiative aiming to promote ongoing progress in understanding vitiligo and revealing its impact on individuals and society as a whole.

This project is a partnership between three prominent global organizations in the field of dermatology: the Vitiligo International Society (VIS), the International League of Dermatological Societies (ILDS), and the Vitiligo Patient Organisation (VIPOC).



What are GLOVA aims

Vitiligo represents a significant public health challenge

Currently, knowledge of vitiligo epidemiology is fragmented into pockets of estimates worldwide without a standardized method for collecting data.

This fragmentation creates challenges to researchers wishing to make comparisons across populations and ultimately to draw conclusions regarding the impact of disease on a global level.

The majority of data collected on vitiligo prevalence and incidence are from European countries, the U.K., Southeastern Asia and the U.S.A.

There is still a demand for a leading, unified, global epidemiological resource on vitiligo epidemiology.

The GLObal Vitiligo Atlas (GLOVA) will assemble a panel of experts in dermatology and epidemiology to present on a variety of topics including temporal trends of vitiligo epidemiology, use of multisource data to determine vitiligo epidemiology



Why GLOVA is important

Epidemiological studies can be used to:

Understand the causes and patterns of vitiligo

Describe quality of life, identify trends in health care

prioritize research needs

quantify the risk of major comorbidities including psychiatric

They can also help investigating the natural history of vitiligo, and identify environmental factors influencing disease onset or flare and its comorbidities.

Together, the information gained from these studies can be positioned to quantify the financial burden to society and ultimately to shape policy decisions.



Initiating research projects in GLOVA

Describe

- Describe the current landmark of vitiligo epidemiology including national, regional and worldwide prevalence and incidence

Establish

- Establish an international registry for vitiligo patients

Quantify

- Quantify the worldwide stigma and difficulties in job and job access of patients with vitiligo and describe the regional differences whenever

Conduct

- Conduct regional prevalence and incidence studies where data are lacking





OPEN ACCESS

[Check for updates](#)

National, regional, and worldwide epidemiology of psoriasis: systematic analysis and modelling study

Rosa Parisi,^{1,2} Ireny Y K Iskandar,¹ Evangelos Kontopantelis,² Matthias Augustin,³ Christopher E M Griffiths,^{4,5} Darren M Ashcroft,^{1,5} on behalf of the Global Psoriasis Atlas

ABSTRACT

OBJECTIVE

To systematically review and provide information on the incidence of psoriasis and quantify global, regional, and country specific estimates of its prevalence.

DESIGN

Systematic review and meta-analysis.

DATA SOURCES

Medline, Embase, Web of Science, SciELO, Korean Journal Databases, Russian Science Citation Index, WPRIM, SaudiMedLit, Informit, IndMed, and HERDIN were searched systematically from their inception dates to October 2019.

0.63% to 3.60%), and high income southern Latin America (1.10%, 0.36% to 2.96%).

CONCLUSIONS

Eighty one per cent of the countries of the world lack information on the epidemiology of psoriasis. The disease occurs more frequently in adults than in children. Psoriasis is unequally distributed across geographical regions; it is more frequent in high income countries and in regions with older populations. The estimates provided can help guide countries and the international community when making public health decisions on the appropriate management of psoriasis and assessing its natural history over time.

SYSTEMATIC REVIEW REGISTRATION

Division of Pharmacy and
Biometry, University of
Manchester, Manchester, UK

Division of Informatics,
Engineering & Data Sciences,
University of Manchester,
Manchester, UK

Institute of Health Care
Research in Dermatology and
Surgery, University Medical
Centre Hamburg-Eppendorf,
Hamburg, Germany

Dermatology Centre, Salford
Local NHS Foundation Trust,
Manchester, UK

Manchester Biomedical
Research Centre, University of
Manchester, Manchester, UK

Estimating the burden of vitiligo: a systematic review and modelling study



Jennifer Akl, Solam Lee*, Hyun Jeong Ju*, Rosa Parisi, Ji Yoon Kim, Jae Joon Jeon, Yeon-Woo Heo, Viktoria Eleftheriadou, Iltefat Hamzavi, Christopher E M Griffiths, Darren M Ashcroft, Venkataram Mysore, Somesh Gupta, Davinder Parsad, Henry Lim, Jung Min Bae*, Khaled Ezzedine*, on behalf of the Global Vitiligo Atlas*



