

Longitudinal Research on Educational Inequalities in Europe

A Scoping Review of Trends, Gaps, and Methodological Approaches

Educational Inequalities in a Changing Europe
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Educational Inequalities

SES



Ethnicity



Gender



Geography



Unequal distribution of educational resources, opportunities, and outcomes (OECD, 2013).

What are the specific pathways by which these factors shape educational inequalities?

Investigating Inequalities Through Longitudinal Evidence

Emergence



Widening



Compensation



Persistence



Longitudinal designs can explain when, how, and for whom disparities develop.

Research Gaps

**Cross-
sectional**



Sirin, 2005; White, 1982

**Single-
dimension**



Collins, 2015; Crenshaw, 1989

**Academic
focus**



Borghans et al., 2008; Chetty, 2008; Guo et al., 2023; Lechner et al., 2019

**Europe
overlooked**



Liu et al., 2020; Sirin, 2005; Stone et al., 2020

Most research syntheses on educational inequality rely on cross-sectional data — limiting our understanding of when and how disparities emerge, persist, or can be addressed.

Research Questions

Scoping review of **quantitative longitudinal studies** on educational inequalities (SES, migration background, gender, geography) among **K–12 students in Europe** (1986–2024).

01

RQ1: What are the substantive and methodological characteristics of studies examining educational inequality using longitudinal data?

02

RQ2: What types of interventions have been examined, and what evidence exists regarding their effectiveness?