Estimating the burden of vitiligo: a systematic review and modelling study. Akl J, Lee S, Ju HJ, Parisi R, Kim JY, Jeon JJ, Heo YW, Eleftheriadou V, Hamzavi I, Griffiths CEM, Ashcroft DM, Mysore V, Gupta S, Parsad D, Lim H, Bae JM, Ezzedine K; Global Vitiligo Atlas. **Lancet Public Health**. 2024 Mar 26:S2468-2667(24)00026-4.

Background (1)

- Vitiligo is a chronic autoimmune disease
- Burden of vitiligo can be traumatic, especially when it involves the face, hands, and genitals, and particularly among people with dark skin tones
- Substantial emotional and psychosocial burden for patients with vitiligo
- At present, epidemiological data on vitiligo are limited to specific areas globally, and data collection is not standardised
- Integration and estimation of global, regional, and national prevalence and incidence is important with regard to public health responses

Background (2)

- Vitiligo, often under-represented in public health discourse, deserves attention due to its impact on individuals and communities
- Importance of raising awareness about vitiligo and its socio-environmental determinants, and foster informed strategies for health-care professionals and policy makers
- Pivotal for developing targeted interventions, providing effective patient support, and promoting health equity
- With comprehensive epidemiological data, we can understand the extent of vitiligo across various populations and regions, allowing health policies to allocate resources and plans to ensure the patients in high prevalence areas can receive adequate support
- Finally, understanding the global impact of the disease can elevate public awareness and drive policy changes and funding priorities, both at national and international levels

Aims

- Estimate the prevalence and incidence of vitiligo across diverse populations through a systematic review and modelling study
- We present modelled estimates of prevalence at the global, regional, and national levels, for the overall general population, and in adults and children
- Provide a descriptive summary of incidence rates if possible

Methods (1)

- Systematic review, PRISMA and GATHER guidelines
- Systematic search to identify relevant studies reporting the prevalence or incidence rates of vitiligo.
- Nine electronic databases (PubMed, Embase, Web of Science, Scientific Electronic Library Online, KCI Korean Journal Database, Russian Science Citation Index, Western Pacific Region Index Medicus, Informit, and Health Research and Development Information Network) from inception until May 25, 2023.
- The search terms used were: “vitiligo”, “prevalence”, “epidemiology”, “incidence”, and “population-based study”
- No language restriction was applied, articles in foreign languages were translated and study authors were contacted by email when information was unclear

Methods (2)



Two independent reviewers screened titles and abstracts



Studies included if they reported the prevalence or incidence rate of vitiligo or data from which incidence rate or prevalence could be calculated in a representative population of a country or area of a country from cross-sectional or cohort studies.



Studies regarding other diseases but reporting epidemiological data on vitiligo were also included.

Methods (3)

Exclusion criteria

- Non-human studies
- Studies in populations other than the general population (ie, population from dermatology clinics or specific subgroups)
- Studies that did not provide sufficient information to calculate prevalence or incidence rate.
- Trial registries and unpublished studies were not included.
- Summary estimates were extracted.

Methods (4)

Data extraction and quality assessment

The following information was extracted from each included study:

- Study characteristics (author, year, country)
- Study design
- Population characteristics (age, sex, ethnicity)
- Sample size (when available)
- Method of diagnosis (physician, dermatologist, or self-reported)
- Prevalence or incidence rate of vitiligo (or both; as the number of vitiligo cases, total population, and person-time data, when available),
- And any relevant additional findings

Methods (5)

Data extraction and quality assessment

- All included studies were assessed for risk of bias with the Appraisal tool for Cross-Sectional Studies (AXIS)
- Studies were classified as having high, medium, or low risk of bias or unclear (if there was insufficient information) according to the overall quality of the study design, methods, and reporting of the results

Methods (6)