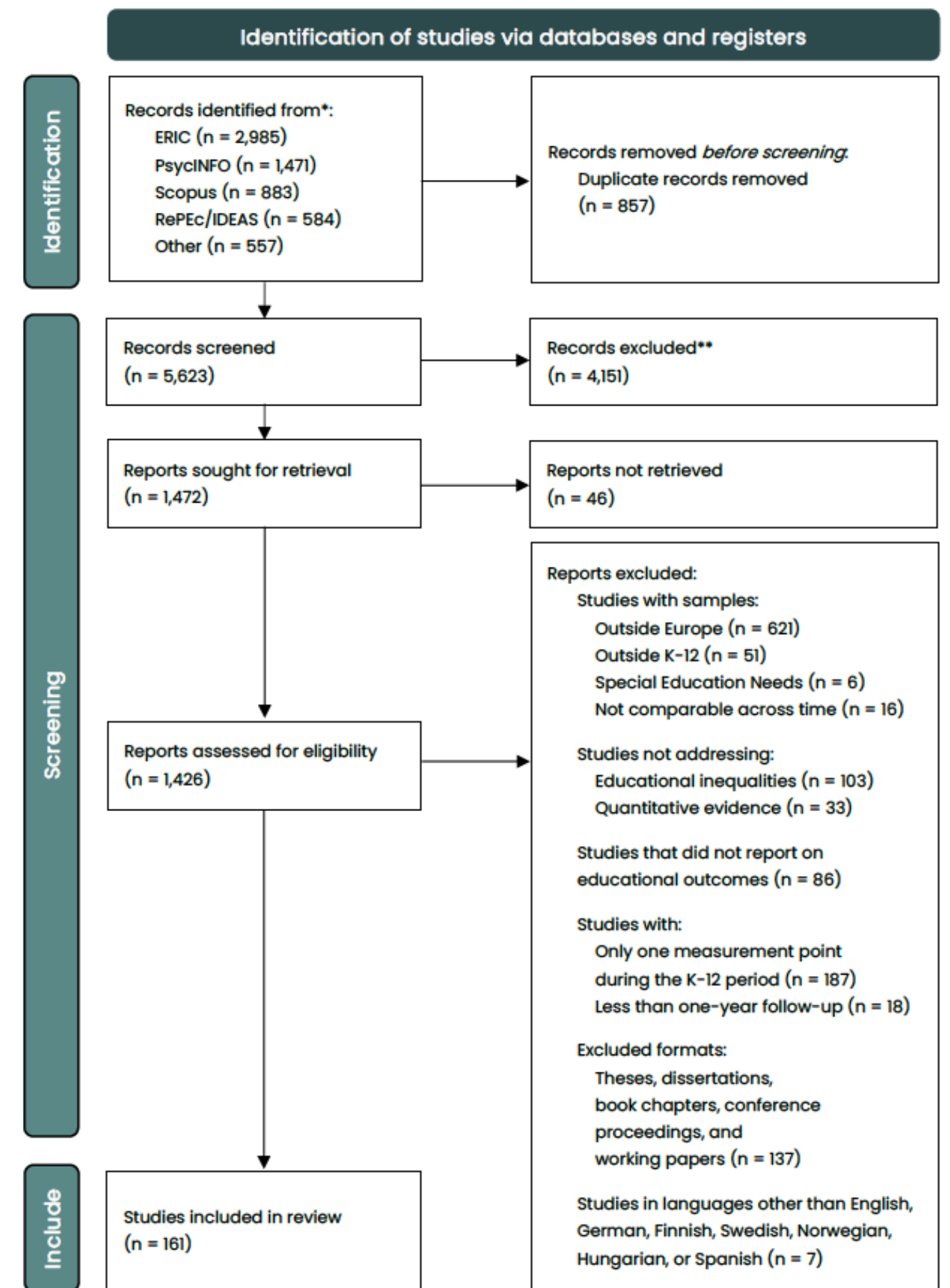
03

RQ3: What thematic patterns and research clusters can be identified in the existing literature?



Methods: Search, Selection & Extraction

- Search & Screening:
 - 4 databases: ERIC, PsycINFO, Scopus, RePEC/IDEAS (6,480 records; 5,623 unique)
 - Title/abstract screening → full-text → 161 included studies (1986–2024)
 - Key inclusion criteria: K–12 European samples, longitudinal design (≥ 2 time points, ≥ 1 school year), quantitative outcomes in academic achievement, socio-emotional skills, or educational attainment
- Inter-rater reliability: $ICC(2,k) = 0.93\text{--}0.94$ across both screening stages.



Adapted from Moher et al., (2009)