Data analysis

- Main outcome was to estimate worldwide, regional, and national lifetime prevalence of vitiligo diagnosed by physicians or dermatologists among the general population.
- A preplanned secondary outcome was to estimate self-reported lifetime prevalence.
- Incidence rates per 100 000 person-years
- Incidence rate and 95% CI directly extracted from the primary source.
- Results presented by country, age group (children, adults, or all ages), and sex (male and female)

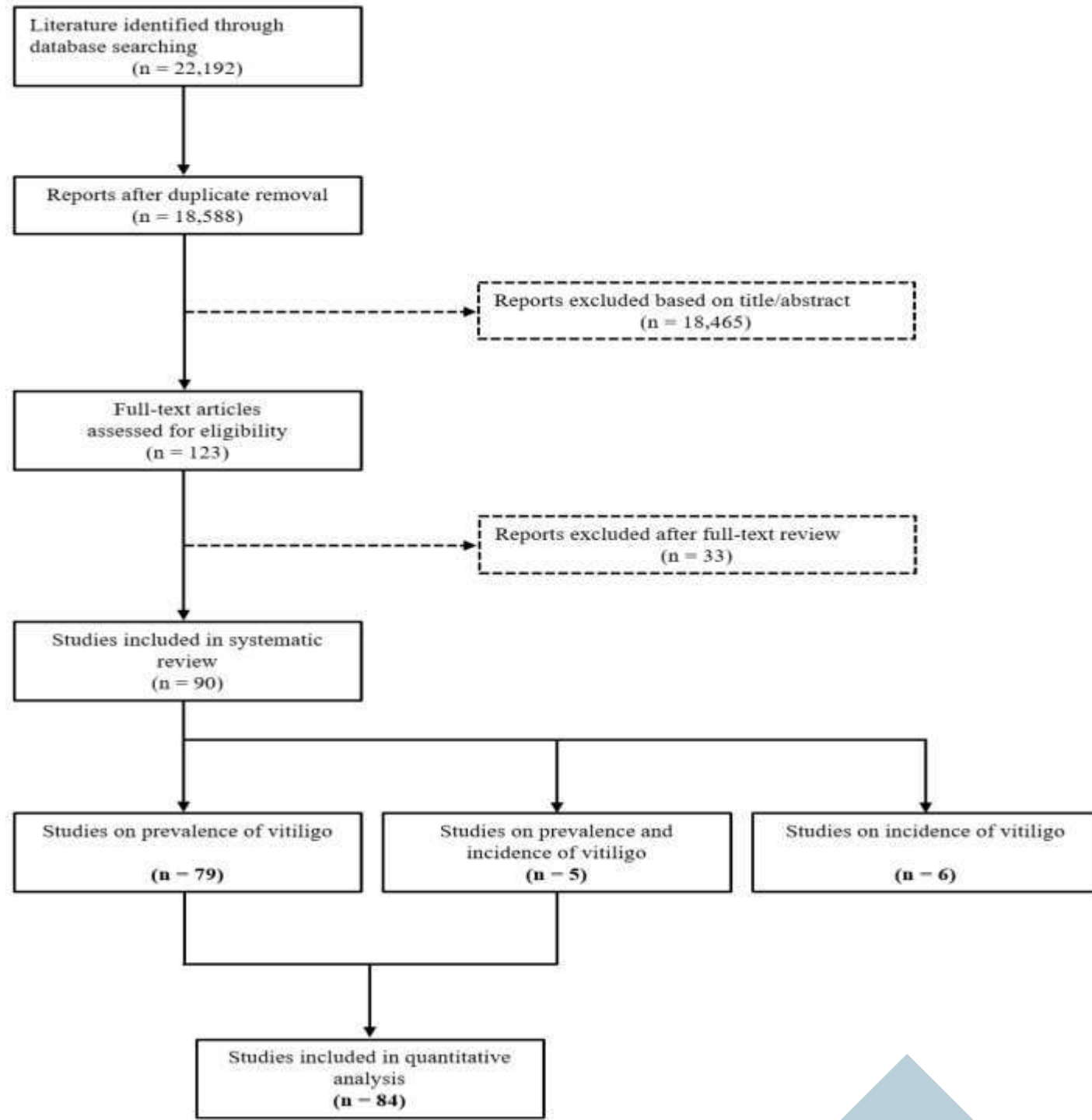
Methods (7)

Data analysis

- Bayesian hierarchical linear mixed model to calculate global, regional, and national prevalence of vitiligo
- Estimates of vitiligo prevalence were informed by study data from the same country, if available, as well as study data from other countries
- Outcome variable used in the model was the log-transformed prevalence of vitiligo.
- We categorised countries on the basis of the Global Burden of Disease classification: a total of 189 countries were nested within 21 regions, and these regions were further nested within seven super-regions
- Hierarchical model consisted of four levels (global, super-regions, regions, and countries) with four random intercepts and three fixed covariates: age strata, diagnostic method, and type of prevalence measure.

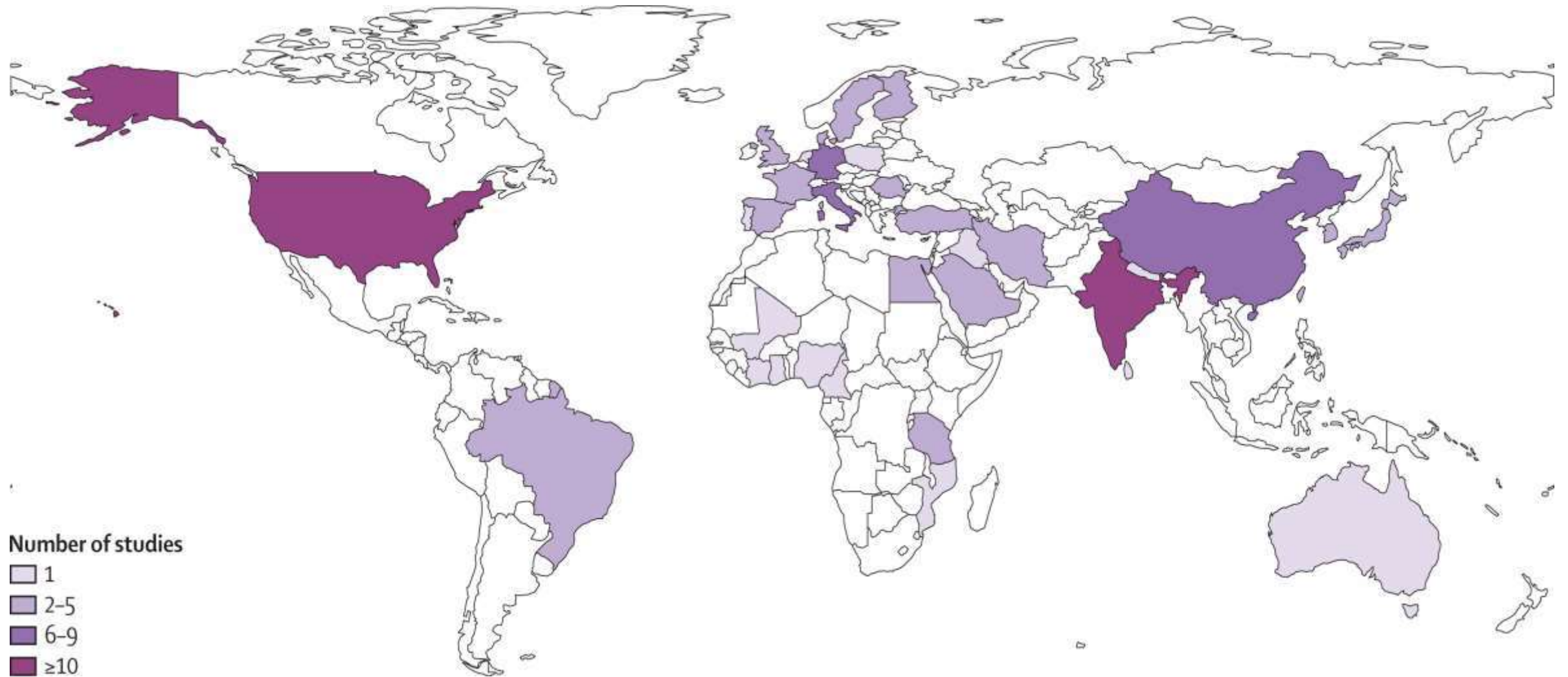
Results (1)