Arksey & O'Malley, 2005; Tricco et al., 2018

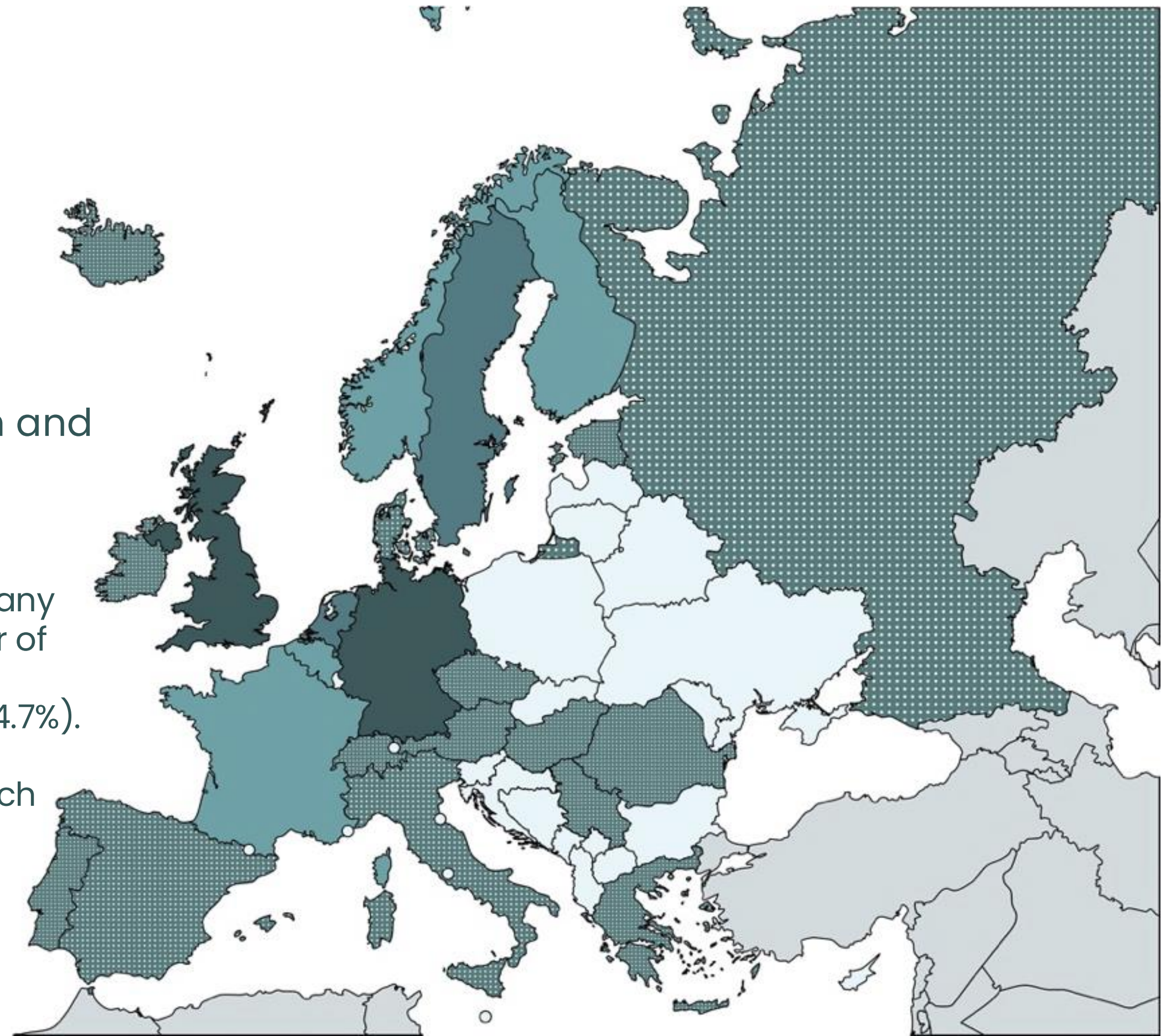
Results



Results

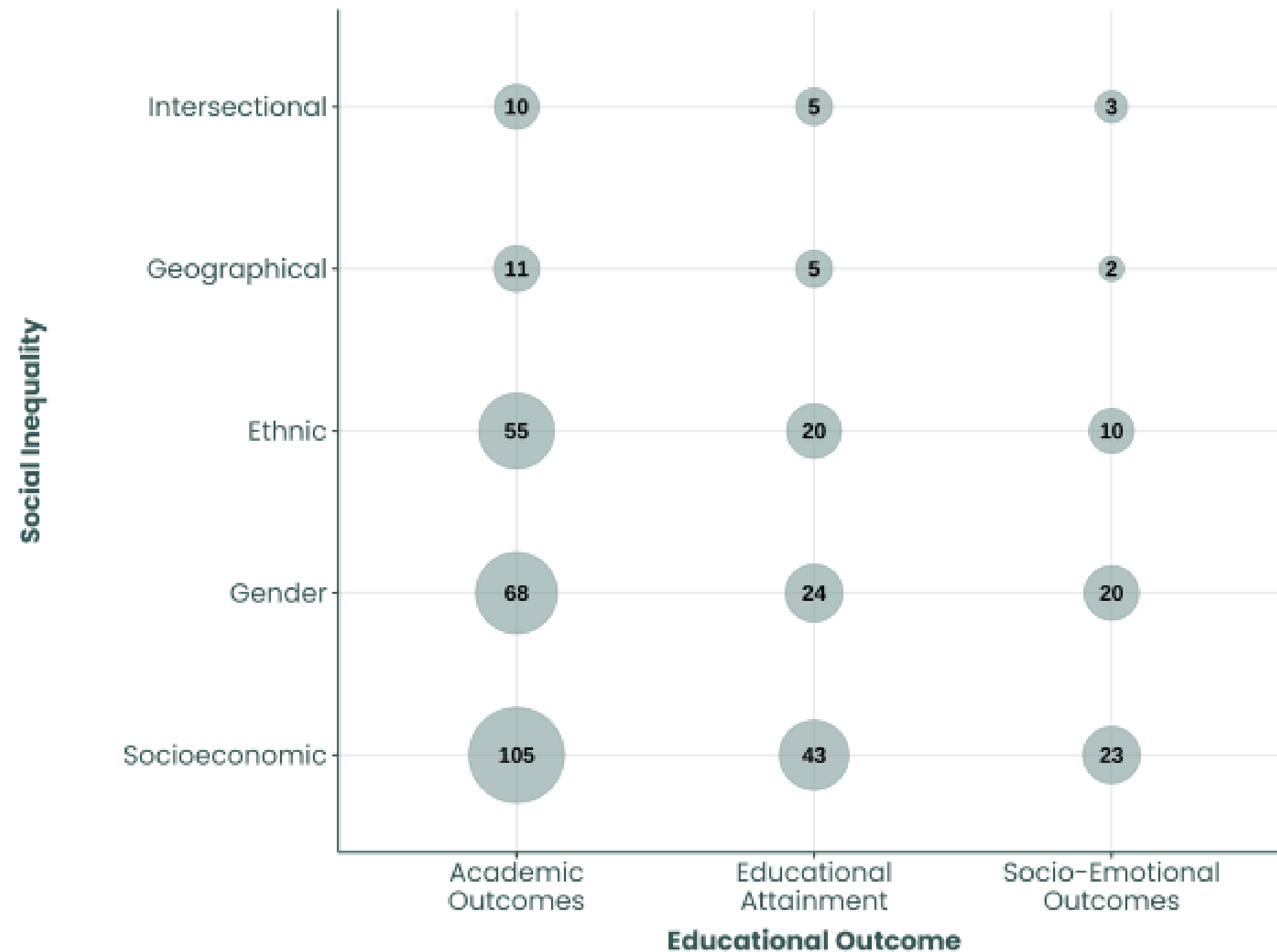
Geographic Imbalance

- 85% of studies were conducted in Western and Northern Europe, with limited data from Eastern and Southern Europe.
- The United Kingdom (n = 49, 26.3%) and Germany (n = 39; 20.5%) contributed the largest number of studies, followed by Sweden (n = 14; 7.4%), the Netherlands (n = 11; 5.8%), and Norway (n = 9; 4.7%).
- Small number of studies conducted in the Czech Republic (n = 4; 2.1%), Romania (n = 1; 0.5%), Hungary (n = 1; 0.5%), and Serbia (n = 1; 0.5%).