- 22 192 records
- 123 full-text articles critically appraised and assessed to establish their eligibility.
- Of these papers, 90 reported on the incidence rate or prevalence of vitiligo in the general population, or provided data from which incidence rate or prevalence could be calculated
- 6 studies focused on the incidence of vitiligo
- 79 studies reported on the prevalence of vitiligo
- 5 studies provided data on both incidence and prevalence
- Data are sparse in some regions, and data were absent in several countries and regions, for which we used the estimates of the regions or super-regions they were nested in, which requires caution in interpretation of the results



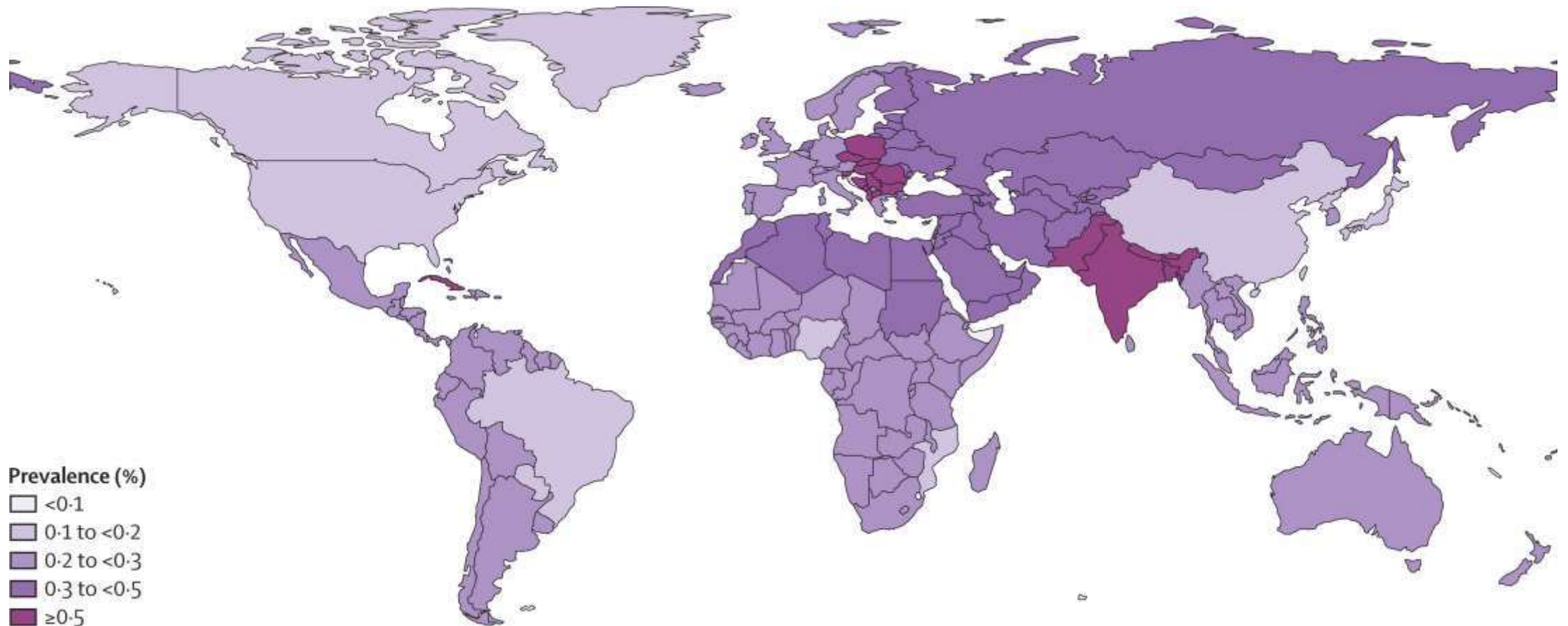
Results (2)

Distribution of studies included in the analysis of vitiligo prevalence

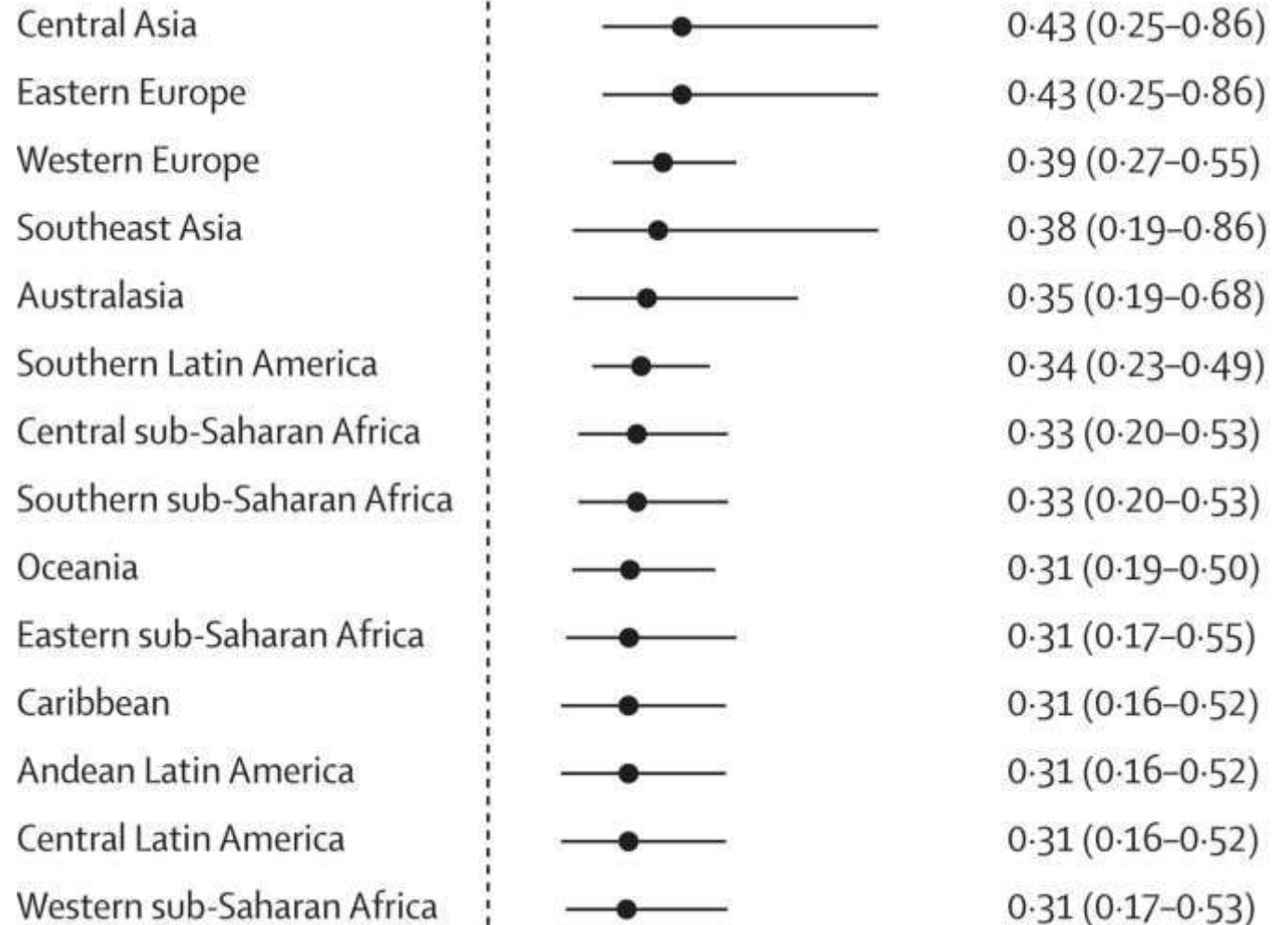


Results (3)