Created with mapchart.net

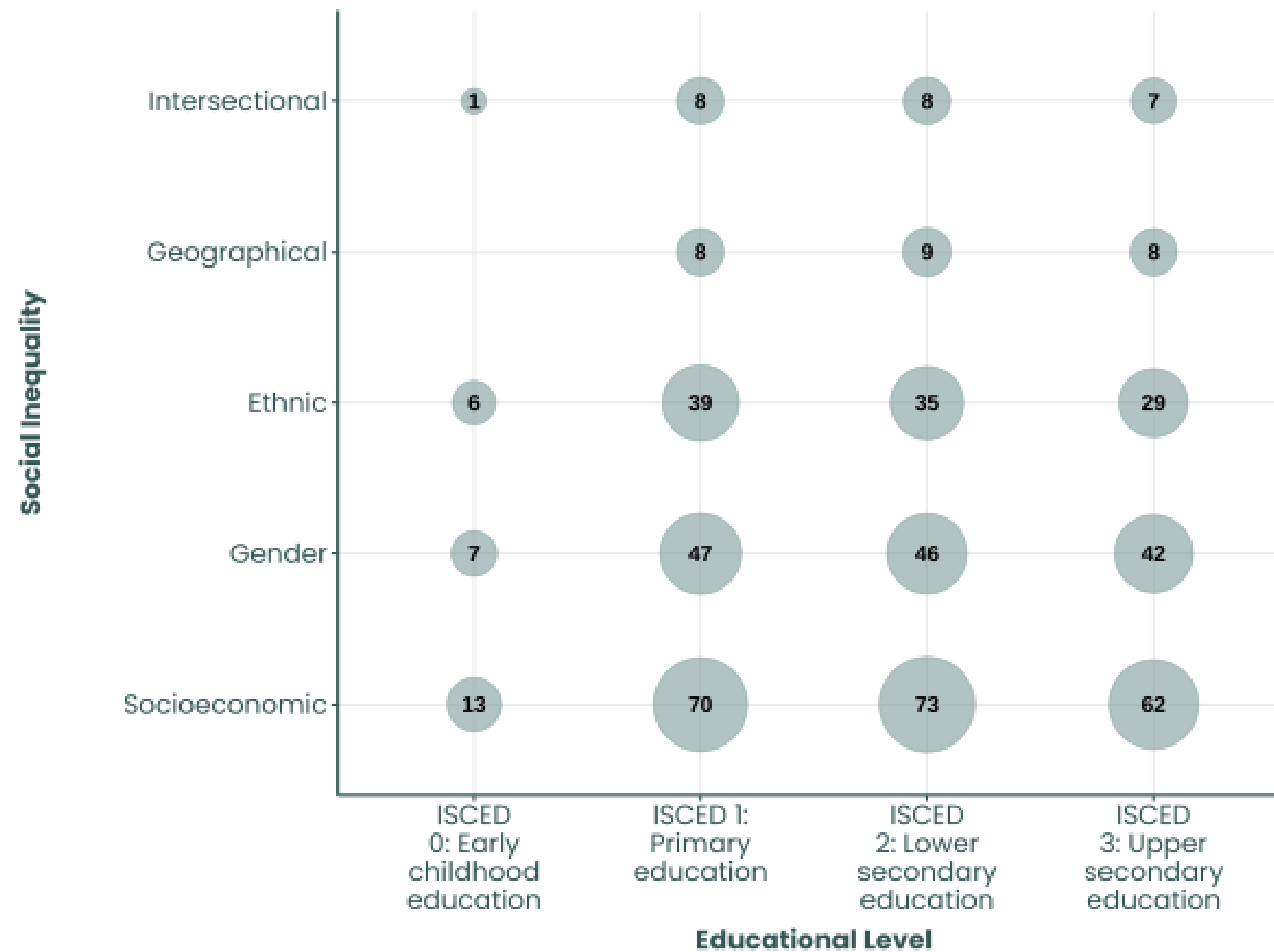
Results



**SES (n = 124; 42.9 %);
gender (n = 80; 27.7 %)
and intersectionality rare
(n = 60; 20.8 %)**

**Academic achievement
dominates (n = 137; 61.4 %);
socio-emotional outcomes
underrepresented (n = 34;
15.2 %)**

Results



ISCED 2 dominates (n = 99; 34.8 %); early childhood (ISCED 0) only 5.3% of evidence (n = 16)

Results

Only 14 intervention studies (5.9%) — a critical evidence gap

- **71%** evaluated system-level policy reforms; **29%** operated at the school or classroom level
- **64%** targeted SES-based gaps; 7% gender; 29% broader or intersecting groups

Three illustrative examples:

- **Success for All** literacy programme (Miller et al., 2017): +2 months reading gain for FSM-eligible pupils
- **1:1 / small-group tutoring** (Cullinane et al., 2023): +0.16 GCSE grade in English and Maths
- **Pupil Premium** in England (Gorard et al., 2022): moderate reduction in segregation and attainment gap

43% of studies report larger gains for disadvantaged students

Four Thematic Clusters in the Literature

Psychological



n = 23

Motivation, emotions, self-regulation
e.g., Köller et al. (2001)

Mechanisms



n = 46

Resource transmission, digital divide
e.g., Camerini et al. (2018)

Developmental



n = 45

Gap emergence, cumulative disadvantage
e.g., von Stumm (2017)

Structural



n = 47

Tracking, school choice, system reforms
e.g., Lahtinen et al. (2024)

Structural and Developmental clusters dominate; the Psychological cluster is the smallest.