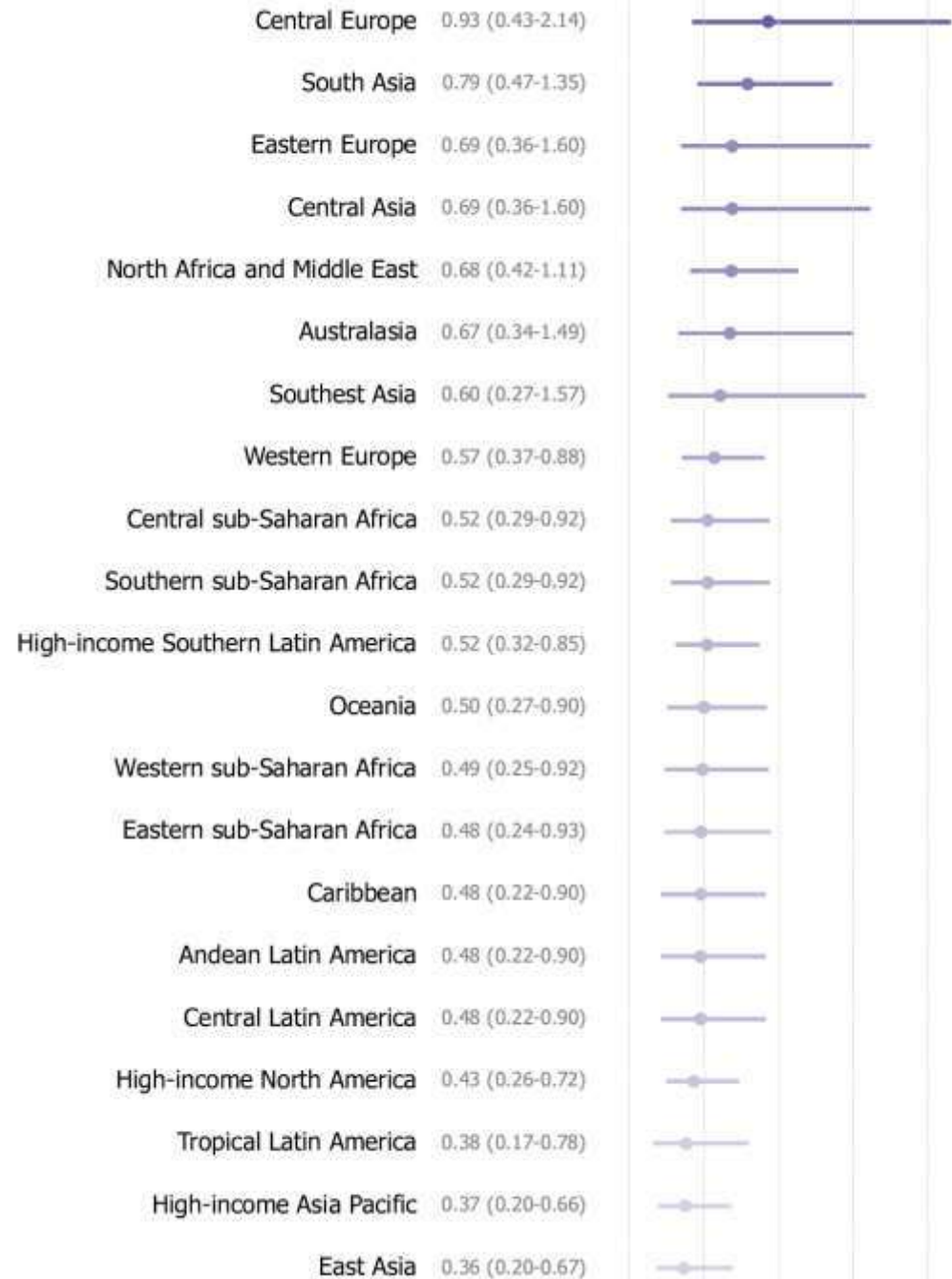
Physician-diagnosed or dermatologist-diagnosed lifetime prevalence of vitiligo for the general population (all ages), by world region



Results (4) Physician-diagnosed or dermatologist-diagnosed lifetime prevalence of vitiligo for the general population (all ages), by world region



Results (5) Physician-diagnosed or dermatologist-diagnosed lifetime prevalence of vitiligo for adults, by world region



Results (6) Physician-diagnosed or dermatologist-diagnosed lifetime prevalence of vitiligo for children, by world region



Discussion (1)

Comprehensive up-to-date evaluation of the global prevalence and incidence of vitiligo

Overall global lifetime prevalence of vitiligo 0.36% (95% CrI 0.24–0.54), affecting an estimated 28.5 million people (95% CrI 18.9–42.6) worldwide

Self-reported lifetime prevalence of 0.55% (0.33–0.92), 43.6 million people (26.2–73.0)

Many patients with vitiligo might be unable or unwilling to seek management or are not being diagnosed properly

Highest lifetime prevalence in central Europe and South-Asia

Similar prevalence between males and females.

Discussion (2)

Central to our investigation, is the inadequate representation of individuals with darker skin tones in research on vitiligo

Historically, studies on vitiligo have predominantly included people with lighter skin of northern European ethnicities

This bias could result in a limited understanding of the distinct requirements and difficulties encountered by individuals with darker skin who are affected by vitiligo.

Discussion (3)

Central European region have a higher prevalence compared with other countries and regions.

Several factors could explain this observed pattern.

The disparity might arise from the health-care systems, increased awareness of the disease, and easier access to health-care systems in high-income countries (HICs) compared with low-income and middle-income countries (LMICs).

Furthermore, the ratio of dermatologists to patients is high in European countries

Meanwhile, vitiligo is often not tracked by registries and the ratio of dermatologists to patients is lower in LMICs than in HICs, which might lead to underestimation of vitiligo prevalence.

Discussion (4)

High overall prevalence also in south Asia, which comprises India, Bangladesh, Nepal, Pakistan, and Bhutan

One possible reason is that vitiligo is more visible in individuals with dark skin tone

In India, variation might be attributable to pollution and chemical exposure which explains high prevalence in Gujarat, an industrially-intensive state in India.



Discussion (5)

Furthermore, stigmatisation remains in this region, negatively impacting on patients' quality of life.

In India, derogatory terms contribute to social stigma, originating from misconceptions linking vitiligo to leprosy, beliefs around hereditary transmission, limited education, and deep-rooted superstitions

Stigma leads to exclusion, impacting marriage prospects and causing abuse, job loss, and career impediments

Additionally, stigma may delay diagnosis, leading to missed treatment opportunities

Implications of all the available evidence (1)

Estimation of global, regional, and national prevalence and incidence is important to develop adequate public health policies.

Data allow understanding the extent of vitiligo across various populations and regions, allowing health policy makers to allocate resources and initiate plans to ensure that individuals in high prevalence areas can receive adequate support.

Knowledge is also pivotal for developing targeted interventions, providing effective patient support, and promoting health equity.

Implications of all the available evidence (2)

Moreover, tracking the global prevalence and incidence of vitiligo provides

- Valuable insights into disease pathogenesis
- Might aid the implementation of preventive measures, particularly in regard to environmental interventions.
- Finally, understanding the global impact of a disease elevates public awareness and can drive policy changes and funding priorities, both at national and international levels

Conclusion

Clear imperative to enhance the quality and quantity of data regarding the epidemiology of vitiligo to allow better resource provision.

Improving our understanding of the epidemiology of vitiligo is crucial for the effective allocation of resources towards reducing morbidity, disability, and stigmatisation associated with the disease

Increased research will also support efforts that are being made to improve awareness, diagnosis, and treatment options for vitiligo in individuals of all skin types

A stack of five light-colored wooden blocks is arranged to spell out the phrase "THANK YOU FOR YOUR ATTENTION". The blocks are stacked in a slightly offset manner, with each block resting on the one below it. The background is a blurred indoor setting with warm lighting and some out-of-focus lights.

THANK

YOU

FOR

YOUR

ATTENTION