Emotional and motivational mechanisms of inequality remain underexplored longitudinally.

CONCLUSIONS

01 Expand early childhood and intersectional research

Longitudinal evidence before ISCED 1 is sparse (6%). Studies examining how SES, migration, gender, and geography intersect remain scarce (4%).

02 Broaden outcomes beyond academic achievement

Socio-emotional skills are underrepresented (15% of outcomes) despite strong evidence linking them to long-term life outcomes.

03 Invest in rigorous intervention evaluation

Only 14 longitudinal intervention studies identified. Most report small-to-moderate effects; nearly half show larger benefits for disadvantaged students — a strong argument for equity-targeted approaches.

04 Strengthen cross-national data infrastructures

Eastern and Southern Europe are severely underrepresented (15% of studies). Repeated international assessments (TIMSS, PIRLS) offer underused potential for macro-longitudinal comparisons.





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Methodology: Inclusion/Exclusion Criteria

Selection of relevant studies

Table 1
Inclusion and exclusion criteria.

Dimension	Inclusion	Exclusion
Population	The study sample includes the same or at least comparable subjects or cases from one period to the next.	- University students or early childhood are the primary study samples. - The primary study sample is composed of students with special educational needs. - Study focuses on populations outside Europe. - Study reports contain only a qualitative description of the effects related to educational inequalities.
Comparator / Context	- The abstract indicates the study analyzes quantitative data related to SES, gender, ethnicity, or geographic location. - The study includes SES, gender, ethnicity, or geographic location in the analytic models. - The study explicitly focuses on social (in)equality issues and/or reports information comparing socially advantaged and socially disadvantaged groups (e.g., Low-SES and High-SES, Boys and Girls, Urban and Rural, Minority and Non-minority students) OR includes a comparison between the group of interest and the general student population.	
Outcomes	The study outcomes are academic competence, socio-emotional skills, or educational attainment.	The study only reports on constructs that cannot be classified as achievement, socio-emotional skills, or educational attainment, such as labor economic outcomes (e.g., wage levels, employment rates) or health outcomes.
Study Characteristics	- The abstract indicates that the study analyses longitudinal quantitative data. - The study has a longitudinal design with at least two measurement timepoints (at the individual or the system level). - The study contains at least two measurement points of students in kindergarten through grade 12. - The time between the first and last measurement time point is at least one school year.	
Other	The study report is written in English, German, Finnish, Swedish, Norwegian, Hungarian, or Spanish.	- Thesis, dissertations, working papers, book chapters, and conference proceedings. - The study is a review article, systematic review, meta-analysis, or any other type of article that synthesizes data originally reported in other studies.

Results

Table 2

Distribution of studies by study design, data collection methods, and sampling designs.

Methodological characteristics	<i>n</i>	%
Study Design		
Panel / Repeated Measures Design	100	56.2
Cohort-sequential design	24	13.5
Trend studies	22	12.3
Retrospective Designs	11	6.2
Cross-sequential design	8	4.5
Time-sequential design	5	2.8
Time-Series Designs	0	0
Other	8	4.5
Data Collection		
Surveys/Questionnaires	109	25.7
Standardized Tests/Assessments	82	19.4
Administrative Records	76	18
Test Scores from National/State Exams	47	11.1
Secondary Data Analysis	27	6.4
School Reports/Teacher Evaluations	25	5.9
Parental Reports	21	5
Interviews	14	3.3
Psychometric Tests	13	3.1
Not reported	3	0.71
Other	2	0.47
Peer/Social Network Analysis	2	0.47
Log Data/Digital Tracking	1	0.24
Observational Methods	1	0.24
Sampling Design		
Two-stage Cluster Sampling	41	25.6
Not reported	33	20.6
Whole population	28	17.5
Stratified random sampling	21	13.1
Other	13	8.1
Convenience Sampling	9	5.6
Volunteer Sampling	7	4.4
Simple random sampling	6	3.7
One-Stage Cluster Sampling	2	1.2